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Interdisciplinary Cooperation in Legal Design and Communication

The last two decades have seen law emerge online. This development has engaged computer scientists and web designers in communicating law. Recently, serious work has begun on visualizing contract clauses, generating cooperation between designers, computer scientists, business people, lawyers and others. New insights arise from such cross disciplinary collaborations. Each discipline provides theoretical insights as to how legal design and communication might be approached. More profoundly each has the potential to recast relationships — what does it mean for the «power» of law makers to be exercised in the context of such paradigms? How do such insights enable us to reconsider the role of lawyers: the traditional custodians of legal rules? We examine these questions from a theoretical viewpoint, and reflect on our own cross-disciplinary collaboration in the creation of a proof-of-concept tool for automation of contract visualization.

Inhaltsübersicht

1 Introduction

[Rz 1] Historically, legal rules have been the exclusive preserve of lawyers and the legally literate. We live in a time where this is no longer true. The online environment has necessarily involved the engagement of computer scientists and software designers in legal communication. More, it has made law accessible to a much broader audience. By querying legal communication in the context of professional affiliation we place it within a social context which may affect its form, content and manifestation. A focus on a computational context leads us to look at law from the viewpoint of software developers and to see laws as data. A business context, in turn, expands our view from data to information and knowledge and how these are designed and communicated. Visualization calls on a design paradigm, and on understanding the skills, needs, and experiences of users in order to craft information into usable visual artefacts. This contextual exploration also allows us to re-examine the nature of legal rules. The catalyst that led to this paper was our previous collaboration to create a prototype tool to automate the visualization of selected contract clauses used in business to business contracts. This work involved a multidisciplinary collaboration bringing together design, legal and computer science paradigms. [Passera et al. 2014][1]

2 Thinking Like Designers

[Rz 2] In his book *The Design of Everyday Things* Don Norman observes that «*[a]ll artificial things are designed*» [Norman 2013, 20]. He states: «*[Design] focus[es] on the interplay between technology and people to ensure that the products actually fulfill human needs while being understandable and usable ... not only must the requirements of engineering, manufacturing, and ergonomics be satisfied, but attention must be paid to the entire experience, which means the aesthetics of form and the quality of interaction*». [Norman 2013, 20]

[Rz 3] This description evokes Patrick Jordan's hierarchy of product user needs, which traverse *functionality, usability* and, at the apex, *user experience.* [Norman 2013, 13; Haapio 2013] Human centred design «*... puts human needs, capabilities, and behavior first, then designs to accommodate those needs, capabilities, and ways of behaving*». [Norman 2013, 24] Two further concepts that Norman explores are relevant to the task of addressing user needs: *affordances* and *signifiers.* The latter concept focusses on communication as part of good design. «*Affordances represent the possibilities ... for how an agent (a person, animal, or machine) can interact with something. ... Signifiers*

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[1] The prototype can be accessed at http://cs.anu.edu.au/people/Michael.Curtotti/visualcontracting/.

are signals. Some signifiers are signs, labels, and drawings ... Some signifiers are simply the perceived affordances, such as the handle of a door ...». [NORMAN 2013, 28, 31—33] Human centeredness and design addressing a hierarchy of needs and facilities such as affordances and signifiers are not necessarily familiar in the traditional design of legal artefacts.

3 Thinking Like Computer Scientists and Software Engineers

[Rz 4] Early in their studies, most students of computer science will be required to write computer programs. Further they will be taught a number of conceptual paradigms for expressing programs. Among the many alternatives are procedural, functional and object oriented. [THOMPSON 1999; HORSTMANN 2006; CHUN 2007] Each paradigm provides a different way of solving the same problem. Procedural (or imperative) programming uses «declarations» (definitions) and «statements» (commands). The way they are expressed is similar to the way legal rules are expressed. Naturally so, as the paradigm imagines the computer as a digital agent and sets out the commands the agent must carry out. In functional programming, program statements are structured as interlinked mathematical functions. In object oriented programming, virtual objects having properties and capacities interact with each other within the program. Although the design is quite different in each case, the output may be identical. As the computer speaks its own underlying «machine language» it is indifferent to how the source code is written. Thus, as well as communicating with the computer, computer scientists are communicating with each other. The communication is multidirectional and multipurpose. Programming paradigms assist software engineers to more effectively create, reproduce, maintain and collaborate in creating potentially vast software artefacts.

