#1LegalRuleML and

#2ParliamentXML JudiciaryXML LegalDocumentXML (?)

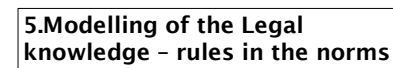**Monica Palmirani**

University of Bologna, CIRSFID

Law Faculty

Common Approach

- Two candidates for the TCs: LegalRuleML and Akoma Ntoso
- Oriented to the legal document modelling and representation (vs. data base approach)
- Capture and guarantee the legal knowledge embedded in the legal document
- Long-term preservation of the legal validity of XML documents
- Semantic Web techniques based
- Industrial applications focused
- Legal cultural based

Separation of legal document levels

5.Modelling of the Legal knowledge – rules in the norms

4. Legal Ontology

3.Legal Metadata

2.Structure

1.Text

Methodology
- Rules: LKIF-rule, RuleML, RIF, SWRL
  LEGALRULEML
- Ontology: OWL
- Metadata: RDF, RDFa, XML
- Content and Structure: XML
  PARLIAMENT/JUDICIARY XML
- URI naming convention: URL, URN, PURL

Example US Code Title 17, Chap. 1, Section 101

Cornel University - LLI

URL- USC_sec_17_00000101-----000.html

<SECTION>

§ 101. Definitions   **<SECTNO>** 101. Definitions   **</SECTNO>**

Except as otherwise provided in this title, as used in this title, the following terms and their variant forms mean the following:

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An "anonymous work" is a work on the copies or phonorecords of which no natural person is identified as

<p> n "anonymous work" is a work on the copies or phonorecords of which **no natural person** is identified as **author**. **</p>**

Metadata qualification: *definition*

Rule: IF X has not an natural person identified as author THAN it is a *anonymous work*

Class of the legal concept of *anonymous work*

2

LegalRuleML

RuleML History

- RuleML started in 2002 as no-profit organization
- Goal: XML standard for modelling rules and permits reasoning using logic theory
- the outcomes inspired RIF – W3C
- RuleML is used by industry in USA and in Europe and it includes a very strong academic community (Research-Base, Industry-Focused)
- Supported by IBM, Vulcan Inc, Franz Inc., Oracle, EMC, etc.
- Annual conference in USA and in Europe since 2002
- Joint conference with Business Rules Forum
- RuleML2011@BRF - November 3rd-5th, 2011, Westin Diplomat, Ft. Lauderdale, Florida
- Special track with NIEM and LegalRuleML

Why LegalRuleML?

- More and more the legal documents are becoming an important resource of information (big unstructured data). They include processes, orders, instructions useful for information system
- Industries are interested to capture these legal knowledge and to formalize it in a *machine-readable* way for the Semantic Web applications:
  - Credit card policy and security rules (Credit Card Act of 2009, USA SEC.)
  - Cloud computing Contract and SLA
  - etc.

Example: Google SLA of Clound Computing Contract
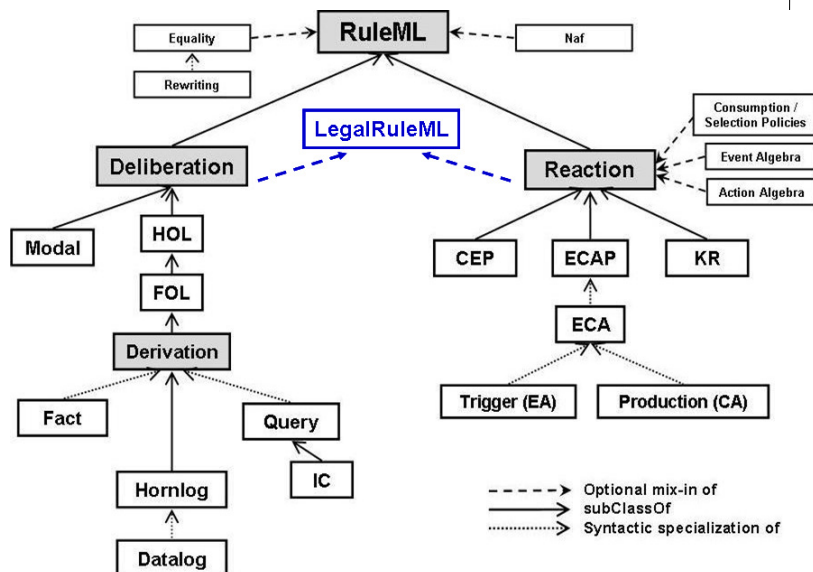
Clause 10, point 1, letter c)

