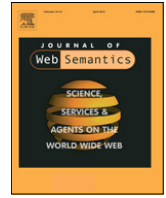




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## Constitute: The world's constitutions to read, search, and compare



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### ABSTRACT

Constitutional design and redesign is constant. Over the last 200 years, countries have replaced their constitutions an average of every 19 years and some have amended them almost yearly. A basic problem in the drafting of these documents is the search and analysis of model text deployed in other jurisdictions. Traditionally, this process has been ad hoc and the results suboptimal. As a result, drafters generally lack systematic information about the institutional options and choices available to them. In order to address this informational need, the investigators developed a web application, Constitute [online at <http://www.constituteproject.org>], with the use of semantic technologies. Constitute provides searchable access to the world's constitutions using the conceptualization, texts, and data developed by the *Comparative Constitutions Project*. An OWL ontology represents 330 “topics” – e.g. right to health – with which the investigators have tagged relevant provisions of nearly all constitutions in force as of September of 2013. The tagged texts were then converted to an RDF representation using R2RML mappings and Capsenta's Ultrawrap. The portal implements semantic search features to allow constitutional drafters to read, search, and compare the world's constitutions. The goal of the project is to improve the efficiency and systemization of constitutional design and, thus, to support the independence and self-reliance of constitutional drafters.

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### 1. The problem: Drafting new constitutions

Like any other legal document, Constitutions build on prior models and templates. After all, drafters face many of the same challenges and goals as their predecessors, so it is unsurprising that constitutional phrasing and ideas are repeated across jurisdictions. Think of this as something akin to Constitutional plagiarism. Model text from other jurisdictions can help drafters identify multiple dimensions to a given constitutional problem and provide effective language to address the problem. Thus, one of the early tasks in the constitutional design process is the search for, and analysis of, alternative models. Often, early drafts built on these models become the basis of discussion during the deliberative stages of the design

process. Also, because of strong inertial factors, these early drafts can be particularly consequential [1]. In short, a highly consequential step in constitutional design is the search for models and templates on which to build and adapt.

Such search is understandably challenging. Part of the problem is unavoidable. Drafters are under all sorts of constraints. They often work in periods of crisis, under significant time pressure, with a limited research staff, and with very little experience in drafting higher law. Another part of the problem – perhaps the most significant part – is easily remedied. Drafters commonly do not have unfettered access to an adequate sample of constitutional texts, indexed by topic. As a result, the search process can be highly inefficient, unsystematic, and its results unrepresentative of modern models of constitutional design.

The scale of the problem is hard to overestimate. Most (but certainly not all) constitutions are vested with enormous amounts of symbolic and legal power. Founders use these documents to establish national principles and aspirations, to define and unify the state, and to restrict future governments from crossing certain limits. When they work, constitutions form the backbone for

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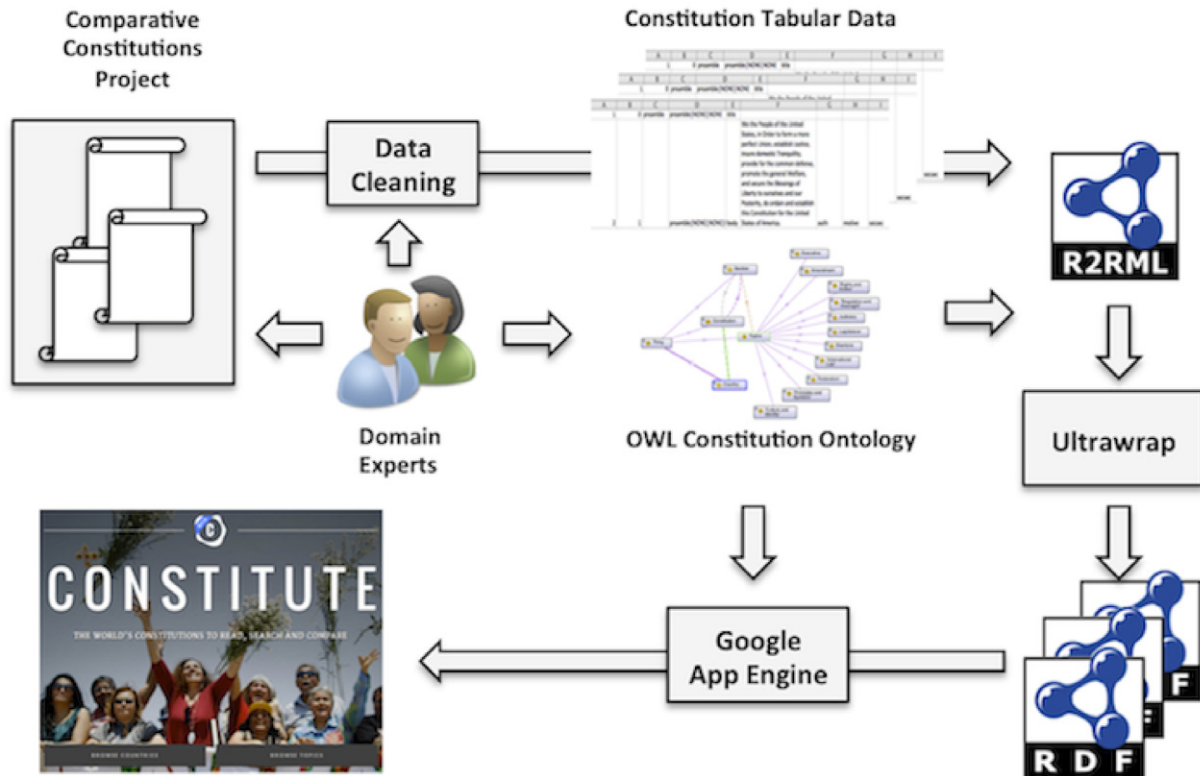