[Rz 5] To lawyers, laws are legal rules[2] and documents. To engineers or computer scientists laws may be looked at as data. The software product that surrounds that data can take a multiplicity of forms. It is determined by those commissioning the software. We can see how engineering influences the external manifestation of law in examples drawn from its online publication.

[Rz 6] Law may be represented online as a pdf document. Each pdf corresponds to the traditional *physical* publication of a «compilation» which includes all amendments to a particular date.[3] The early 1990's saw laws presented as hyperlinked documents — with each section represented as a separate hyperlinked document. Each section can be provided with multiple links — such as to preceding and following sections, to defined terms, and to relevant case law and journal articles.[4] Recently the publishers of UK legislation have explicitly regarded legislation as data. In addition to online readable versions of the law, the law is made available as data in its raw xml format. The native form of the law is a hierarchical data structure and as such, it can be used in potentially infinite forms of software. [CURTOTTI & McCREATH 2012]

[Rz 7] In the creation of a software product, software engineers are also concerned with the viewpoint of the user: seeking to satisfy customer expectations. Here the software developer, within the functional constraints of the software, thinks much like a designer.

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2 The terms «laws» and «legal rules» here are labels for «law» found in contracts, legislation and regulations. The use of the term has not intended to say anything about the nature of law, although we discuss this in section 6 below.

3 For example, Australian Capital Territory legislation website http://www.legislation.act.gov.au.

4 For example, the United States Code published at http://lii.org is in this form.

[Rz 8] An example is afforded by Australia's migration law. The law itself is fairly described as a forbidding and impenetrable morass. This mass of legal rules is converted on the government's website into a usable user interface. The primary concerns of users to potentially visit, live, study or work in Australia are prioritised. Visa options that address these needs are prominently displayed in accessible thematic lists. Individual visa pages provide concise easily navigated tabs providing an overview of the visa, eligibility criteria, how to apply and the holder's rights and obligations. An online application process is also provided. While under the hood, legal «rules» (the legislative «code») govern and define the process, the legal details are re-organised, with irrelevant and less relevant information hidden, significantly improving user experience as compared to attempting to use the underlying law which it represents.[5]

[Rz 9] An example of a *visual user interface* facilitating the creation and use of legal rules is provided by the Creative Commons copyright licensing system. [Haapio 2013, 73] Four, now widely recognised symbols, are used to capture the intent of the licensor.[6] These symbols are easy to learn but convey key aspects of Creative Commons licences.

[Rz 10] Both of the above cases are examples of *abstraction*. In software engineering terms this is «*suppressing or ignoring some properties of objects, events, or situations in favor of others*». [Fox 2006, 7] The non-essentials are hidden or *encapsulated*, while essential features are made manifest. [Horstmann 2006, 67] Creative Commons is also an example of the use of legal rules to enable rather than to regulate and control. It empowers an entire ecosystem of use and re-use of copyright content.[7] As of 2009, it was estimated that 300 million works had been licensed under the Creative Commons system. [Kapitze 2009, 104]

[Rz 11] A number of insights may be drawn from the foregoing discussion. The traditional form (paradigm) in which legal rules are expressed is not essential to them. Other forms of expression are possible. Legal rules may be thought of as internal aspects of a broader «legal/policy product». Such external characteristics can be used to address usability and user experience. Legal rules are also data. Enabling a full application of computational technologies requires that they be made available as data. An important tool in the task of legal communication is *selection of information*. Information hiding (abstraction and encapsulation) can aid communication.

