

# Bungeni Editor Architectural Concepts



## Africa i-Parliaments

open, participatory & knowledge based parliaments



# Bungeni Editor & OpenOffice

- Extends OpenOffice
- Uses ODF (OpenDocument format as storage format)
- XML Configuration Architecture
- Uses the Java OpenOffice-UNO API set for interacting with OpenOffice
  - [Http://api.openoffice.org](http://api.openoffice.org)
  - Mature JAVA Api as opposed to other supported APIs



# ODF – OpenDocument format

- Word Process format used by OpenOffice
- ODF is a XML file
- ODF is a OASIS standard
- ODF is a dumb document



# Akoma Ntoso – Legislative XML format

- AN is a XML file
- AN is going to be a OASIS standard
- AN is a “smart” document
- Difference between “smart” and “dumb” is semantics



# Semantic ODF

- Allows “Smartening up” ODF
- ODF 1.2 – supports RDF metadata
- RDF - <http://www.w3.org/TR/rdf-primer/>
- We associate RDF metadata to dumb word-process elements like sections, bookmarks etc to make them “smart”



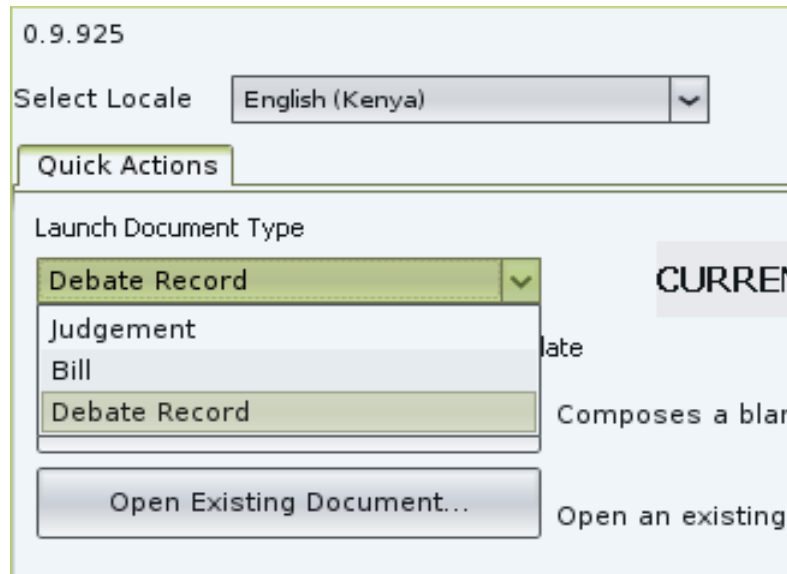
# Semantic ODF

- Bungeni Editor is a Semantic ODF generator
- Semantic ODF maps to Akoma Ntoso via Configuration



# Document Types

- Declarative Type Configuration



# Document Types

```
<doctype name="judgement"  
  template="workspace/templates/judgement.ott"  
  default-part="main">  
  <title xml:lang="eng">Judgement</title>  
  <title xml:lang="spa">dictamen</title>  
  <title xml:lang="ara">حكم</title>  
  <uri type="work">~CountryCode~DocumentType~Year-Month-Day</uri>  
  <uri type="expression">~CountryCode~DocumentType~Year-Month-Day~LanguageCode</uri>  
  <file-name-scheme>CountryCode~DocumentType~Year-Month-Day~LanguageCode</file-name-scheme>  
  <metadata-editors>
```

