Satellite Session for the Conference on Complex Systems 2016

Title:

Law and Complexity

Satellite organizers:

Marion Dumas SFI, USA
Aernout Schmidt, Leiden University, the Netherlands

Objectives & Scope of Coverage

The objectives of this satellite session are two-fold. First, we intend to establish the first step of a more vigorous scientific exchange between complex systems theorists, social scientists and legal theorists around the question of what is law, its various societal functions and how it evolves. This entails bringing together complexity scholars, legal scholars and scholars who are able to bridge the divide between these two communities, and start establishing a few common ideas and shared language. In this satellite session, we will lay the first bricks of such a foundation in order to enable future collaboration. Second, we intend to consider the relevance of the issues that lie at the intersection of complexity science and law to some of the most urgent governance problems of modern societies. The themes we have in mind include maintaining political stability in the face of large demographic and cultural shifts, such as those currently happening in Europe, managing human-environment systems and managing individual rights and collective goals in the information age. All of these problems involve developing laws and methods of legal decision-making that robustly manage complex systems, which are inherently hard to predict. We intend to engage with the question of how law can more directly take into account the complexity of the systems managed and the open-endedness of the policy problems we are faced with.

To these ends, we hope to hold a 1-day satellite session. We will invite speakers spanning the fields of complex systems, law, computational social science, biology, economics and political science. We intend to devote the morning to the theme of *Law as a Complex System,* exploring the questions of what are the fundamental elements of a legal system, how they order social dynamics and the mechanics of legal systems – specifically how they are maintained and changed. We then intend to devote the afternoon to *Law*

for Complex Systems, with presentations on the law's contributions to 'political' stability (in human and non-human communities), to environmental governance and to the governance of personal information and of intellectual property.

Abstract

This satellite session helps establish a dialogue between complex systems scientists and legal scholars. How do the methods and the fundamental principles of complexity science help shed light on the dynamics and functions of law? How do legal theories and the content of laws help us understand how structure and regularity emerge in complex systems? These questions are of central scientific importance for the study of social systems. They are also of great importance today, as several crises – such as the ecological crisis – as well as large economic shifts – such as the rise of the information economy – require new legal thinking.

This satellite session aims to build the foundations for collaboration between complex systems, law, computational social science, economics and political science to address these questions. Morning sessions will address fundamental questions about the basic elements of a legal system and of laws, the mechanisms by which these elements structure societal interactions, and the parallels that exist between the role of laws in society and the role of information in biology. Afternoon sessions will address governance problems from the angle of law and complexity.

Morning Session (8.30-12.30): Law as a Complex System

Keynote speaker (8.30-9.00): Gillian Hadfield, University of Southern California, USA

Title: **What is Law?**

Session 1 (9.00-10.30): *What is Law and how does it structure societal interactions?*

We will seek papers that provide theory on the basic elements of legal systems and laws while opening up interdisciplinary perspectives on how those basic elements structure social interactions and create common expectations and a shared culture between individuals at the societal scale. Aside from legal scholars and modelers, we welcome inputs from behavioral ecology and related fields having studied legal order in other species, parallels with the creation of order in biological systems, inputs from cognitive scientists or psychologists, as well as historians, and political scientists.

Session 2 (10.45-11.45): *What are the mechanisms by which legal systems maintain themselves and evolve?*

Just as biological systems, legal systems have to ensure some degree of continuity while adapting to environmental change. Additionally, key actors in the legal system (judges and enforcers) need to maintain the support of other members of society for the authority they wield. What are key mechanisms by which laws remain sufficiently predictable, relevant and legitimate? At what pace do legal systems evolve? We will seek both empirical and theoretical contributions.

(11.45-12.30): *Roundtable on the morning session*

Afternoon Session: Law for Complex Systems (13.30-17.30)

Keynote speaker (13.30-14.00): Scott Page, University of Michigan, USA
Title: **Maintaining rigor in pluralistic research teams**

For the afternoon session we look through a variety of disciplinary lenses at the efficacies of law, in a complex world. Under what conditions can law help adapt political systems to societal changes and thereby maintain political stability? We consider two tracks and invite contributions on (1) the role of law scholarship and on (2) new mechanisms for legal institutions.

Session 1 (14.00-15.00): *The role of law scholarship in maintaining political stability in the face of rapid societal changes*

For example, the EU is currently facing combined risks from financial instability, terrorism and large population movements. These risks will pull at the Union's coherence from different directions. Yet, some large polities such as China have (at least on the face of it) maintained legal system stability for centuries in the face of even larger social change. Apparently, laws can be instrumental both for helping peaceful transitions to democratic regimes, as seems to have been the case in South Africa *and* for the opposite (as Myerson's mechanism-design analysis of the Weimar disaster suggests). These examples reiterate the urgency of old questions. What are the characteristics of sustainable laws that facilitate peaceful political adaptation to social change and prevent tendencies towards fracture and conflict?

