Akoma Ntoso for Parliamentary Documents

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«Things should be as simple as possible, but not simpler»
Albert Einstein
Legal Document, Legal Rules, Legal Ontology

Legal document in XML

Legal Ontology

Logic Rules

Annotation
Crowd-sourcing
Citizen participation
Market applications
Civic media

Linked Open Data

Certified process

ENGINE

Web of things

Rendering for the end-user
Long-term preservation

Editors' metadata

Authentic content

Accursio Magna
Glossa XI
Corpus iuris civilis
CODEX

Presentation
OASIS and LegalXML

  - Legal, court, business, academic, and technology professionals.
  - Collaboration on non-proprietary standards for the legal community.
- OASIS LegalXML Member Section – March 2002.

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Electronic Court Filing

LegalRuleML (about norms and meta-rules formalization)

LegalCiteM (about legal citations)

LegalDocML (about Legal Markup, i.e., Akoma Ntoso)
AKOMA NTOSO

• An open XML standard for any legal document used in Parliamentary processes and judiciary systems
• 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
• Now in OASIS standardization process: LegalDocML
Legal XML standards in the world

1997 • EnAct - Tasmania, Australia, New Zealand e Canada
1999 • FORMEX data model - EUR-LEX
2001 • NormeinRete – Italy
2002 • MetaLex and SDU BWB - Netherland
2003 • LexDania – Denmark
2003 • eLaw - Austria
2004 • CHLexML - Swiss
2006 • AKOMA NTOSO - United Nations for Pan-African Parliaments
2008 • Crown XML Schema for Legislation - United Kingdom
2008 • Chile XML
2009 • House of Representatives
2013 • USML schema  2007-2009
Generations of Legal XML vocabularies

First generation – 1998
- long lists of tags
- typographical or database approach - SGML
- no division between content and metadata

Second generation – 2000
- separation of content and metadata
- no abstract categorization of tags in classes

Third generation – 2005
- Pattern-based
- Strong separation of content, metadata, and presentation

Fourth generation – 2010
- Pattern-based schema with additional constraints (and co-constraints) to help local customizations
Success stories of Akoma Ntoso

- Senate of Brazil (act, bill, consolidation, point-in-time)
- **European Parliament** (bill and amendments)
- Library of Congress of Chile (bill and debates)
- Senate of Italy (bill publication in open data)
- Parliament of Uruguay (bill workflow)
- US Code Consolidation service (code management)
- State of California (xml standard for document management)
- Hong Kong City State (xml standard for document management)
- Federal Chancellery of Switzerland (publication in gazette)
- High Court of Cassation of Italy (xml standard for document management)
- UK The National Archives
- FAO - UN

South Africa SAFLII [http://www.saflii.org/content/partners](http://www.saflii.org/content/partners)
A network of legal knowledge for transparency

**Congressional Record**

United States of America

PROCEEDINGS AND DEBATES OF THE 113th CONGRESS

Vol. 160

WASHINGTON, TUESDAY, MAY 27, 2014

House of Representatives

The House met at noon and was called to order by the Speaker pro tempore.

**H. Res. 570: Mr. Hastings of Florida.**

**AMENDMENTS**

Under clause 8 of rule XVIII, pro-

17ceeds the amount of proposed new budget authority is $0.

18This Act may be cited as the “Commerce, Justice,

19Science, and Related Agencies Appropriations Act, 2015.”

New version of the H.R. 4660 in real time
Akoma Ntoso: separation of metadata

<akomantoso xmlns="http://www.akomantoso.org/1.0">
  <bill>
    <meta>
      Metadata annotation by editors
      Ontology annotation by editors
      Workflow metadata by the system
      Analysis metadata by the system
    </meta>
    <header>
      Authorial content by the author
    </header>
    <preamble>
      Authorial content by the author
    </preamble>
    <body>
      Authorial content by the author
    </body>
    <attachments>
      Authorial content by the author
    </attachments>
  </bill>
</akomantoso>
Type of Documents and Meta

- documentType
  - amendmentList
  - officialGazette
  - documentCollection
  - act
  - bill
  - debateReport

- meta
  - identification
    - publication
  - classification
    - lifecycle
    - workflow
  - analysis
  - temporalData
  - references
  - notes
  - proprietary
  - presentation
AKN characteristics

1. **Document oriented** – document is the central
2. **Self-contained and Self-explainable** – document is autonomous
3. **Descriptive** – document is well described also in odd structure
4. **Prescriptive** – document is checked in quality
5. **Separation of concerns** - content, metadata, presentation are separated
6. **Ontology-oriented** – the ontology level is external of the document
7. **Technology Natural** – independent from technology
8. **Persistent over time** – long term preservation for archiving
9. **Workflow-oriented** – document is part of a legislative process
Fundamental technical design issues of Akoma Ntoso

