An Ontology for Describing the Legislative Process and Introducing Participatory Aspects

George GIONIS, Yannis CHARALABIDIS, Dimitris ASKOUNIS,
Fenareti LAMPATHAKI
Management and Decision Support Systems Laboratory, National Technical University of Athens,
9 Heroon Polytechneiou str, Athens, 15780, Hellas, Email: gionis@epu.ntua.gr,
yannisx@epu.ntua.gr, askous@epu.ntua.gr, flamp@epu.ntua.gr

Abstract: Participative information systems as well as other information and communication technology (ICT) based paradigms are constantly gaining momentum as the suitable medium to promote broader engagement and deepen political participation even in strictly bureaucratic and highly formalized procedures such as the legislative process. In this scope ontologies can provide significant assistance by properly defining the semantic grounds of a participative-driven legislative process, for example what legal documents are engaged, how this legal information (or parts of it is interrelated), how policy issues are interrelated with legal information, what are the stages of the legislative process, which legal documents or activities belong to which stage, what are the arguments related to a specific activity, does an activity has room for enhanced participation or not. In this paper we present an Ontology for describing the legislative process, incorporating the necessary entities for decomposing and interrelating pieces of legal information and connecting them to specific stages and activities that occur during a legislative process. This way the capabilities of the engaged stakeholders to access and comprehend such information are enhanced enabling them eventually to state high quality opinions and promote high quality policy making.

1. Introduction

Today the purpose of public participation has shifted from its traditional manifesto to democratise and legitimize the policy making procedures, as stipulated back in the 1960s, to the enhanced participation of stakeholders towards increasing the quality of policy analysis and support policy making. Accordingly, what has been up until recently considered as strictly institutional governmental procedures are now open through the use of information and communication technologies (ICT) to broader public participation with an objective to deepen political engagement of the concerned stakeholders and eventually improve the quality and final outcome of the policy and decision making procedure.

Approaching eParticipation (that is ICT supported public participation) in this broader scope it becomes apparent that it should not be considered just as an ICT-based initiative of government to engage with citizens, businesses or organisations but rather as a more inclusive effort aiming to incorporate all interested stakeholders in a democratic participatory decision-making procedure. In this scope, even firm institutional procedures that in the past were a field of engagement only for highly trained and experienced individuals, such as the legislative process, today constitute an area of participatory decision making. Stakeholders can be organisations and individuals whose interests are affected by the legislation under discussion and therefore it can be rightfully assumed that they may provide important, high quality information to complement the use of scientific data and experts' opinions.

To meet this challenge the deployed ICT-based initiatives need to cater for the needs that public administrations face by this broad engagement. Particularly in a strictly bureaucratic

procedure with highly formalized inputs and outputs in its various stages, such as the legislative process, the ability of an administration to manage effectively the entire eParticipation engagement – i.e. monitor the different stages of the procedure, provide stakeholders with the necessary information depending on their role, gather the stakeholders' opinions, produce and convey intermediate results and feedback – can significantly enhance the capability of stakeholders' to participate and provide better quality input.

In this paper we address this issue from its semantic aspect by presenting an ontology for describing the legislative process within the scope of national level legislation producing institutions – i.e. a national parliament. In the beginning we discuss the benefits of ontologies for describing knowledge and in particular legal information, following we go deeper in examining the legislative procedures in national level based on the evidence from three EU member state parliaments and finally we present the developed ontology and give examples of its use case.

Part of the work presented in this paper was carried out within project "LEX-IS: Enabling Participation of the Youth in the Public Debate of Legislation among Parliaments, Citizens and Businesses in the European Union" which is funded by the European Commission under the 2006/1 eParticipation call.

2.   Objective of Using Ontologies for Describing Legislative Information

In the legislative process the majority of input and output in the present moment is taken in the form of documents, legal documents, either unstructured but mostly structured and highly formalized ones. The reason behind this situation is that the concern of producing evidence of the legislative process makes recording through legal documents a basic requirement. In such a bureaucratic process legal documents are the universal basis of monitoring and managing it. As a result, legal documents apart from their function in constituting the underlying legal framework, they inevitably play an important part in the legislative process and the ability of someone to comprehend it and participate in it.