- *If Google does not meet the Google Apps SLA (clause 8), and if Customer meets its obligations under this Google Apps SLA (clause 5), Customer will be eligible to receive the Service Credits of X days.*
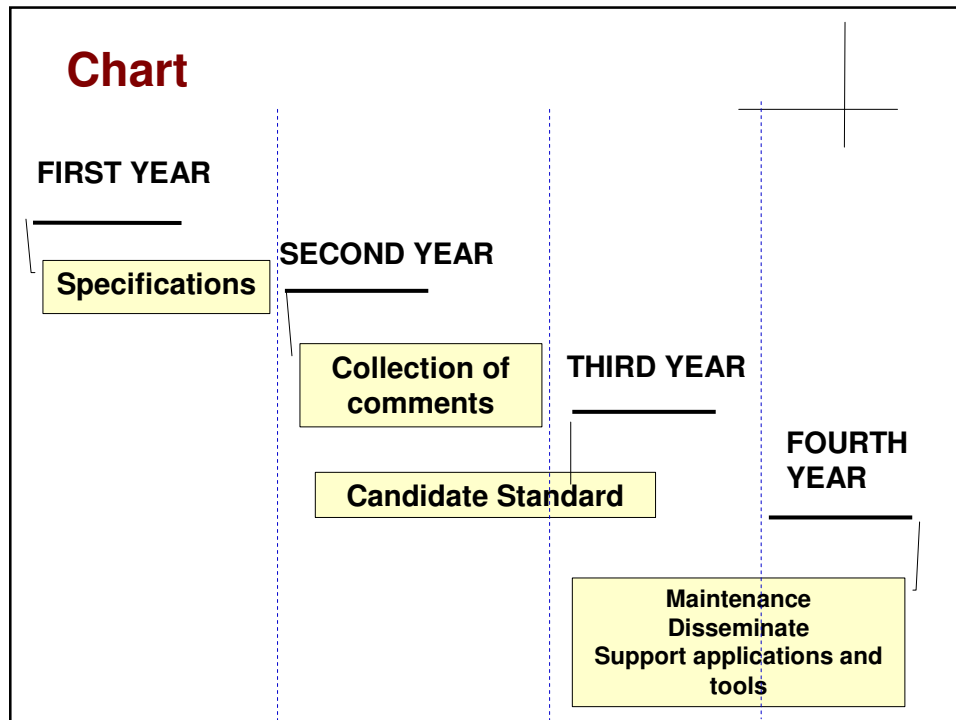
If clause 8 and clause 5
then *serviceCredits*(customer, xDays)

Legal domain peculiarities

- Legal domain has specific peculiarities:
  - Non-monotonic reasoning (not true, not false, probably yes in some conditions)
  - Conditionals and Exceptions
  - Temporal arguments (e.g. retroactivity)
  - Deontic (permission, obligation, prohibition)
  - Different models of reasoning: Hypothetic, Abduction, Argumentation reasoning
  - Values and Behaviours (e.g. constitutional values, social behaviours)
  - Etc.