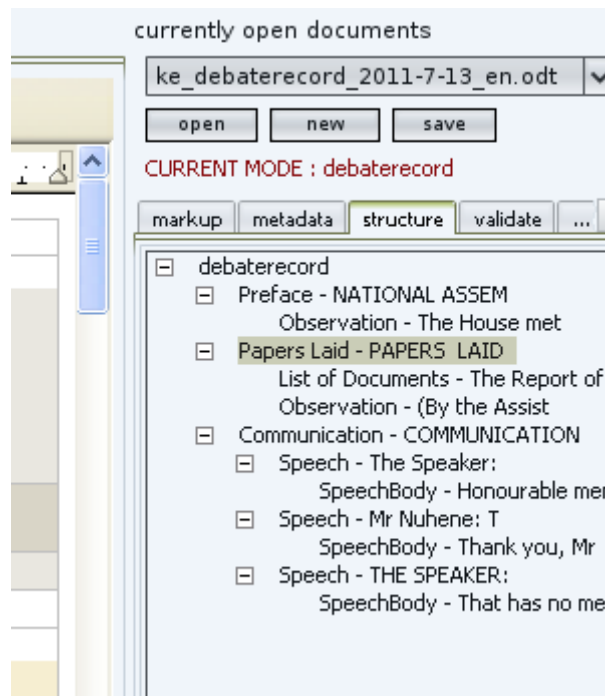
```
  <title xml:lang="eng">Judgement Metadata</title>  
  <title xml:lang="ara">المعلومات الواصفة للحكم</title>  
  <metadata-editor class="org.bungeni.editor.metadata.editors.GeneralMetadata" >  
    <title xml:lang="eng">General</title>  
    <title xml:lang="ara">معلومات عامة</title>  
  </metadata-editor>
```





# Section Types

- Equivalent to a Akoma Ntoso container element



# Section Types

```
<sectionType name="ProceduralMotion"  
  prefix="procmotion"  
  numstyle="serial"  
  background=" url:/settings/configs/backgrounds/shade-4.png"  
  indent-left=".5"  
  indent-right="0"  
  visibility="user" >  
  <numbering scheme="none"  
    decorator="none" />  
</sectionType>
```



# Section Types

```
<sectionType name="Part"  
  prefix="part"  
  numstyle="serial"  
  background="0xffffa1"  
  indent-left=".3"  
  indent-right="0"  
  visibility="user" >  
  <numbering scheme="ALPHABETICAL"  
    decorator="postDashed" />
```



## Section Type => Element mapping

**<sectionType .....>....**

**<metadatas>**

**<metadata name="BungeniSpeechBy" />**

**<metadata name="BungeniSpeechByURI" />**

**<metadata name="BungeniSpeechAs" />**

**<metadata name="BungeniSpeechAsDesc" />**

**<metadata name="BungeniSpeechAsURI" />**

**<metadata name="BungeniPersonId" />**

**<metadata name="BungeniPersonRole" />** **</metadatas>**

**<output>**

**<meta>**

**<TLCPerson id="\$BungeniPersonID" href="\$BungeniSpeechByURI" showAs="\$BungeniSpeechBy" />**

**<TLCRole id="\$BungeniSpeechAs" href="\$BungeniSpeechAsURI" showAs="\$BungeniSpeechAsDesc" />**

**</meta>**

**<content>**

**<speech by="#\$BungeniPersonID" as="#\$BungeniSpeechAs" />**

**</content>**

**</output> </sectionType>**



# Section Types

- Adds behaviors to a word processor section
- Metadata becomes available as settable attributes –

```
<metadata name="BungeniSpeechBy" />
```

```
<metadata name="BungeniSpeechByURI" />
```

```
<metadata name="BungeniSpeechAs" />
```

```
<metadata name="BungeniSpeechAsDesc" />
```

- Metadata captured as a RDF graph in the ODF file



# Akoma Ntoso Metadata

- Akoma Ntoso splits metadata and content , and discourages entity references in content
- This is good for XML cleanliness – but makes implementation more complex



# Akoma Ntoso Metadata – e.g.

- Content :

```
<speech by="#johnSmith" as="#ministerFinance">
```

.....

```
</speech>
```

- In the metadata header :

```
<TLCPerson id="johnSmith" href="/za/person/clerk/1970-01-02/johnSmith">
```

```
<TLCTRole id="ministerFinance"  
href="/ontology/za/minister/finance" />
```



# Section Type Configuration

```
<sectionType .....>....  
<metadatas> .... </metadatas>  
<output>  
  <meta>  
    <TLCPerson id="$BungeniPersonID" href="$BungeniSpeechByURI" showAs="$BungeniSpeechBy" />  
    <TLCTitle id="$BungeniSpeechAs" href="$BungeniSpeechAsURI"  
showAs="$BungeniSpeechAsDesc" />  
  </meta>  
  
  <content>  
    <speech by="#$BungeniPersonID" as="#$BungeniSpeechAs" />  
  </content>  
</output>  
</sectionType>
```





