Quill: Reconstructing the Secretary's Desk for the Records of the 1787 Convention

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Introduction

The standard process for negotiating legal and quasi-legal texts over more than two hundred years has been a parliamentary one that (with variations) is still recognizable as the one described in Thomas Jefferson's *Manual of Parliamentary Practice* (1801) (U.S. Government Publishing Office, 2016; May, 1844). Proposals are examined by a series of committees, amendments being proposed and voted on throughout this process. Since the late eighteenth-century, many of these negotiations of historical note have left records that record the proposals made and the outcome of decisions taken. Such records are difficult to read—especially when they concern any protracted or complicated process of negotiation, since it rapidly becomes impossible for a reader to keep track of the state of the documents under discussion. Fully comprehending the records if not read in chronological sequence is impossible.

Building on code written for collaborative document editing, we have built a sophisticated, web-accessible platform for the study of negotiated texts. We kept the underlying data-model as simple and generic as it could be while modelling the various procedures suggested by a range of Parliamentary Procedure handbooks. We considered the needs of several distinct classes of users — those doing the work of data-capture, those reviewing that work, those wishing to comment on the detail of the text, producing secondary materials for a variety of audiences, and those wishing to navigate through the material for a variety of purposes.

Initial application

One such process of negotiation was that which created the United States Constitution. The Records of the 1787 Convention, despite being imperfect and not (initially) intended for public release, in fact enable a detailed reconstruction of the work of the Constitutional Convention. These records have been available in various printed forms since 1819 when the official *Journal* was first printed; these printed records have been digitized as both images and transcribed text (Lilian Goldman Law Library, 2008; Silverbrook and Johnson, 2007; National Archives Catalog, 2016; Library of Congress, 2016). While indexing and searching increase the utility of both paper and digitized versions (by allowing readers to discover when particular topics were debated), neither format allows the reader to understand the full context of a particular debate. This is of no small importance, because opinions of participants in the negotiations about particular matters shifted as surrounding questions were answered one way or another.

Other digital projects

Whereas the *Comparative Constitutions Project* has pioneered the comparison and display of finished constitutional texts (Elkins and Ginsburg, 2005), and some other web projects have attempted to make the text of the United States constitution easier to navigate (Surden, 2015), our project focuses instead on the process of negotiation. Other projects have attempted to overcome the limitations of the Convention's records by giving users narrative outlines of the key events in a way that can guide their reading (Lloyd, 2016; Linder, 2016; EDSITEment, 2016). More generally, websites tracking the progress of Parliamentary debates have focused on **milestone** moments in the history of texts, rather than letting users track the detail of a document's evolution (Parliament, 2016; Tauberer, 2004).

Challenges

The records relating to formal negotiations are typically a set of minutes that record of proposals and the

votes taken upon them. The principal aim of those recording the minutes is to facilitate the record-keeping process necessary during the work of committees, not to provide later readers with an easy way to reconstruct any particular moment. Each formal proposal to amend a document has at least two contexts that are relevant to readers — what does the document look like when the amendment is proposed? what does the document look like when the amendment is approved or rejected? Due to the nature of committee work, these contexts may differ significantly. Making sense of these records, therefore, poses a significant memory-burden on readers. Detailed and specific discussion of issues presented by these records is hampered by the need for authors to provide their own reconstruction of elements of this process, presented in a narrative form that is necessarily partial and can itself become difficult for readers to follow.

This problem might have been partially addressed using creative re-purposing of either version-control systems designed for computer-science applications (such as the tools *rcs* (GNU, 2013), *git* (Software Freedom Conservancy, 2016), or *mercurial* (Mercurial, 2016)) or else the creation of a layered XHTML document (The University of Virginia Press, 2009). However, we rejected these solutions as being either incapable of fully capturing the nature of the source material or else as likely to result in a fragile platform that would have been too much tied to the specific documents and unsuitable for more general applications. Since future work will compare different negotiations, a more generic platform that could work with a variety of sources with minimal new coding was required.

Our solution

Quill is a newly developed platform for the study and presentation of formal negotiations. It was developed initially with a view to presenting the records of the 1787 Federal Convention that created the Constitution of the United States, but was designed to be a generic platform applicable to a wide range of materials, including the creation of constitutions, treaties, and legislation. The model captures formal negotiations — that is those where there is a procedure of considering and deciding upon discrete suggestions for the wording of documents, and where minutes capturing these deliberations have been taken.

An innovation was to present not merely the reconstruction itself but to integrate a publishing platform that would allow authors to present their own commentary on the material in a way that would allow

analysis to be presented alongside specific events within the timeline.

Links to relevant material held on other websites (for example, images of the original manuscripts) are similarly presented to users where relevant. In this way, the website integrates with existing materials, enhancing their value as well as its own and avoiding duplication of effort. We encourage such co-operation with other projects through machine-readable interfaces, a flexible permissions system and a system of **resource collections** that allow third-parties to manage links to their own assets and control how they appear within our platform.