- **Abundant vocabulary** – for full descriptivity of document instances across countries, languages, jurisdictions, ages
- **Strict vocabulary patterns** - all elements belong to one and only one of 6 fundamental patterns... No exceptions.
- **Strict separation of contributions** - authorial content is physically separated from editorial content (markup, metadata, editorial footnotes, scholarly additions, etc.)
- **Layering of document properties** - Fully based on ICLA-FRBR concepts to distinguish and connect under a common umbrella different physical files in different data formats in different versions and variants
- **Naming convention** – give explicit and meaningful names (addresses IDs and URIs) to documents in all their characterizations and instantiations
FRBR – URI in Akoma Ntoso
(compliant with ELI)

/work expression man.

work

expression

manifestation

manifestation of the expression in force in 2003

/work expression man.

expression

manifestation

manifestation of the expression in force at 2003 but with the view of 2005

 Resolver: http://akresolver.cs.unibo.it/
Top Level Class

- date
- time
- person
- organization
- concept
- object
- event
- location
- process
- role
- term
- quantity
- def
- entity

Linguistic annotation: UN Challenge

To achieve the above mentioned objective the project is divided in tasks:

• **Detect NER** role, event, organization, location, date
• **Classify the sentences** using the definitions of the SDGIO
• **Qualify the sentences** in operational and preambular using linguistic patterns
• **Recognise the document structure** in the main parts: **coverPage, preface, preamble, mainBody, conclusions, annexes**
• **Convert** all the extracted knowledge in **Akoma Ntoso**
• **Interpret** the extracted knowledge and to create semantic assertion using to the existing ontologies (e.g., ALLOT, UNDO, SDGIO, etc.). The idea is to create a RDF repository with those assertions
5. We reaffirm the crucial importance of universal ratification of the United Nations Convention against Transnational Organized and the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations
UN-Challenge 2019


CONCEPT/ONTOMETRY

```xml
<TLCConcept eId="concept_sdg_5" href="/akn/ontology/concepts/un/sdg_5" showAs="SDG 5"/>
```

KEYWORD

```xml
<keyword eId="keyword_5" dictionary="SDGIO" value="goal_5" href="/akn/ontology/concepts/un/sdg_5" showAs="SDG 5" refersTo="#concept_sdg_5"/>
```

CLASSIFICATION

```xml
<proprietary source="#cirsfidUnibo">
  <akn4un:source href="#para_3">
    <akn4un:sdgGoal value="#keyword_5" confidence="1.2315473556518555" name="SDGIO"/>
    <akn4un:sdgTarget value="#keyword_5_5.2" confidence="1.6334762573242188" name="SDGIO"/>
  </akn4un:source>
</proprietary source>
```
Debates example of the three layers

Mr. Kofa asked the Minister of State, Office of the President

- whether he is aware that Councillor Abdi Sole of Asako Location was seriously injured and two homeguards were shot dead and their guns stolen while pursuing bandits on 20th May, 1995;

```xml
<heading>ORAL ANSWERS TO QUESTIONS</heading>
<subdivision name="question" id="qaa1-que1">
  <heading>BANDITRY MENACE IN GALOLE</heading>
  <question by="Kofa" to="MS">
    <from>Mr. Kofa</from>
    <p>Mr. Kofa asked the Minister of State, Office of the President</p>
    <ul id="qaa1-que1-ul1">
      <li>whether he is aware that Councillor Abdi Sole of Asako Location was</li>
    </ul>
  </question>
</subdivision>
```

```
<TLCPerson href="/ontology/person/ken/MP/ken.John.Kofa" id="Kofa" showAs="Mr. Kofa" />
<TLCRole href="/ontology/role/political/MS" id="MS" showAs="Minister of State, Office of the President" />
```
Tenth Parliament
(No.125)

Fourth Session
(2037)

REPUBLIC OF KENYA
NATIONAL ASSEMBLY

TENTH PARLIAMENT – (FOURTH SESSION)

ORDERS OF THE DAY

TUESDAY JANUARY 18, 2011 AT 2.30 P.M.

PRAYERS
1. Administration of Oath
2. Communication from the Chair
3. Petitions
4. Papers
5. Notices of Motion
6. Questions (as set out in the Appendix)
7. Statements

COMMENCEMENT OF BUSINESS

8*. THE JUDICIAL SERVICE BILL (BILL NO.17 OF 2010)
(The Minister for Justice, National Cohesion and Constitutional Justice)

Second Reading

9*. MOTION - (Chairperson – Departmental Committee on Administration and National Security)
NATIONAL ASSEMBLY
OFFICIAL REPORT

Tuesday, 7th December, 2010

The House met at 2.30 p.m.

[Mr. Speaker in the Chair]

PRAYERS

PAPERS LAID

The following Papers were laid on the Table:-

Report of the Kenya Parliament delegation to the 12th Annual Conference of the Association of Public Accounts Committees of the Republic of South Africa held from 11th to 14th October, 2010 at the Inkosi Albert Luthuli International Conference Centre in Durban, South Africa.