Legal documents are laws and regulations (codes, legislation, contracts, etc.) either of European or national origination that constitute the underlying legal framework, and also the outcome of the legislative process itself. According to [2] regulatory documents are unique documents both in terms of syntax and mission. They are never read from cover to cover; each article presents a separate discourse. One can read the contained articles in any order, the resulting discourse structure, the message, is supposed to be the same. Each of those articles plays an independent role as instrument in certain (epistemic) acts. The containing document is a special purpose container that posits the article in the legal system and provides a position, an identity, by which it can be unambiguously referenced. The legal source as an object with a unique identity and history is of course not the same as some paper or electronic copy of it. A laborious process in both legal publishing and decision making is determining what the contents of legal sources are at some point or interval in time. Changes can be announced in separate documents and publishers keep track of all documents from certain publication channels to be able to reconstruct what the form of an organic law is at some time point.

Consequently the underlying legal framework, since it is constituted by legal documents, is a field that is diverse in its synthesis, difficult to understand without explicit knowledge and rigorous to keep updated. In a field with such characteristics ontologies can play the role of providing dictionaries for tagging, interrelating and retrieving information, thus providing stakeholders participating in the legislative process with a comprehensive framework of information.

In an eParticipation procedure the participatory capabilities of the engaged stakeholder can be significantly enhanced by providing them with information that will help them understand and form opinions during the evolution of the process they wish to participate

in. Therefore information, and in particular legal material that requires explicit knowledge, should not be provided in its original form (i.e. in the form of regulatory documentation) but should be accompanied by an amount of other information and material that will make it implicitly understood. For example, regulatory information that is related to the legislative process must be connected to specific legal issues that are of direct concern to society, these issues should be further interrelated to European directions and policies or even connected to explanatory material and argument for or against them.

By properly defining the semantic grounds of legal information the proposed Legislative Process Ontology, provides answers to important considerations of assisting the engaged stakeholders in an eParticipation legislative process such as what legal documents are engaged, how this legal information (or parts of it is interrelated), how policy issues are interrelated with legal information, what are the stages of the legislative process, which legal documents or activities belong to which stage, what are the arguments related to a specific activity, does an activity has room for enhanced participation or not.

3. Stages in the Legislative Process and Methodology for Stage Awareness in the Ontology

The description of a legislation process can be very complex, involving many different facets. According to [6], there are five key facets in a process – the behavioural, functional, organizational, informational, and operational aspect. Depending on the purpose of the modelling procedure, different facets may be taken into account for the process modelling. These facets can be seen as dimensions for which specific workflow concepts can be defined. For the purpose of legislative process modelling the following workflow concepts can be considered for each facet:

- Behavioural facet - showing the legal document flow;
- Functional facet - showing what kind of activities are taken;
- Organizational facet – describing what stages are expected and which stakeholders are involved;
- Informational facet – describing the actual legal document engaged;
- Operational (context based) facet – depicting what type and version of the legal document is used;

Up until now, the underlying state of the art incorporates significant examples of ontologies describing legal information and legal documents with the most inclusive one being probably the Legal Knowledge Interchange Format (LKIF) [3]. Furthermore, there are also ontologies that describe specific domains such as [1], [7], [10]. Yet these examples are either too focused, in describing the informational and context facets of legal documents, or too generic in order to describe all the aspects of their respective domains. Subsequently, they do not describe in detail workflow aspects such as stages, activities and document flow, concepts that are organically interrelated during a legislative process. If an ontology is to effectively support the participation along a legislative procedure apart from its ability to describe and interrelate legal information it must also provide the necessary semantics to enable stage awareness along the legislative process. This way apart from interrelating pieces of legal information among them it will be able to further connect to specific stages and activities that occur during a legislative process, thus significantly enhancing the capabilities of the participants to access and comprehend the entire process.

