

About The Exposition of Brazilian Jurisprudences

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***Abstract.** In this paper, we address an issue concerning the application of an ontological layer over some federal jurisprudences repositories. After a brief state of art, we designed a domain ontology performing a substantial modification of an existing one, adding some federal features through experts interview. This approach seems to open promising ways towards a semantic exposition of Brazilian jurisprudences and some worldwide legal vocabularies alignments.*

1. Introduction

Open data is well known as the movement advocating the exposition of digital data coming from public sources. Despite their free access, these data are unfortunately largely produced and disseminated in a semi structured or unstructured manner. Indeed, most of time, these data can be reused to support new reasonings making necessary the presence of an upstream semantic layer (see [Bizer et al. 2009]). The sector of Justice illustrates perfectly these needs, the arbitrations are there continuously produced by performing cognitive reasoning (argumentation, similarity and case-based reasoning) to achieve the decisional processes. Thus, legal ontologies (see [van Engers et al. 2008] for a large view) now play an important role in the digital support of legal expert productions. Recent researches proves that using semantic web technologies can improve the research of legal documents for legal users (see [Saravanan et al. 2009]). In this article we are interested to support a particular kind of judicial reasoning in Brazil, the construction of jurisprudences. A jurisprudence is a set of repeated decisions performed by courts that provides the basis for new trials. Thus, jurisprudences are used to support and argue the judgments at all levels of the justice. On the web, there are various repositories for Brazilian jurisprudences, each of them providing interface to access to specific (see [STF]) or unified (see [JU]) jurisprudences. Moreover, Brazil participated in an international initiative establishing an open standards for the interchange of legislative and court information called LexML. Nevertheless, all of these repositories do not dispose of a semantical layer giving the status of legal data warehouse (see for example [Casellas et al. 2012]) inside which query could be performed through some endpoints. The issue of this paper is then to investigate if some similar domain ontologies were already proposed and to capture a set of competency questions in order to redesign a possible controlled vocabulary and a set of axioms to cover the repositories. The subsequent parts of the article is as follows: Section 2 describes our application case, Section 3 presents a brief but exhaustive state of art, Section 4 details the competency questions, Section 5 depicts our domain ontology and Section 6 opens some research perspectives.

2. Judicial Process

In Brazil there are different kinds of justice layers (e.g. state, federal, regional electoral, labour and military) and different kinds of rights (e.g. civil, penal, etc). Our application case is restricted to the criminal right of the federal court. As depicted in the Figure 1, a criminal case begins with a denunciation and can finish in different ways: with an outright rejection, with a summary absolution, with a sentence without appeal (*sentença transitada em julgado*) given by a judge of a *Seção Judiciária* (SJ, 1st instance) of a federal region, with a decision (*acórdão*) of the *Tribunal Regional Federal* (TRF) without appeal or with a decision (*acórdão*) of the *Supremo Tribunal Federal* (STF) or the *Superior Tribunal de Justiça* (STJ). In the first instance, after the end of the criminal procedure, instructed by an *Audiência de Instrução e Julgamento* (AIJ), comes the sentence that can suffer a resource. So, the process will transit through the second instance, i.e. one TRF in our application case, specifically towards a groups of recourses, which are usually composed by three relators (that can be composed by *desembargadores*, *juízes* or *ministros*). The process is assigned to one relator who will start with an argued position (*voto*). Another relator called reviewer may give his/her own argued position that will support an agreement or a discordance. A session of judgment is planned, and all the relators of each group of recourses will sit to vote using the *pros or cons* for all the recourses. If the position of the first relator wins then he/she will construct the decision (*acórdão*), else it's the reviewer (or the third relator) who will have to construct the decision. Thus, the judgments that are supported by a second study (in a TRF) or third study (in STF or STJ) of the case will constitute the future jurisprudence.