# Section Type Configuration

```
<sectionType .....>....  
<metadatas> .... </metadatas>  
<output>  
  <meta>  
    <TLCPerson id="$BungeniPersonID" href="$BungeniSpeechByURI" showAs="$BungeniSpeechBy" />  
    <TLCTitle id="$BungeniSpeechAs" href="$BungeniSpeechAsURI"  
showAs="$BungeniSpeechAsDesc" />  
  </meta>  
  
  <content>  
    <speech by="#$BungeniPersonID" as="#$BungeniSpeechAs" />  
  </content>  
</output>  
</sectionType>
```



# ODF - > Akoma Ntoso

- ODF is converted to Akoma Ntoso via a middle ware
- The middle ware is a XSLT Pipeline



# ODF - > Akoma Ntoso

- Middle-ware used to be hand-written XSLT (!!!!)
- Middle-ware now generated on the fly from Configuration

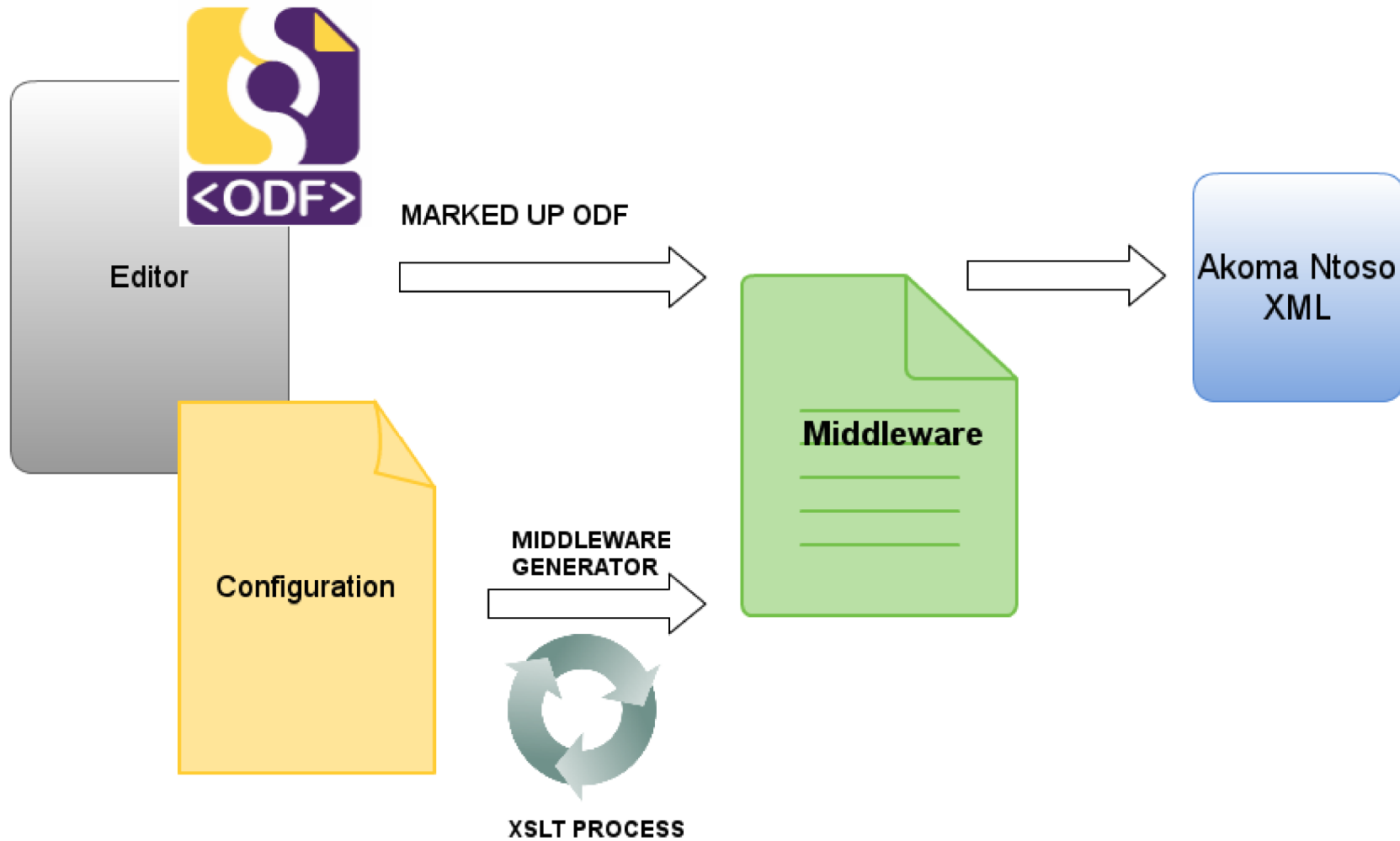


# ODF - > Akoma Ntoso

- Middle-ware used to be hand-written XSLT (!!!!)
- Middle-ware now generated on the fly from Configuration



# ODF - > Akoma Ntoso



# Inline Type

- Equivalent to a Akoma Ntoso inline element
- Configuration mechanism like Section types