For the 2016 release we relied on the 1911 edition of the Convention Records published by Farrand, even though we know these to be imperfect transcriptions of the surviving manuscripts. This choice allowed us to focus on the development of the software platform. The Quill Platform is capable of presenting different versions of the same event, and future work using the original manuscripts will refine our presentation of the records.

Supporting information–seeking and exploration

Negotiations of this type are extremely complex and assisting users to access the information they require is a challenge. In our public interfaces, we have guided users to access material in several ways. To acclimatize users to the idea of navigating the history of an evolving text, we present a *Secretary's Desk* view, which allows users to navigate the state of documents as they existed at the end of each committee session (see Figure 1).
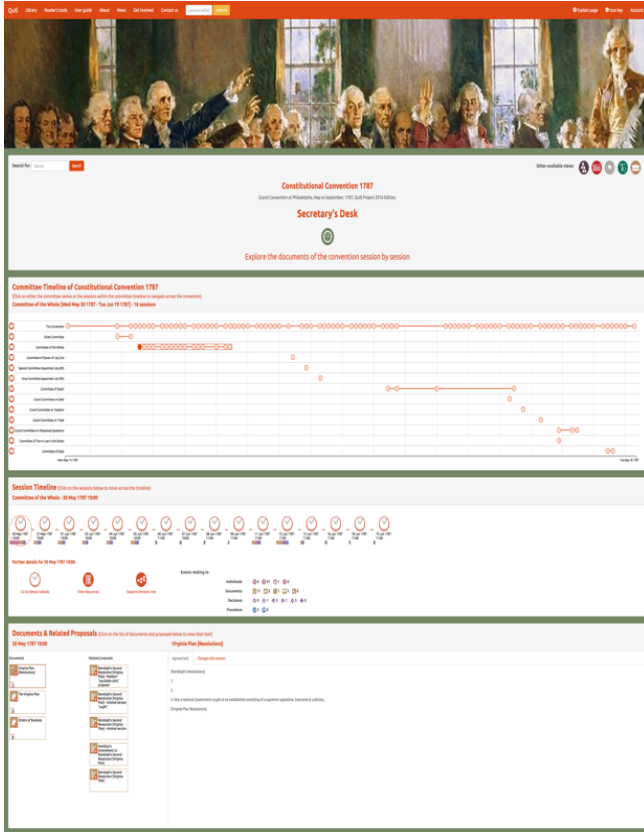
Figure 1: The Secretary's Desk for the Committee of the Whole on the 30 May 1787

This view hides much of the complexity of the negotiations, but allows new users to quickly grasp the concept of our reconstruction. We also present visualizations that allow users to explore the structure of negotiations through a variety of tree-diagrams (Herman, *et al.* 2000) (see Figure 2) and sunburst-style (Stasko, *et al.* 2000) visualizations.

The role of individuals and specific delegations, as well as voting patterns, are presented in separate visualizations. All of these views guide users who need more detail down to views that present the work of individual committee sessions moment by moment. Users looking for information on a specific topic are guided towards a search tool. In addition, users can also navigate the platform through a variety of resource and commentary collections, making it possible to provide users with a more guided experience.

Conclusions and future work

The process of negotiating the constitution was complicated (we have modelled close to 4,000 discrete events), and our presentation transcends the possibilities of narrative accounts while making access to and intelligibility of the extant sources much quicker and of greater utility for a broad range of users. The model system itself is content-agnostic and could be used to model a wide range of similar processes. Future work will continue to enhance the user experience both through refinement of the visualizations and user interface, and through the creation of guided views in to the material in collaboration with others, as well as expanding the range of material.

Wider public engagement and education is a key aim of this project. We are collaborating with non-profit organizations in the United States to develop guided views suitable for classroom use and integrated in to existing curriculum materials.
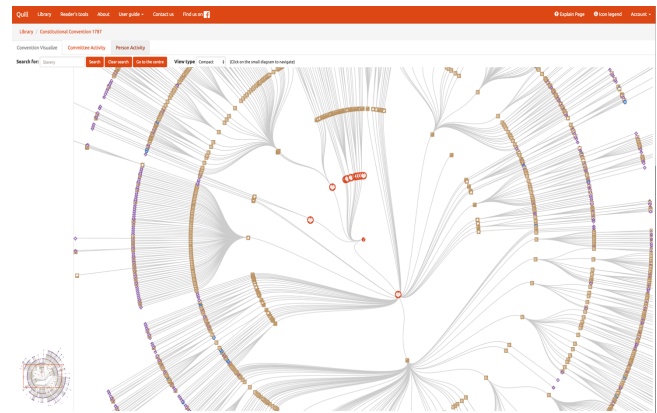

Figure 2: An Activity View showing the work of the whole 1787 Convention showing the hierarchical relationship between events, documents, and committees

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