

A Semantics-based Visual Framework for Planning a New Bill

Carlo Biagioli and Enrico Francesconi¹

ITTIG-CNR, v. Panciatichi 56/16, 50127, Florence, Italy

Abstract. In this paper a module able to guide the legislative drafter in planning a new bill is presented. This module aims at helping the legislative drafter to build a new act from a conceptual point of view. Using this module the classical drafting process is inverted: the structure of a bill is constructed on the basis of its semantics.

Keywords. Provision Model, OWL, Planning, Semantic Legal Drafting.

1. Introduction

This project aims at building a module for planning new bills. It is conceived as a part of a project to implement a “law making environment” for the production and reviews of legislative texts. NIREditor [1] is the central element of this environment, being a law drafting module able to produce law texts according to the standards established by the “Norme in Rete” (NIR) project. It is based on a double vision of the legislative text: formal and functional [2]. Articles, paragraphs, etc., are entities of the formal profile, while functional entities are *provisions* (ex. *definition, obligation, sanction, amendments*, etc.) and their *arguments* (ex. the *addressee* of an obligation) represented as metadata in the DTD NIR. The planning module presented in this paper aims at providing the legislative drafter with facilities for the construction of a new bill starting from the definition of its semantics in terms of provisions and their arguments.

2. The Planning Module

This project aims at providing users with facilities to help the organization of a new legislative text according to a semantic point of view. In the traditional legal drafting the formal structure of a document may not be the best one to express the semantics of the text. The Planning module aims at turning over the traditional legal drafting process, providing facilities to firstly express the semantics (functional profile), then to organize the semantic components in a well-suited formal structure. In this process metadata are chosen by the legislative drafter himself: therefore they are authentic metadata [3], as chosen by the legislative drafter, and they are used also to guide the drafting phase.

The planning activity basically consists in describing how the domain of interest of the human activities (a scenario) will be regulated by the new act. The formalization of this can rely on a model of the scenario to be regulated (terms and concepts drawn from or organized into term hierarchies (thesauri) and concept taxonomies (ontologies)) and on

¹Correspondence to: Enrico Francesconi, ITTIG-CNR, via Panciatichi 56/16, 50127 Florence, Italy, Tel: +39-055-43995, Fax: +39-055-410644 email: francesconi@ittig.cnr.it

a model of the possible ways the act will regulate the scenario (model of *provisions* and *arguments*). The established relations and the instances of these models will represent the semantics (the functional profile) of the bill under construction. Facilities will be provided helping the organization of the semantic components (provisions) into formal partitions of the constructing act. At the end of this process, the formal partitions of the act will contain semantically correlated components (provisions), and the semantically qualified formal structure skeleton of the new act can be obtained. Partition wording can rely upon the user, or proposals of partitions wording can be generated on the basis of the semantics of the provision associated to each partition.

3. The Planning Module Software Architecture

The Planning module is conceived as a visual editor of provisions and it is composed by four main elements: a Model of Provisions and Arguments, a Model of the scenario to be regulated, a Definition manager, a Visual Provision Manager.

The Model of Provisions and Arguments is represented using OWL, since it guarantees interoperability among applications relying on it and a well-grounded framework for reasoning on provisions. The Model of the scenario is described by legal concepts or terms drawn from JurWordNet or from ontologies and lexicons of the domain of interest: usually they are the description of the involved actors (norm addressees), the main activities, the regulated actions, and in general the entities of the domain regulated by the law. Along with possible new terms, they can be collected in a Definition Manager. They will be used mainly as provision argument values (ex: arguments of *Definitions*). The Visual Provision Manager is a visual panel where provisions types and their arguments can be inserted and handled as visual objects, thus defining the functional profile of the new act. In a second phase the user will be able to provide the best structural organization (formal profile) of the text, with the advantage to see the building blocks (“paragraphs”) of the bill under construction from the point of view of their meaning (“provisions”). Provision instances can be grouped, through queries on provisions and arguments, into semantically correlated clusters (“articles”, from the formal point of view). This process can be recursively repeated, obtaining a tree representing the semantically annotated document formal profile, to be worded (manually or semi-automatically) being guided by the semantic annotation.

4. Conclusions

A module able to guide the legislative drafter in planning a new bill from a conceptual point of view has been presented. The traditional drafting process is inverted: the structure of a bill (formal profile) is constructed on the basis of its semantics (functional profile), so to obtain a well-structured text, where the chosen formal structure fits well the functional profile. A prototype is currently under implementation on a Java platform.

References

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