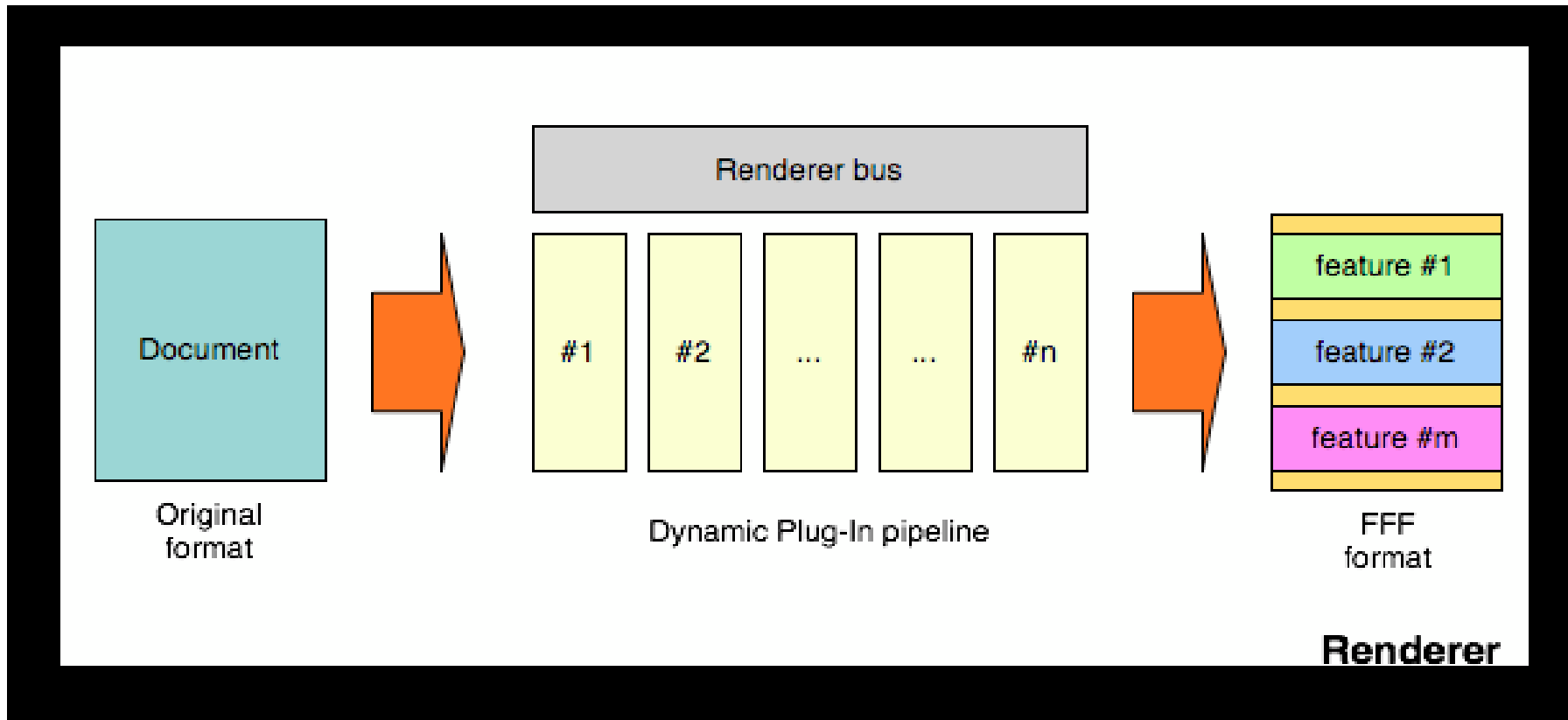


# Middleware Component

- XML Pipeline Step-based Processor – kinda like Xproc (Saxon based)
- Reads and Processes ODF packages
- XSLT processor
- Search & Replace Step Processor
- Schema validator step processor
- XML / XHTML cleanup processor



# Middleware Component





# Middleware Component

```
<input output="true">  
  <xslt step="1" name="appendBungeniNS" href="pipeline_xslt/common/add_bungeni_ns.xsl"/>  
  <!-- Add RDF ns -->  
  <xslt step="2" name="appendRDFNS" href="pipeline_xslt/common/add_rdf_ns.xsl"/>  
  <!-- Extract the styles -->  
  <xslt step="3" name="mergeStyles" href="pipeline_xslt/common/merge_styles.xsl"/>  
  <!-- Transform the document to the META Language -->  
  <xslt step="4" name="odf_rdf_transform"  
    href="pipeline_xslt/debatererecord/odf_to_rdf_language.xsl"  
    process="#meta_language_cleanup"  
  />  
</input>  
<replacement ...>  
<output ....>  
<postxml ....>  
<processgroup .....
```



# Middleware Component

- Also used by Bungeni Legislative Management
- ProcessGroup support was an open source contribution