4 Thinking Like Lawyers and Business Managers

[Rz 12] It is striking that when contract law is taught to law students, engagement is avoided with the contracts themselves. Rather contract law is largely taught as legal theory: when contracts arise; the rules for their interpretation; and the consequences of breach or termination. This can be seen in descriptions of law school curricula and in the contents pages of contract law textbooks.[8] The drafting of contracts themselves is not a focus of study, and contract clauses are seldom seen as part of «law» in legal education. This contrasts with how computer science students are taught about programs — as explored above. Some parallels can be drawn. As a software engineer seeks to ensure that a program deliver on requirements (that it functions correctly), a lawyer

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[5] Australian Department of Immigration and Border Control web pages http://www.immi.gov.au.

[6] Creative Commons. About the Licences https://creativecommons.org/licenses/.

[7] See discussion below on the implications of design approaches for the theory of law and power.

[8] E.g. 702011 Contracts Course University of Technology Sydney http://handbook.uts.edu.au/subjects/70211.html.

seeks to ensure that a contract is legally binding. However much of the law student's attention is directed to the legal consequences of contract failure. Further, legal scholarship around contracts has traditionally focussed on contract law in the context of litigation rather than on the correct operation of contracts within a business context. [Haapio 2013, 2, 6; Pohjonen 2009]

[Rz 13] The creation of legislation (the public parallel to contract drafting) is the responsibility of a very small group of professional drafters (usually within government). Those involved in legislative drafting often state that it takes seven to eight years of practice to develop the skills of legislative drafting. The audiences include both professionals and lay users of the law. Yet when drafting the law, beyond functionality, the primary concerns are legislative intent and judicial interpretation: thus two audiences are primarily thought of: parliamentarians (with the goal that they will vote for the law) and judges (with the goal that their interpretations will give effect to the government's policy). *Within these constraints*, the drafter seeks clarity to avoid unnecessary litigation and cost.[9]

[Rz 14] Of course lawyers, like other professions, are diverse. Some business lawyers are influenced by the views of business managers and see the goals of contracts differently from judges and litigation lawyers. For business, achieving the business objectives and succeeding in implementation are the goals, winning or resolving legal disputes is secondary. Many disputes are preventable through better contract design and communication. [Siedel & Haapio 2010; Haapio 2013; Haapio 2006] Contract law, education and research have concentrated on what *courts* have done, in hindsight, ex post. Businesses, again, seek successful transactions, and what *people and businesses* can and should do — foresight, ex ante. The typical law school education reinforces the notion that litigation is at the core of lawyering. Students spend a lot of their time reading about case law. Most contract law books are full of examples of failures; contracts that have become embroiled in a dispute or litigation. Traditional law is mostly reactive, and not many lawyers have questioned the habit of looking at precedents and the past, or of focusing on failures. [Pohjonen 2009; Haapio 2006] There seems to be a major gap between *academic law* and *law in action* and also between *contract law* and *contract practice*. [Mitchell 2013] These gaps need to be bridged.

5   Crossing Disciplinary Boundaries

[Rz 15] The genesis of this paper was our own experience working in a cross disciplinary context to develop prototype implementations for automating the visualization of contract clauses. In undertaking this collaboration one of us worked primarily (though not exclusively) as software developer, one primarily as visual designer and one primarily as business lawyer.

[Rz 16] For the software developer, it became evident that the *form/language* in which a clause is expressed is peripheral. A practical way of solving the problem of automating the visual representation of a clause was to identify the underlying variables (data) essential to a particular clause. These variables controlled the visual representation. It also became evident that certain types of clauses lent themselves more readily to automated visual representation. Those involving time or numerical quantities were obvious candidates. Clauses lacking such characteristics presented barriers to automation. Like the case of Creative Commons, a visual language would need to be consciously created to effect automated visualization.

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9   Steven Laws cited in Stefanou & Xanthaki 2013, 20, 24—25.

