

A Prototype Study on Electronic Rulemaking

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INTRODUCTION

The making of government regulations represents an important communication between the government and citizens. During the process of rulemaking, government agencies are required to inform and to invite the public to review the proposed rules. Interested and affected citizens participate by submitting comments accordingly. Electronic rulemaking, or e-rulemaking in short, redefines this process of rule drafting and commenting to effectively involve the public in the making of regulations. The goal of the e-rulemaking initiative is to integrate agency operations and technology investments; for instance, the electronic media, such as the Internet, is used as the means to provide a better environment for the public to comment on proposed rules and regulations. Based on the review of the received public comments, government agencies revise the proposed rules.

With the proliferation of the Internet, it becomes a growing problem for government agencies to handle the comments submitted by the public. Large amounts of electronic data (i.e., the public comments) are easily generated, and they need to be reviewed and analyzed along with the drafted rules. As such, part of e-rulemaking involves a non-trivial task of sorting through a massive volume of electronically submitted textual comments. For example, the Federal Register (2003) documented a recent case where the U.S. Alcohol and Tobacco Tax and Trade Bureau (TTB) received over 14,000 comments in seven months, majority of which are e-mails, on a flavored malt beverages proposal. The call for public comments by the TTB included the following statement:

All comments posted on our Web site will show the name of the commenter but will not show street addresses, telephone numbers, or e-mail addresses. (2003, p. 67388)

However, due to the “unusually large number of comments received,” the Bureau announced later that it is difficult to remove all street addresses, telephone numbers, and e-mail addresses “in a timely manner” (2003, p. 67388). Instead, concerned individuals are asked to sub-

mit a request for removal of address information as opposed to the original statement posted in the call for comments. The example shows that an effortless electronic comment submission process has turned into a huge data processing problem for government agencies. Fortunately, the advance in information and communication technology (ICT) can help alleviate some of the barriers in e-rulemaking. This article will discuss a prototype of a comment analysis system, which classifies public comments according to related provisions in the drafted regulations. The automated relatedness analysis system can potentially save rule makers significant amount of time in reviewing public comments in regard to different provisions in the drafted regulations.

BACKGROUND

In the field of legal informatics, most research efforts focus on enhancing the search and browse aspect of legal corpus, whose targeted users are legal practitioners. Merkl and Schweighofer (1997) suggested that “[the] exploration of document archives may be supported by organizing the various documents into taxonomies or hierarchies that have been used by lawyers for centuries” (p. 465). Indeed, a hierarchical organization of relevant public comments and drafted provisions can extend the benefit to industry designers, planners, policy-makers and interested individuals as well.

Berman and Hafner (1989, p. 928) observed that legal rights of individuals are “severely compromised by the cost of legal services,” and as a result suggested the potential of artificial intelligence (AI) to improve legal services. Rissland, Ashley, and Loui (2003) also noted that “the law offers structure and constraints that may enable AI techniques to handle law’s complexity and diversity” (p. 6). Researchers have studied extensively the application of AI, in particular, knowledge-based systems, to the *understanding* of the law (Bench-Capon, 1991; Brüninghaus & Ashley, 2001; Schweighofer, Rauber, & Dittenbach, 2001; Thomson, Huntley, Belton, Li, & Friel, 2000; Valente & Breuker, 1995; Wahlgren, 1992). In

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comparison, the application of ICT or AI to help the making of the law is rather new.

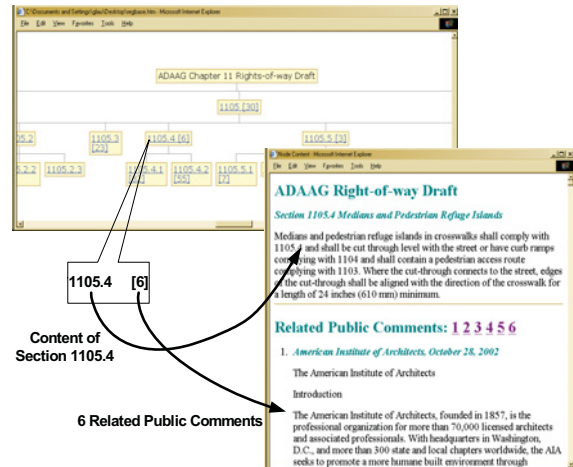
Nonetheless, ICT *can* help streamline the development of regulatory policy in several new directions (Coglianese, 2003). One suggestion is to integrate rules with other laws, such as using ICT to “link all the traces of a rule’s history, both back to the underlying statute and back to past or related rules, facilitating improved understanding of legal requirements” (Coglianese, 2004, p. 88). Previous work has shown that such an application of ICT is indeed possible. A framework for comparisons among regulations from multiple sources has been developed, with successful examples of related provisions automatically linked (Lau, Law, & Wiederhold, 2003a, 2003b). This article will exploit the use of the developed comparison framework to implement a prototype to aid the e-rulemaking process.

AUTOMATED ANALYSIS OF COMMENTS FROM E-RULEMAKING

In order to help screening and filtering of public comments, a prototype regulatory analysis system has been developed to automate the comparison between the drafted rules and their associated comments (Lau, Law, & Wiederhold, 2005). The prototyped e-rulemaking scenario incorporates public comments submitted to the U.S. Access Board, who released a drafted chapter for the Americans with Disabilities Act Accessibility Guidelines (Access Board, 1999), titled “Guidelines for Accessible Public Rights-of-way (Access Board, 2002).” The drafted chapter was less than 15 pages long. However, over a period of four months, the Board received over 1,400 public comments which totaled around 10 megabytes in size, with some comments longer than the draft itself. To facilitate understanding of the comments with reference to the draft, we have developed an automated system to perform a relatedness analysis.

Each piece of comment is compared with individual provisions from the draft. Characteristic features, such as conceptual phrases (Dörre, Gerstl, & Seiffert, 1999), are automatically extracted for the computation of the degree of similarity between provisions and comments (Bishop, 1995). The organizational structure of regulation is also exploited to review hidden relevance between neighboring provisions and references, similar to citation analysis and link analysis in the Web (Brin & Page, 1998; Garfield, 1995; Kleinberg, 1998; Page, Brin, Motwani, & Winograd, 1998). The results of this analysis are related pairs of provision from the draft and individual comment. Figure 1 shows the developed framework where users are given an overview of the draft along with related comments.

Figure 1. Comparisons of drafted rules and public comments in e-rulemaking



As shown in Figure 1, the drafted regulation appears in its natural tree structure with each node representing sections in the draft. Next to the section number on the node, for example, Section 1105.4, is a bracketed number that shows the number of related public comments identified. Users can follow the link to view the content of the selected section in addition to its retrieved relevant public comments. This prototype demonstrates the use of a regulatory comparison system on an e-rulemaking scenario to help review drafted rules based on a large pool of public comments.

To conceptualize the use of a comparison framework on e-rulemaking, we present some interesting results here. Figure 2 shows a typical pair of drafted section and excerpts of an identified related public comment. Section 1105.4.1 in the draft established the requirements for pedestrian refuge islands in situations where there lacks adequate signal timing for full crossing of traffic lanes. Using the prototyped system, we found that one of the reviewers complained about the same situation, where in the reviewer’s own words, “walk lights that are so short in duration” should be investigated. This example illustrates that our system correctly retrieves related pairs of drafted section and public comment. We also observed from this example that a full content comparison between provisions and comments is necessary, since title phrases, such as “length” in this case, are not always illustrative of the content. Automation is clearly desirable, as it would otherwise require much human effort to conduct a full content comparison to sort through piles of comments.



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