Session 2 (15.15-16.15): *What new approaches to law could improve the governance of environmental systems and information/innovation systems?*

Under what circumstances do traditional regulatory frameworks – with bright-line rules, narrow solutions and responsibilities – work well ? When do they fail to organize social behavior in such a way as to ensure the robustness of key functions of systems, such as ecosystems or information and innovation systems? Do laws encourage enough experimentation and learning? Are laws flexible enough to match the scale at which behavior is coordinated to the scale at which the problem occurs? Do some laws

encourage efficiency at the expense of robustness? In this session, we are interested in analyses of law's ability to meet the challenges of managing specific complex adaptive systems of policy relevance.

(16.15-17.00): *Roundtable on the afternoon session*

Expected number of presentations, peer review

We expect 4 presentations in the morning and 4 presentations in the afternoon. Each presentation will be 25 minutes, with 5 minutes of questions.

Concerning the time frame: the call for contribution abstracts and the review will follow the main conference's lead. Contributions are reviewed and selected by a team from four different disciplinary cultures: *e.g.*, law (Schmidt), political science (Dumas), economics (Dolfsma) and science(DeDeo). Coordination is with the organizers.

Benefits to participants

For legal scholars, this interdisciplinary session will allow legal scholars to see how different disciplines study and harness the processes of complex adaptive systems. For other scientists, one benefit will be to exchange with the discipline that traditionally lays claim to the regulation of communities (and has done so in practice, and in different guises, for several millennia). The long-term payoffs are two-fold: 1) for the disciplines interested in the emergence of order to incorporate law and understand how it structures and correlates human behavior to produce a social order; 2) for law to became able to orient behavior in complex systems.

Publications of an edited volume of Proceedings

Considering the availability of a quite affordable Open Content Publisher (DotLegal Publishers, of which Aernout is the CEO) the Satellite organizers consider to edit and publish an edited volume of the proceedings, depending on how well the satellite session succeeds. In this volume, those quality papers that have been offered and would have been accepted yet could not be presented due to time constraints will be published too.

Round table participants (and online platform)

We expect all participants to contribute written remarks to a common online platform, which will serve for the roundtable discussions. These discussions

will be initiated by invited referents from different disciplines, and moderated by the satellite session organizers. They are held at the end of both the morning and the afternoon sessions.

In order to promote the main goal of our satellite session, we want to monitor that its subject matter tallies with the concerns of our participants. Therefore the platform will open ahead of the conference to those who registered. Authors will be encouraged to join the platform and contribute propositions for discussion.

The two main scholarly issues that plague the formation of a multidisciplinary tribe of law-and-complexity specialists are (1) a common model of what law is and (2) a common culture of cross-disciplinary work. That is why we invited Gillian Hadfield and Scott Page as our keynotes.

Below, we list the people who are the first we will invite to contribute. They are participants in an e-mail thread on how legal scholarship may mix in complexity projects.

Names of keynote speakers to be invited

- Gillian Hadfield, Professor of Law and Professor of Economics, University of Southern California, USA
- Scott Page, Professor of Complex Systems, Political Science, and Economics, University of Michigan, USA and Santa Fe Institute, External Professor

Names of presenters to be invited first

The names of the presenters to be invited first are the participants in the thread on a question about a place for legal theorists in complexity science communities. They are (alphabetically):

- Jenna Bednar, Professor of Political Science, University of Michigan, USA and Santa Fe Institute, External Professor
- James Chen, University of Manchester, UK
- Bart Custers, Assistant Professor of eLaw, Leiden University, the Netherlands
- Simon DeDeo, Assistant Professor School of Informatics and Computing, Indiana University and Santa Fe Institute, External Professor
- Marion Dumas, Omidyar Fellow, Santa Fe Institute
- Bas E. Dutilh, Assistant Professor, Institute of Biodynamics and Biocomplexity, Universiteit Utrecht, the Netherlands

- André Folloni, Doutor em Direito do Estado pela Universidade Federal do Paraná, Brasil
- Bradi Haeberlin, Graduate Student at Indiana University, USA
- Simone van der Hof, Professor of eLaw, Leiden University, the Netherlands
- Daniel Martin Katz, Associate Professor of Law Illinois Tech - Chicago Kent College of Law, USA
- Matthew Koehler, Applied Complexity Sciences Area Lead in the Information Discovery and Understanding Department, Mitre, USA
- Carl Mair, Graduate student, Leiden University, the Netherlands
- Jamie Murray, Lecturer, University of Lancaster, UK
- Mark Pagel, Professor and head of the Evolutionary Biology Group, University of Reading, UK
- JB Ruhl, David Daniels Allen Distinguished Chair of Law, Director, Program on Law and Innovation, Vanderbilt University, USA
- Aernout Schmidt, Professor of Law and Computer Science, Leiden University, the Netherlands
- Peter Sloot, Professor of Computational Science, University of Amsterdam, the Netherlands
- Deborah Tussey, Computer Law professor, Oklahoma City University, USA
- Helena Ursic, PhD student, Leiden University, the Netherlands
- Thomas Webb, lecturer, University of Lancaster, UK
- Steven Wheatly, professor, University of Lancaster, UK
- Kunbei Zhang, assistant professor IT law, Chongqing Business and Technology University, China
- Gerrit-Jan Zwenne, Professor of IT PrivacyLaw, Leiden University, the Netherlands