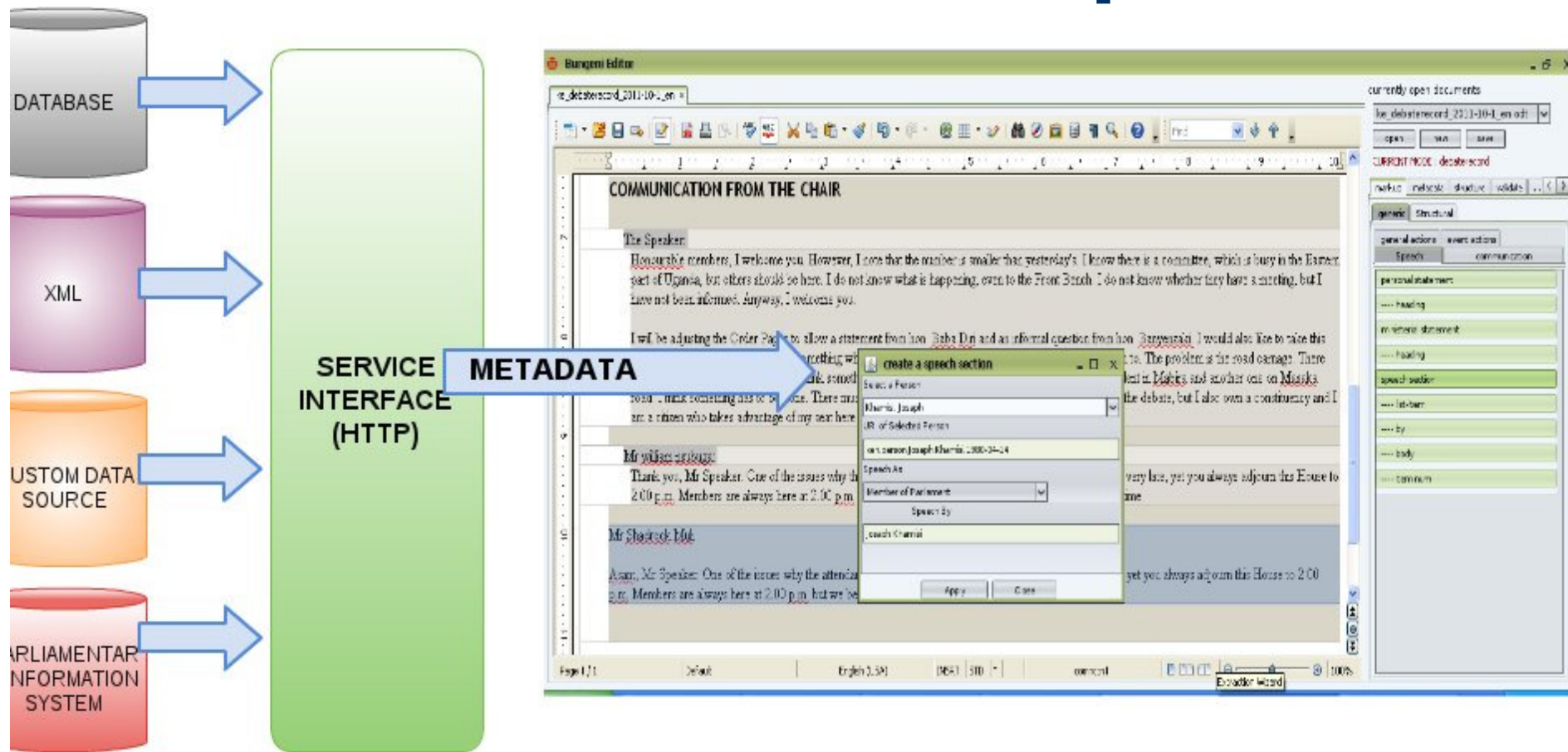


# External Metadata Markup

- Content Metadata markup – e.g. select a member of parliament and markup his name.
  - Prompts for a selection Dialog to identify metadata



# Content Markup



# Content Markup

- Editor knows about the service providing metadata , not about the back-end
- Backend can be plugged in to implement the service
- Controllable via Configuration



# Other Markup

- Reference Markup
- No Quoted text support yet



# Numbering / Renumbering

- Current implementation not Scalable to large documents
  - Does “Live” numbering / renumbering via the UNO API
- New Implementation does Off-screen num/renumbering – uses the ODFDOM ODF access library



# UI Configuration

The screenshot displays the Bungeni Editor application window. The main editing area contains a document with the following content:

**NATIONAL ASSEMBLY**

**OFFICIAL REPORT**

Wednesday, 13th July, 2011

*The House met at thirty minutes past Two o'clock.*  
*[Mr Speaker in the Chair]*