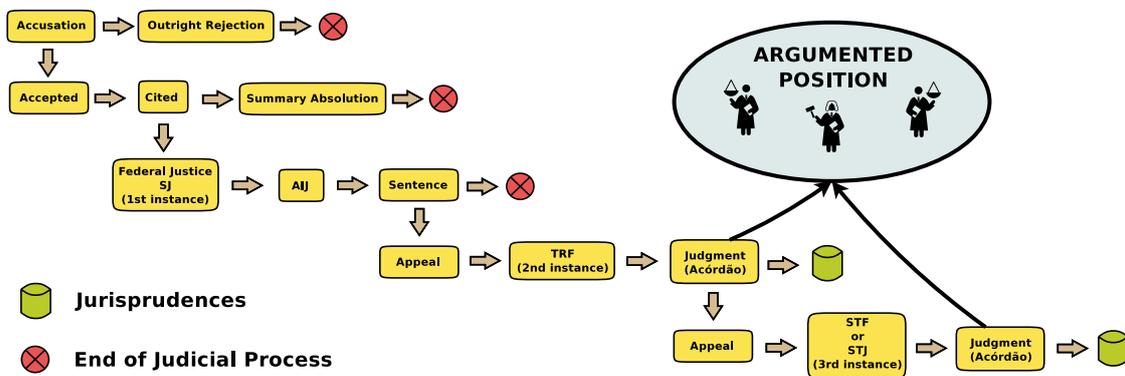


Figure 1. Process Criminal Justice

Then, a jurisprudence is a set of decisions and interpretations of laws made by the courts. They are used to support and argue the decisions and judgments at all levels of the (Brazilian) justice system. In summary, they are past judgments that provide a basis for new ones. Note that, a jurisprudence does not build decisions, they just guide and highlight the precedent (similar) cases. But, it exists very well established jurisprudence (built from repeated court decisions) that are considered as dominant on a particular legal issue, without nevertheless insuring that all the courts will decide in the same way (space and time).

4. Competency questions

We followed the methodology introduced in [Grüninger and Fox 1995] in order to gather some hints about entities that have to be captured by our ontology. In this paper, the authors claimed that designers should define with some experts of the concerned domain some competency questions that the ontology should support. Then, we collected competency questions from experts involved in the research of jurisprudences supporting real court decisions. After analyzing them, we identified 9 query patterns for which a jurisprudence portal should be able to answer for any conjunctions of any subset of these 9 patterns. The Table1 describes the different patterns. We illustrated each pattern through the example of a jurisprudence research concerning the crime of *a falsification of a driver's license by a foreign*.

PATTERN 1	Looking for judgments with certain keywords	ementa
	<i>Give me all the judgments about foreign and driver's license</i>	tese, dispositivo
PATTERN 2	Looking for judgments given law fields	Matéria
	<i>Give me all the judgments in criminal cases</i>	–
PATTERN 3	Looking for judgments by kinds of appeal	Recurso
	<i>Give me all the judgments in appellate procedure</i>	–
PATTERN 4	Looking for judgments about an specific subject	Assunto
	<i>Give me all the judgments concerning a falsification</i>	–
PATTERN 5	Looking for judgments by specific crimes	Fato
	<i>Give me all the judgments about an usage of a false document</i>	–
PATTERN 6	Looking for judgments by law articles	Legislação
	<i>Give me all the judgments using the article 304 CP</i>	uri
PATTERN 7	Looking for judgments of specific courts	Órgão Julgador
	<i>Give me all the judgments in the TRF of the 2nd region</i>	TF TSB TJ
PATTERN 8	Looking for judgments in specific time slots	–
	<i>Give me all the judgments since the year 2015</i>	data
PATTERN 9	Looking for judgments by judges (2nd instance)	Desembargador
	<i>Give me all the judgments pronounced by João Perreira Costa</i>	–

Table 1. Competency questions gathered from experts from a federal court

The query patterns obtained allow the identification of the entity types, their attributes and relations between them (labeled in portuguese in the Table1). The entities in a green cell were those identified by the competency questions already present in the state jurisprudence ontology, whilst the entities in a yellow cell were those also identified but not present in the ontology JurisTJPR. Entities in a red cell were those for which with respect to the expert interviews we changed the nature.