Within LEX-IS project the underlying legislative processes in three national parliaments were examined – specifically within the Austrian, Greek and Lithuanian parliaments. For each a series of workflow models have been created describing the individual stages, activities, legal document flow and engaged stakeholders across the entire legislative process lifecycle. Finally, these models have been harmonized into a generic legislative process model that is depicted in the following figure.
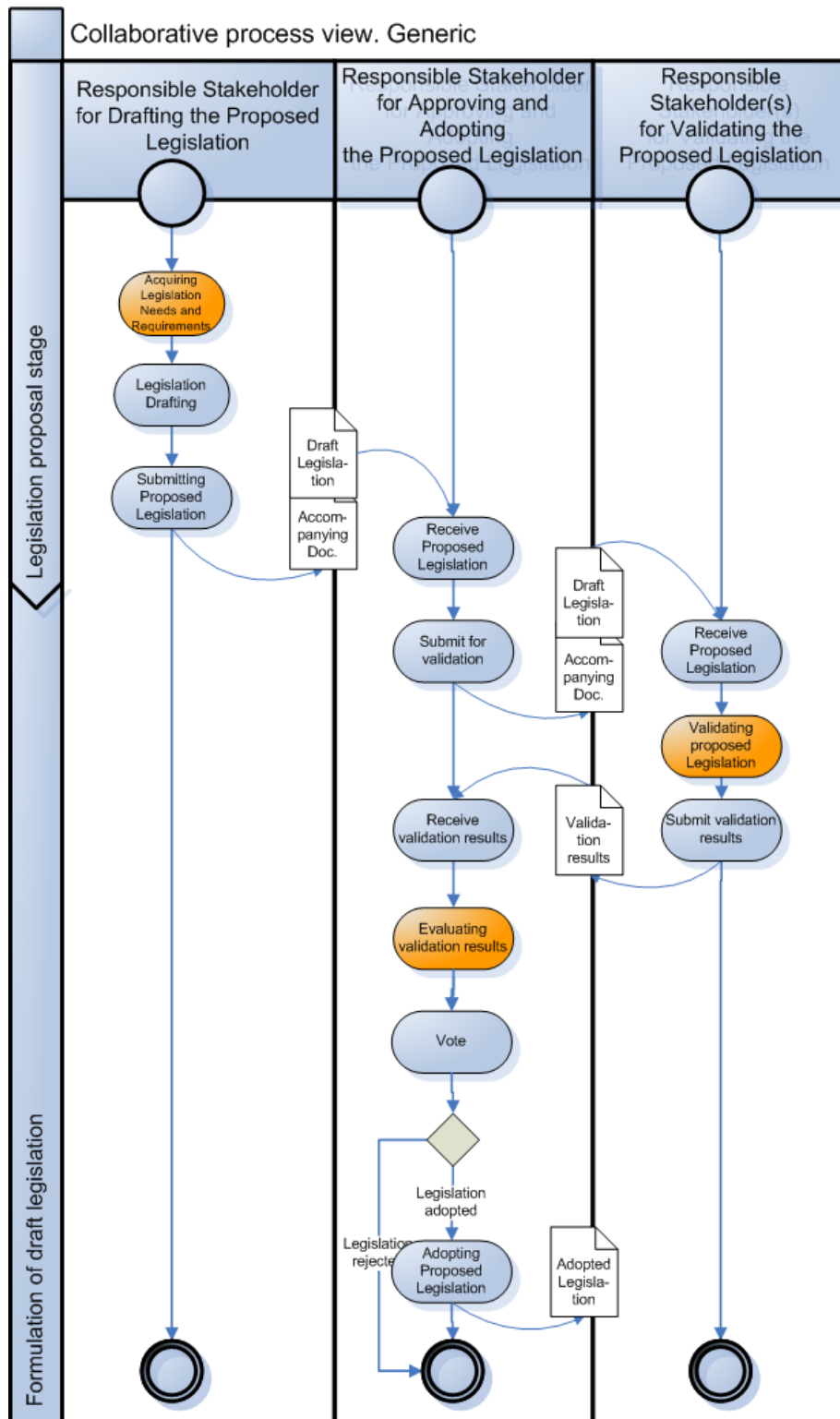
Figure 1: The GENESIS Modelling Approach

The foregoing model depicts the following information about the legislative process:
- The stages of the legislative process, specifically two stages:
  - The Legislation Proposal stage where the responsible stakeholder for drafting the legislation (e.g. a national parliament, a ministry or a law producing committee) accumulates the needs and requirements and produces a legal draft.
  - The Formulation of Draft Legislation stage where the draft legal document is submitted to the responsible stakeholders (e.g. a parliamentary session or a responsible committee) for validation, voting and finally adoption (or rejections)

- The nature of documents circulated among the stakeholders. In all the cases examined within LEX-IS two main categories of documents were exchanged:
  - The Draft Legislation, which is usually one, highly formalized, document that concentrates the entire legislation set (usually as articles & annexes) to be adopted.
  - A number of Accompanying Documents, usually reports of other legal documents of the underlying legal framework that supports the proposed legislation.
- The statutory role and performed activities of stakeholders engaged in the procedure:
  - Stakeholders Responsible for Drafting the Proposed Legislation, that can be ministries, expert groups, national parliaments and law producing committees that have the responsibility for identifying society's legislative needs and requirements and transforming them into a Draft Legislation (and accompanying documentation.
  - Stakeholders Responsible for Approving and Adopting, such as parliamentary sessions or parliament committees that receive the proposed legislation and accompanying documentation and assume the necessary activities of evaluating it, voting and finally adopting or rejecting it.
  - Stakeholders Responsible for Validating the Proposed Legislation, which usually are institutional agencies that have the responsibility for evaluating the proposed legislation's legitimacy to underlying and EU legal framework.
- Participatory activities (marked orange in the model) that constitute the target of eParticipation initiatives, that is specific activities in the scope of the entire legislative process where the participation of more interested parties (citizens, businesses, NGOs, etc) would lead to better results, in particular:
  - Getting society's input about its needs and requirements that need to be incorporated into future legislation.
  - Getting input on validating whether the proposed legislation aligns with the underlying national and EU legal framework and whether or not it contradicts fundamental rights of the society or individuals.
  - Getting input on evaluating, based on the validation results, whether a proposed legislation should be rejected (or amended) before it is submitted for its final voting.