LegalRuleML

Chart

FIRST YEAR

Specifications

SECOND YEAR

Collection of comments

THIRD YEAR

Candidate Standard

FOURTH YEAR

Maintenance
Disseminate
Support applications and tools

Proponents

- Monica Palmirani, CIRSFID, University of Bologna, Italy
- Antonino Rotolo, CIRSFID, University of Bologna, Italy, and RuleML director
- Guido Governatori, NICTA, Queensland Laboratory, Australia, and RuleML director
- Tom Gordon, Fraunhofer Institute for Open Communications Systems, Germany
- Harold Boley, Faculty of Computer Science, University of New Brunswick, Institute for Information Technology, National Research Council, Canada, and RuleML co-chair
- Said Tablet, EMC Corporation, USA, and RuleML co-chair
- Adrian Paschke, Institute for Computer Science, University of Berlin, Germany, and RuleML director
- John Hall, Model Systems, UK, and RuleML director
- Nick Bassiliades, Aristotle University of Thessaloniki
- Jong Hu, National Chengchi University

Harold Boley, NRC, Canada: one director of RuleML

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Dear Prof. Dr. Monica Palmirani,

RuleML Inc. is strongly supporting the LegalRuleML group at OASIS.
We have already helped with drafting relevant documents, including
the Manifesto. More in-kind contributions will be provided to you
when needed. Wishing you great success with this important group.

Best regards,
Harold Boley


Dr. Harold Boley
Co-Chair RuleML Inc.
Adjunct Professor at UNB, Faculty of Computer Science
Leader, Semantic Web Laboratory
Institute for Information Technology
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Fax: +1-506-444-6114
Email: harold.boley at nrc.gc.ca
URL: http://www.cs.unb.ca/~boley
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#2ParliamentXML
JudiciaryXML
LegalDocumentXML (?)
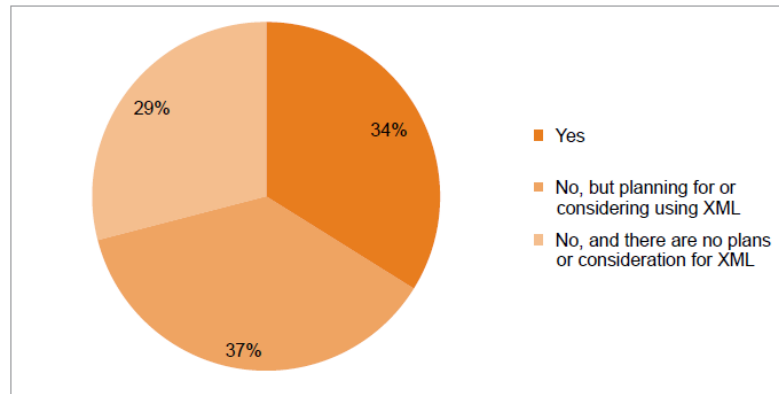
Use of XML in the Parliament

World e-Parliament
Report 2010

- Form the World e-Parliament Report 2010
- 34% declared to use XML in Parliament for bill and

Figure 5.9: Use of XML for bills

29%

34%

37%

■ Yes

■ No, but planning for or
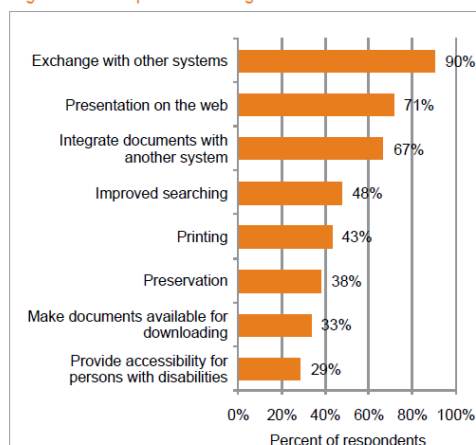considering using XML

■ No, and there are no plans
or consideration for XML

Why use XML in Parliament

- There are different scenarios for using XML in Parliament

- The most urgent is for interoperability and integration between institutions

- And Access to the documents on the web

Figure 5.13: Purposes for using XML

Purpose	Percent
Exchange with other systems	90%
Presentation on the web	71%
Integrate documents with another system	67%
Improved searching	48%
Printing	43%
Preservation	38%
Make documents available for downloading	33%
Provide accessibility for persons with disabilities	29%

Percent of respondents

(Source: Survey 2009, Section 3, Question 4; 21 respondents
– 16% responding "yes" to Question 3)