[Rz 17] For the visual designer, in addition to identifying information characteristics that can be mapped visually, the question was how to visualize in ways that are understandable, engaging and useful for the intended users. Gestalt psychology principles,[10] for instance, are fundamental for the design of explanatory diagrams. Information needs to be structured in visual hierarchies that support unambiguous and fast understanding. In the case of automation, designers must understand through user studies and contextual inquiries how people work with contracts. In addition to their information needs and the design of the visual output, the whole interface and its functioning must be considered. Designers seek to address meaningfully the needs of users, and are not content to find a way to translate data or clauses into diagrams. How can such new tools work seamlessly with existing drafting tools? How can the interfaces be designed to be easy to use and learn, providing a feeling of control and trustworthiness to users? In what ways can visualization and automation *really* bring substantial benefits to users, i.e. is it about enhancing communication between parties, auditing one's understanding of clauses through visual means or exploring and comparing different ways in which a certain provision can be arranged? The answers to these questions come only by researching the users' reality and continuously validating possible solutions through prototyping, and usability and user experience studies.

[Rz 18] For the business lawyer, legal and managerial requirements came to the fore. The prototype should be easy to use for managers and lawyers so as to generate text and images that are legally sound. In addition, it needed to support managers and lawyers in informed decision-making at two stages: 1) when the contract is planned and 2) at the contract implementation stage. At both stages, clarity as to the parties' rights and obligations is needed, and at neither stage should unintended liabilities or remedies arise from the implied, «invisible» terms which operate by law. While the contract clauses selected for our prototype were such that we did not need to address additional (as opposed to exclusive) remedies, we learnt much about these remedies and their interpretation under different legal systems when preparing the presentation of our paper at IRIS 2014.[11]

[Rz 19] For the entire team it became clear that computer-assisted visualization is a powerful tool that may deal with data, information or knowledge, as well as with the needs and aspirations of different users who work with contracts. We were not dealing with the exploration and visualization of large volumes of data (information visualization). Instead, we were supporting the creation, application and communication of knowledge and insights. [Eppler 2004; Eppler & Burkhard 2004] For our experiment, knowledge visualization offered strategies, tools and methods to make contract-related knowledge accessible and visible and to improve processes through which knowledge can be identified, assessed, shared, discussed, applied and managed. [Haapio 2013, 13]

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[10] Gestalt principles describe how the mind organizes perceptual scenes and discriminates visual stimuli, e.g. between parts and whole, figure and background. See: http://www.scholarpedia.org/article/Gestalt_principles.

[11] The presentation can be accessed at http://www.mindspace.fi/wp-content/uploads/2014/02/IRIS_passera_haapio_curtotti.pdf. For exclusive (only, sole) as opposed to additional remedies, see under Insights, especially slide 33.

6   Rethinking the Nature of Legal Rules and the Role of Lawyers

[Rz 20] *What is Law?* It is a question that has been the subject of extensive attention by legal theorists. But how do cross disciplinary insights affect our answer to this question? When legal thinkers have considered what they mean by *law — law as rule* — is often central. Three prominent theories are offered as illustration.

[Rz 21] Legal positivism, particularly the command theory of law, holds that law can best be understood as general commands communicated by a recognised sovereign power which is habitually obeyed and which can punish disobedience. This view explicitly seeks to distinguish such rules from phenomena considered to be non-law: religious law, ethical precepts, customary usages, and social etiquette. [Harris 1980, 26; Bix 1999, 34] Natural law theory by contrast holds that certain universal legal norms exist in the abstract: norms which no human power can abrogate and which are inherently known by all human beings. [Harris 1980, 7—8] The most pervasive modern expression of natural law is human rights law, which although expressed in positive law instruments (treaties and national laws), also appeals to pre-existent universals.[12] Critical legal theory holds that behind a veneer of legitimate authority, laws are rules imposed by the powerful on the weak. The task of critical legal theory is to expose these political and social realities. Thus critical race theory understands that racism has profoundly shaped the legal system. Similarly feminist critical theory views law as patriarchal and oppressive to women. [Bix 1999, 203 et seq; Patterson 1996 et seq] In one way or another the concept of *rule* is at the centre of such theories.