The foregoing dimensions of the legislative process are incorporated in the Legislative Process Ontology that is presented in the following section.

4. The Legislative Process Ontology Technology and Use Case

The Legislative Process Ontology organizes and structures legislative information in order to improve access and use of such information by non-specialist and at the same time to improve the level of communication and interaction between institutions of legislative nature and the society.
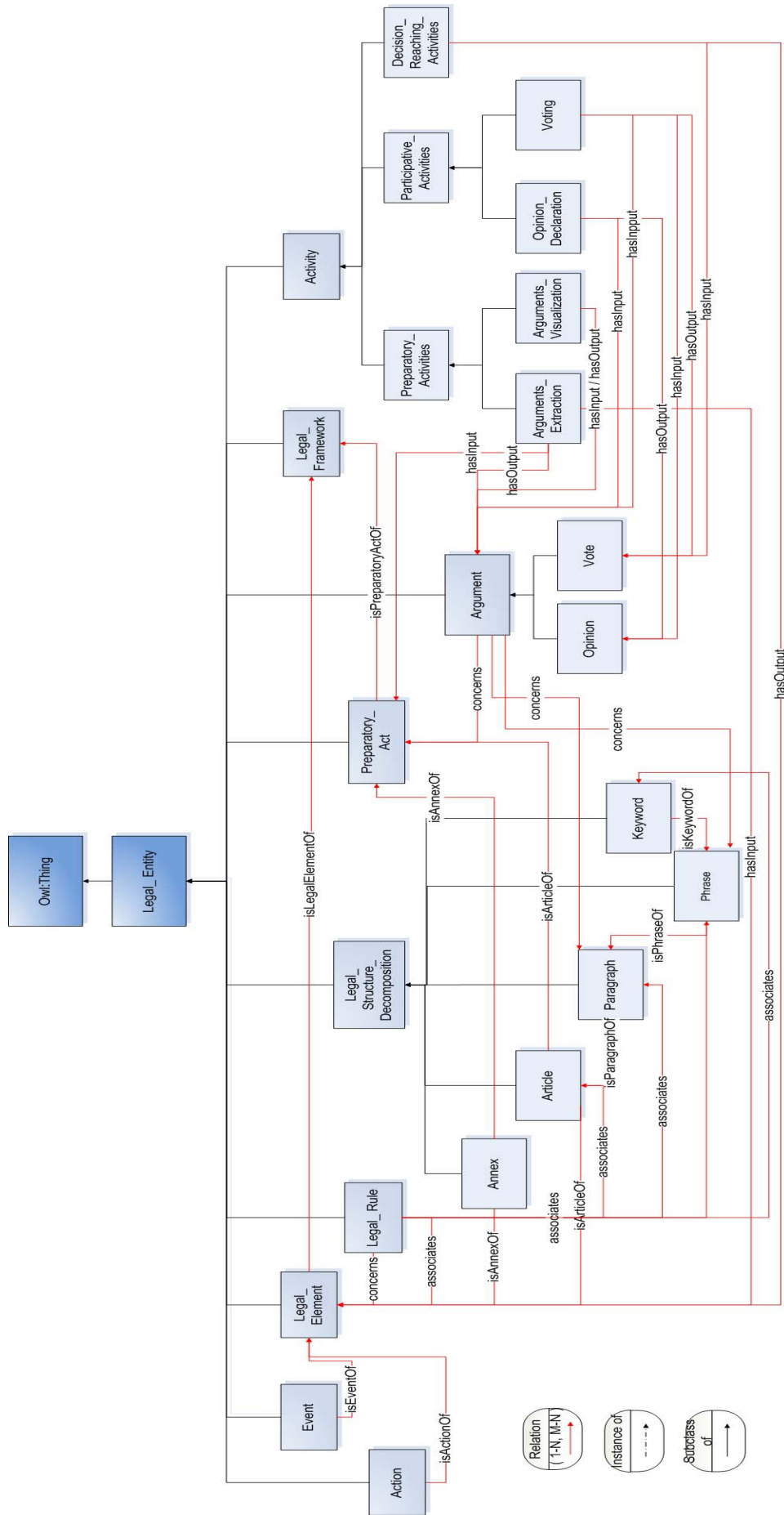
The ontology is presented in the following figure:

Figure 2: The Legislative Process Ontology

The main entities that constitute the core of the Legislative Process Ontology, depicted in the previous figure, are:

- Legal Element, which incorporates the EU directives, recommendations, national laws or decrees around which the legislative process is centred.
- Legal Structure Decomposition, this class is supportive to Legal Element by reflecting the various structures to which a formal act (i.e. preparatory act or legal element) may be decomposed.
- Preparatory Act, which represents the initial legal draft, created by a ministry, team of experts or a law producing committee, that evolves into the final legislation through the legislative process.
- Legal Framework, embracing the relevant (to the legislative process) EU and national legislation on particular thematic areas and context.
- Legal Rule, representing the interpretation, in the form of guidelines to be applied, of the laws by experts or as adopted by common practice.
- Argument, that identifies the issues at stake of the legal elements or the preparatory acts and pass through deliberation activities
- Activity, that identifies the various stages of the deliberation process (i.e. preparation activities, participative activities and decision-making activities) and reflecting their anticipated inputs and outputs.

Through the relationships among the above core classes, as well as those among their subsequent subclasses, the ontology provides the ability to navigate through a net of interrelated information objects allowing better understanding and monitoring of the results and evolution of the legislative process.

The following questions/information about the legislative can be acquired through the ontology:

- What is the underlying legal framework, in EU and national level, relating to the legal element associated with the current legislative process – relation IsLegalElementOf between classes Legal_Element and Legal_Framework.
- What are the legal rules associated with a legal element, i.e. what are the guidelines the proposed legislation mandates – relation Associates between Legal_Element and Legal_Rule.
- How a legal element, either the one debated during the legislative process or another part of the relating legal framework, is decomposed into its basic elements (annexes, articles, paragraphs, phrases and keywords) – relations IsAnnexOf, IsArticleOf, IsParagraphOf, IsPhraseOf, IsKeywordOf among the concerned elements.
- What are the arguments expressed during the legislative process and how they relate to the debated legislation and its content such as individual articles or phrases – relations Concerns among class Argument and classes Legal_Element, Preparatory_Act, Article, Phrase.
- What are the voting procedure results for the legislative process in relation to the stipulated arguments – relation HasInput between classes Voting and Arguments.

In order to formalize the ontology definition and ensure its consistency, the Legislative Process Ontology has been created in the open source Protégé Ontology Editor and Knowledge Acquisition System and has been verified by the RacerPro Reasoner. The reasons for choosing this set of tools was the objective to produce a consistent ontology in a formal specification that could be easily parameterized and incorporated into ICT systems by directly loading its specification to tools such as SPARQL and D2RQ to map to databases, document management systems, and other existing infrastructures of the adopting institutions.

5.   Conclusions and Next Steps

Legal knowledge, even filtered within a specific domain of application, still appears to be understandable and usable only by legal professionals. The contribution of domain specific ontologies (legal ontologies) in facilitating this endeavour can be substantial. However ontologies for law in general present the inherent problem of having to cover a vast area of heterogeneous and often semantically ambiguous knowledge. Therefore one needs to resort in defining domain specific ontologies for a narrow field of application in order to facilitate real life requirements – i.e. exchanging legal information such as legal acts or interrelating legal information in the scope of a specific process.

In this paper we have presented a domain specific ontology for structuring and interrelating legal information which incorporates also the necessary semantics to provide stage awareness across a legislative proves. This way the proposed ontology apart from interrelating pieces of legal information enables an adopting eParticitpation system to connect specific stages and activities that occur during a legislative process providing combined information that can enhance the capabilities of human participants in a legislative process to access and comprehend relevant legal information.

Next steps in our work include the incorporation of the legislative process ontology into a pilot eParticipation system and the evaluation of its practical use from the various stakeholder aspects. Both tasks are already undergoing in the scope of the LEX-IS project by creating and implementing an architecture blending the semantics of the Legislative Process Ontology with existing commercial web tools and platforms.

Acknowledgement

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