Forum of the Official European Gazette

- All the EU member states provide the Official Gazette on-line in different format: PDF, HTML, XML
- 21 out of 28 states, including la European Union, provide the information access for free
- **16 provide a consolidated version of the law in force updated daily**
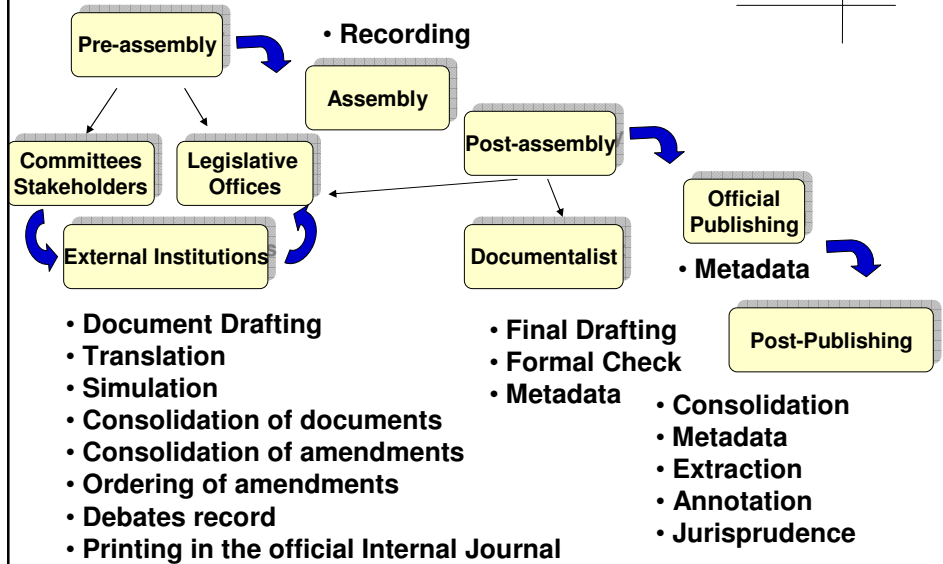- **14 provide on-line authentic publication binding for law**

[Access to legislation in Europe, 2009, OPCE European Commission, ISBN 978-92-78-40510-6]

European Forum of Official Gazettes

6th meeting
London
10–11 September 2009

2009

Access to legislation in Europe
Guide to the legal gazettes and other official information sources in the European Union and the European Free Trade Association

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AKOMA NTOSO

- Akoma Ntoso is a set of **simple, technology-neutral XML machine-readable descriptions of parliamentary, legislative and judiciary documents** that enables the addition of descriptive structures (markup) to the content of parliamentary and legislative documents.
- Started in 2004-2005 within the project "Strengthening Parliaments' Information Systems in Africa", promoted by the UNITED NATIONS Department for Economics and Social Affairs (UNDESA)
- Akoma Ntoso means "**Linked Hearts**" and it is a symbol used by the Akan people of West Africa to represent understanding and agreement

Legislative workflow

Pre-assembly

• **Recording**

Assembly

Post-assembly

Committees Stakeholders

Legislative Offices

Official Publishing

External Institutions

Documentalist

• **Metadata**

Post-Publishing

• **Document Drafting**
• **Translation**
• **Simulation**
• **Consolidation of documents**
• **Consolidation of amendments**
• **Ordering of amendments**
• **Debates record**
• **Printing in the official Internal Journal**

• **Final Drafting**
• **Formal Check**
• **Metadata**

• **Consolidation**
• **Metadata**
• **Extraction**
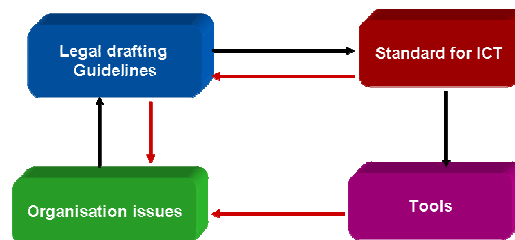• **Annotation**
• **Jurisprudence**

Usage of Akoma Ntoso

- Senate of Brazil customized Akoma Ntoso in Portuguese
- European Parliament adopted Akoma Ntoso for the bill and amendments lifecycle
- South Africa Parliament adopted Akoma Ntoso
- *Kenya Law Report – also for judgments*
- Senate of Uruguay is going to start a project of XML-isation of all the legislative process in Akoma Ntoso
- State of California legislative editor is now able to convert in Akoma Ntoso
- Senate of Italy is experiment it in a pilot case
- Federal Chancellery of Switzerland is analyzing a feasibility study

Why Akoma Ntoso in LegalXML?