5. Ontology upgrade

Depicted in Figure 3 and following the same color code, we substantially upgraded JurisTJPR to integrate the federal entities inside an ontology called JurisJFES. The same color code is kept from the previous section to highlight the entities involved inside possible queries and the modifications performed. About this last point, we changed some natures of JurisTJPR entities.

References

- [STF] Jurisprudência STF. www.stf.jus.br/portal/jurisprudencia.
- [JU] Jurisprudência unificada. www2.jf.jus.br/juris/unificada/.
- [Benjamins et al. 2004] Benjamins, V. R., Contreras, J., Blázquez, M., Rodrigo, L., Casanovas, P., and Poblet, M. (2004). The sekt legal use case components: Ontology and architecture. In *the proceedings of JURIX 2004*, pages 69–77. IOS Press.
- [Bizer et al. 2009] Bizer, C., Heath, T., and Berners-Lee, T. (2009). Linked data - the story so far. *Int. J. Semantic Web Inf. Syst.*, 5(3):1–22.
- [Boonchom and Soonthornphisaj 2012] Boonchom, V. and Soonthornphisaj, N. (2012). ATOB algorithm: an automatic ontology construction for thai legal sentences retrieval. *J. Information Science*, 38(1):37–51.
- [Casellas et al. 2012] Casellas, N., Bruce, T. R., Frug, S. S., Bouwman, S., Dias, D., Lin, J., Marathe, S., Rai, K., Singh, A., Sinha, D., and Venkataraman, S. (2012). Linked legal data: improving access to regulations. In *13th International Conference on Digital Government Research, College Park, MD, USA, June 4-7, 2012*, pages 280–281. ACM.
- [de Oliveira Lima 2010] de Oliveira Lima, J. A. (2010). Interoperabilidade semântica no lexml. *Panorama da Interoperabilidade no Brasil. Brasília: MP/SLTI*, pages 74–79.
- [Dhouib and Gargouri 2015] Dhouib, K. and Gargouri, F. (2015). An applied legal ontology in arabic for the jurisprudence decision-structuring. *IJKSR*, 6(1):43–54.
- [Griffo et al. 2015] Griffo, C., Almeida, J. P. A., and Guizzardi, G. (2015). A systematic mapping of the literature on legal core ontologies. In *Proceedings of ONTOBRAS 2015*, volume 1442 of *CEUR Workshop Proceedings*. CEUR-WS.org.
- [Grüninger and Fox 1995] Grüninger, M. and Fox, M. (1995). Methodology for the Design and Evaluation of Ontologies. In *IJCAI'95, Workshop on Basic Ontological Issues in Knowledge Sharing, April 13, 1995*.
- [Guimarães 2004] Guimarães, J. A. C. (2004). *ELABORAÇÃO DE EMENTAS JURISPRUDENCIAIS: elementos teórico-metodológicos*. Conselho da Justiça Federal, Brasília.
- [Kiskis and Rimantas-Alfonsas 2004] Kiskis, M. and Rimantas-Alfonsas, P. (2004). Ict adoption in the judiciary: classifying of judicial information. *International review of law computers technology*, 18(1):37–45.
- [Molinari 2011] Molinari, A. H. (2011). Indexação de acórdãos por meio de uma ontologia jurisprudencial populada a partir de um corpus jurídico real. Master's thesis, Universidade Tecnológica Federal do Paraná, Curitiba.
- [Morais and Ambrósio 2008] Moraes, E. A. M. and Ambrósio, A. P. L. (2008). Automatic domain classification of jurisprudence documents. In *Proceedings of EATIS'08*, pages 16:1–16:6. ACM.
- [Saravanan et al. 2009] Saravanan, M., Ravindran, B., and Raman, S. (2009). Improving legal information retrieval using an ontological framework. *A.I. Law*, 17(2):101–124.
- [van Engers et al. 2008] van Engers, T., Boer, A., Breuker, J., Valente, A., and Winkels, R. (2008). Ontologies in the legal domain. In *Digital Government*, volume 17 of *Integrated Series in Information Systems*, chapter 13, pages 233–261. Springer.