(By Dr. Khaiwale)

The Quarterly Economic and Budgetary Review, Fourth Quarter, 2009/2010

The Quarterly Economic and Budgetary Review, First Quarter, 2010/2011
debateBody

debateBody can be modelled using parliamentary regulation functions

Among the others we find <debateSection>
\textbf{debateSection}

\begin{itemize}
\item \texttt{<debateSection>}
\item \textbf{Includes}
  \begin{itemize}
  \item \texttt{<speech>}
  \item \texttt{<question>}
  \item \texttt{<answer>}
  \item \texttt{<scene>}
  \item \texttt{<narrative>}
  \item \texttt{<summary>}
  \end{itemize}
\end{itemize}

Multiple elements above listed could be wrapped in \texttt{<speechGroup>}. 
NOTICE OF MOTION

ADOPTION OF 2007/2008 PAC REPORT

Dr. Khalwale: Mr. Speaker, Sir, I beg to give notice of the following Motion:-

Mr. Speaker, Sir, I beg to give notice of the following Motion:-

<debateSection name="question" eId="question_1">
  <heading>ENGINEERING COURSES OFFERED BY Bungeni UNIVERSITY</heading>
  <question by="#delta" to="#mhest" as="#pm">
    <from to="#mhest">Mr. Delta</from>
    <p>Mr. Speaker, Sir, I beg to ask the Minister for Higher Education, Science and Technology the following Question by Private Notice.</p>
  </question>
</debateSection>
narrative, summary, scene

<narrative>(By the Assistant Minister, Office of the Deputy Prime Minister and Ministry of Finance (Dr. Beta), on behalf of the Deputy Prime Minister and Minister for Finance)</narrative>

<summary>(Question deferred)</summary>

<scene>(Laughter)</scene>
ADJOURNEMENT

The Temporary Deputy Speaker (Mr. Chachu): Hon. Kaino, you will have 18 minutes next time. Hon. Members, it is time for the interruption of business. The House stands adjourned until tomorrow, Wednesday, 8th December, at 9.00 a.m.

The House rose at 6.30 p.m.

8:28:16 P.M. The House adjourned pursuant to a previous special order. The next meeting is scheduled for 1:00 p.m. on July 31, 2015.
<adjournment id="adjournment_1">
    <heading>ADJOURNMENT</heading>
    <speech by="#epsilon" as="#sec">
        <from>Mr. Epsilon</from>
        <p>The Temporary Deputy Speaker (Mr. Chachu): Hon. Kaino, you will have 18 minutes next time. Hon. Members, it is time for the interruption of business. The House stands adjourned until tomorrow, Wednesday, 8th December, at 9.00 a.m.<br/>The House rose at 6.30 p.m.</p>
    </speech>
</adjournment>
Some examples of debates

- http://sinatra.cirsfid.unibo.it/XMLViewer/
- http://docs.oasis-open.org/legaldocml/akn-core/v1.0/os/part2-specs/examples/
  
  Note: not all the documents are valid with the last schema released because they used also previous version of Akoma Ntoso. However the differences are minors and the main principles respected.

- SCHEMA: http://docs.oasis-open.org/legaldocml/akn-core/v1.0/os/part2-specs/schemas/
Resolution 33/83
PAYMENT OF CONTRIBUTIONS - COMOROS

THE CONFERENCE,
Noting that the Government of Comoros had made a proposal that it liquidate its arrears of contributions over a period of ten years commencing in 1983, in addition to paying each current contribution in the calendar year of assessment,

Decide that:

1.
Notwithstanding Financial Regulation 3.6, the arrears of contributions of Comoros totalling $70 678.00 shall be settled through the payment of ten equal annual instalments of $7 067.80.
Comparative visualization
Network analysis of the semantic connections

*Sisma 2012 Ordinanze e modifiche*
Summary: annotation in the debate

- Structure: preface, preamble, body
- role, person, organization, quantity, vote
- **Functional part** of the speech (e.g., oralStatement, rollCall, question, etc.)
- Accessory part of the speech: narrative, summary, scene
- Time information
- Normative references
Conclusions

• **Akoma Ntoso** is a robust Legal XML standard for legal open document representation, especially for Parliamentary documents.

• **Other standards** could be integrated using patterns and design principles in favour of Semantic Web and Internet of Things. Reusability and interoperability are guaranteed **LegalRuleML**.

• **Future**: empowering machine-readable legal knowledge as “source of law”, guaranteeing integrity, **authoritativenss**, **authenticity**, persistence over time, codifying **interpretation**.

9-14 September
16-17 September for Developers
• Curiosity Shakespeare in Akoma Ntoso

https://shakespeare.sayit.mysociety.org/hamlet/act-i/scene-i-elsinore-a-platform-before-the-castle.an

monica.palmirani@unibo.it