Fig. 1. Architecture of constitute.

rule of law and democracy. Perhaps disturbingly, leaders seek to remake constitutions more often than one might think. On average, constitutions are replaced every 19 years and amended in smaller ways nearly every year [2]. Sometimes, this re-design corrects prior and unanticipated problems or allows laws to conform to evolving understandings and conditions. At other times, this process is self-serving, meant to lengthen the rule or enhance the power of the ruling elite. Regardless, at any given moment, constitutional redesign is going on in some part of the world.

In short, the redesign of national constitutions is one of the most consequential acts of public life and it recurs with relative frequency. It is also one whose process is amenable to real improvement.

## 2. The solution: Constitute

Constitute reproduces the search and analysis process of constitutional design, or at least the idealized version of that process. The application contains the constitutional text in force in nearly every independent state as of September 2013.<sup>1</sup> Each constitution is indexed with roughly 330 topics drawn from the conceptual inventory (described below) of the *Comparative Constitutions Project* (CCP). Users can extract the text for any one of these topics across the full sample of constitutions, or across a set of constitutions filtered by region or by the date the constitution was enacted. Users can pin individual excerpts to a sub-panel of the interface, and then export the compiled excerpts as a pdf document or directly into the Google Drive environment as a “Doc”. Excerpts can also be exported as.csv files for more systematic analysis. A standard collaborative use of Constitute is to extract a representative set of excerpts

(perhaps 15 or so) on any given topic – e.g., the right to privacy – for further analysis or to share with fellow drafters or drafting committee members. Users can also view the full text of constitutions on the site.

Constitute is a semantically enabled search portal, built using Semantic Web technologies. First, the relationships among the constitutional topics and geographic regions were conceptualized in an OWL ontology, called the Constitution Ontology. Second, each tabular representation of the 191 constitutions is integrated and mapped to the OWL ontology by converting them to RDF using a combination of Direct Mapping, R2RML, and Capsenta’s Ultrawrap. Finally, the OWL ontology enables the navigation and search of the constitutional text through the topic hierarchy and subclass reasoning. We anticipate that Constitute is the first of multiple applications that exploit the underlying linked data.

## 3. Constitute architecture

Fig. 1 represents the architecture of Constitute. The authors created the Constitution Ontology in OWL, which represents the taxonomical relationship between constitutional topics, sub-topics, and geographic regions. Subsequently, data from the CCP is cleaned and converted to a plain-text tabular format to which topic tags for the relevant provisions are attached. Mappings between the tabular data and the Constitution Ontology are represented in R2RML, which is then used to generate the RDF using Ultrawrap. Finally, the RDF data and Constitution Ontology are used to create a search portal built on top of Google App Engine.

### 3.1. The comparative constitutions project

Constitute leverages data and conceptual resources developed by the authors of the CCP. The central component of the CCP is a set of quantitative data that codifies the content (and meaning)

<sup>1</sup> Certain countries whose constitutional order is composed of multiple documents (e.g. the United Kingdom) are presently excluded.

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