[Rz 22] From a design viewpoint, the *rules* or *constraints* of law are not central. First and foremost laws are designed artefacts. They are designed optimally or poorly. What is important is that they are designed in a way that is functional, usable and provides a positive user experience. The «rules» are not central. Key is that each user of the traffic system be empowered to effectively and safely navigate it. The system is provided with *affordances* and *signifiers* such as traffic lights and pedestrian crossings. Good design would also suggest that the design of traffic laws takes account of the characteristics of all users, not just those who drive luxury cars. Those who use legal rules, rather than those who make them, are at the apex. Legal rules are thus an enabling framework. The emergent characteristic of human empowerment is thus central to a *design* view of the law.[13]Somewhat surprisingly, a design paradigm suggests a democratising theory of law. Law making at its is best empowers citizens. How distant from a command theory of law![14]

[Rz 23] Although space does not permit further exploration here, computer science takes us in entirely new directions in thinking about the nature of law. Law as data, law as functional core, and separation of legal form from legal function. Both paradigms however allow us to consider the role of lawyers. If law, taking a design view, is an instrument of empowerment rather than of control, what is for example the lawyer's role in contract design? The shift of the lawyer from a regulating role to an empowering role emerged clearly in our experiment with automating contract visualization. [Passera et al. 2014] Legal expertise is not required solely to create legally binding commitments or to respond to legal challenges one contract at a time, but rather to orchestrate in

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[12] E.g. Martin Luther King Jr. explained the US Declaration of Independence in natural law terms [King 1965].

[13] Emergence (e.g flocking (*Reynold's boids)*; or reproduction (*Conway's Game of Life*) are noted by computer scientists as potential properties of simple agent level rules. Emergence also occurs in biology [Bedau 1996, 12].

[14] Interestingly this view corresponds to one thread in feminist conceptions of power which distinguishes the power «to» from the power «over». «*The masculine ‹power over› construct ... connotes a ‹command-and-control› ... ‹power to› envisions a more egalitarian and empowering type of leadership.*» [Reingold 1996].

advance what to put in the end user's «toolbox», and how these tools should behave, look, and feel when used in real-life situations. It takes great knowledge to create a tool that can adapt to different situations without «breaking». In the case of a tool generating textual and visual versions of a clause, one needs to know all possible alternatives and instances of that clause, its meaning, use and role in a real context. Also discrimination is required between information which can be modeled in advance in a tool and elements needing human intervention. The lawyer-designer becomes principally concerned with *making contracts work for clients* and *empowering the clients to achieve their goals* [Haapio 2012; Pohjonen 2009; Pohjonen & Visuri 2008], rather than crafting legally enforceable obligations or minimizing legal risks. We see a much better fit with the business manager's perspective. Certainly some control of legal risk is necessary, but from a design viewpoint it is far from sufficient. Insights drawn from software engineering might shape what lawyers do or at least how they are trained. The current paucity of legal training devoted to addressing the kind of tasks in which software engineers are rigorously schooled, is unlikely to be best preparing lawyers to serve the needs of their clients. In our view, legal education would benefit from drawing on this disciplinary example.

7 Conclusion

[Rz 24] Societal change is opening the law to new and diverse forms of exploration. New communication technologies are transforming the practice, theory, making and teaching of law. Experience and research indicate that law has entered an age where its design and communication must change. We need more user-friendly interfaces to law. The implications of the bodies of thought which have driven revolutions in design and in information technology are yet to be extensively explored in connection with the form, nature and content of legal rules. We have explored some aspects of how law is being influenced by these changes, highlighting relevant conceptual frameworks, and how they have already affected the law. Further, we have addressed our own cross-disciplinary collaboration. At a number of points in our paper we have also suggested directions or highlighted points which warrant further exploration. Visualization offers a promising way to facilitate effective cross-professional communication and collaboration: it helps improve law's usability and user experience. Continued cross-disciplinary research is needed to recognize the opportunities and challenges and benefit from these bodies of knowledge.

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