- The **legal culture**, the legislative traditions, the political procedures, the legal principles have to be taken in consideration as the pillars in this domain
- Parliament ICT team and legislative offices are **stakeholders** and decision makers in this process. A **bottom-up methodology** to design an XML schema using a **consensus-building approach**, rather than building a pure technical XML schema as a data format or as a protocol for communication, is fundamental
- An **interdisciplinary virtuous circle** is essential, yet often neglected

Benefits

- Parliaments need to invest in a robust, persistent, non-volatile standard for representing legal, legislative and judiciary documents (**ROI**)
- Several Parliaments have an urgent need to use a standardized format inside a well-controlled workflow, endorsed by a strong management procedure, within an accredited standard organization like OASIS (**Interoperability**)
- This process of accreditation will allow adopters and users of Akoma Ntoso to develop and produce an environment of software tools specifically for Akoma Ntoso (**tools**)
- It will also increase the interest of the tech-industry sector and permit Parliaments to make long-term investment plans on the standard with a reasonable return of benefits (**industry**)
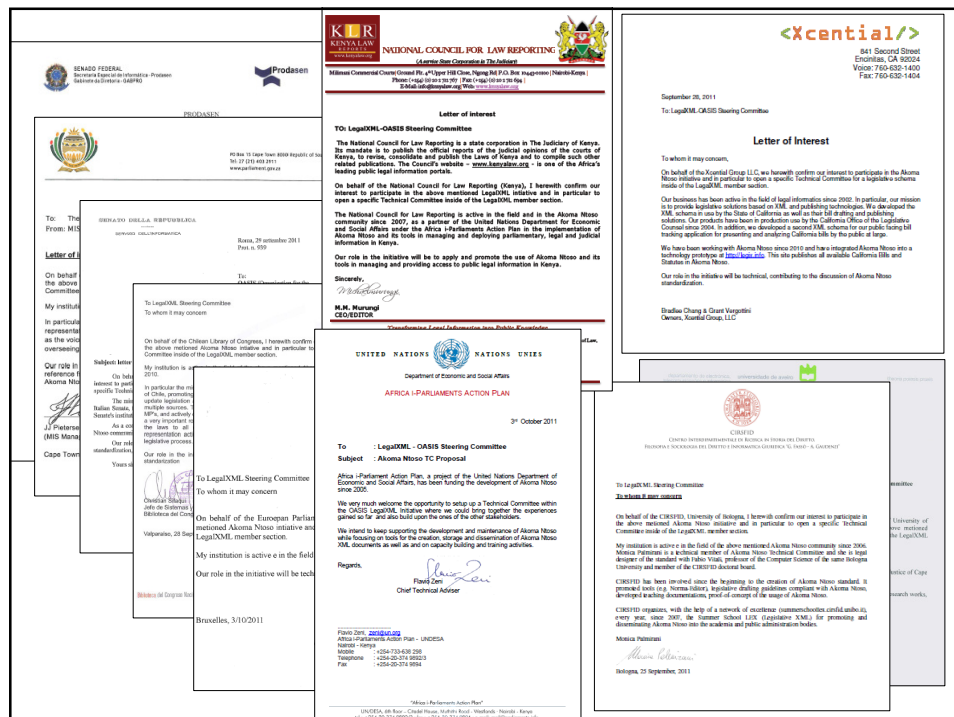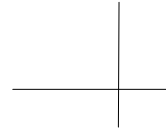
Chart

FIRST YEAR

| Candidate Standard |

SECOND YEAR

| Extension with new functionalities |

THIRD YEAR

| Maintain the standard
 Disseminate
 Support applications and tools |

Thank you for you attention
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