**PAPERS LAID**

**The following Papers were laid on the Table:**

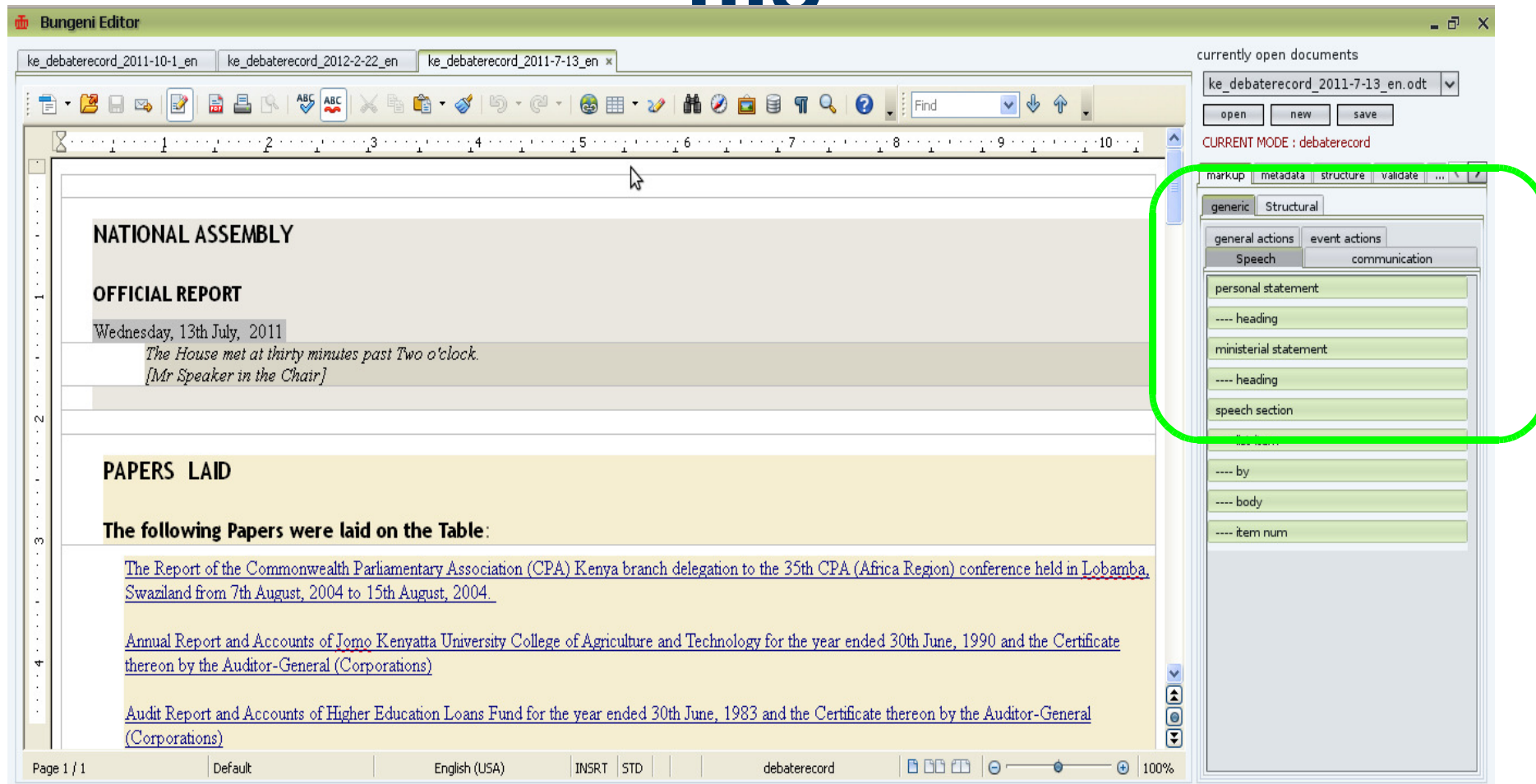
- [The Report of the Commonwealth Parliamentary Association \(CPA\) Kenya branch delegation to the 35th CPA \(Africa Region\) conference held in Lobamba, Swaziland from 7th August, 2004 to 15th August, 2004.](#)
- [Annual Report and Accounts of Jomo Kenyatta University College of Agriculture and Technology for the year ended 30th June, 1990 and the Certificate thereon by the Auditor-General \(Corporations\)](#)
- [Audit Report and Accounts of Higher Education Loans Fund for the year ended 30th June, 1983 and the Certificate thereon by the Auditor-General \(Corporations\)](#)

The right-hand sidebar is titled 'currently open documents' and shows the current document 'ke\_debaterecord\_2011-7-13\_en.odt'. Below this, it indicates 'CURRENT MODE : debaterecord' and provides tabs for 'markup', 'metadata', 'structure', and 'validate'. The 'structure' tab is active, showing a 'generic' view with 'Speech' and 'communication' modes. Under 'Speech', there are several action items: 'personal statement', '---- heading', 'ministerial statement', '---- heading', 'speech section', '---- list-item', '---- by', '---- body', and '---- item num'. The bottom status bar shows 'Page 1 / 1', 'Default', 'English (USA)', 'INSRT STD', 'debaterecord', and '100%'.





# Tabs configurable via Config file



The screenshot displays the Bungeni Editor interface. The main window shows a document with the following content:

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[Audit Report and Accounts of Higher Education Loans Fund for the year ended 30th June, 1983 and the Certificate thereon by the Auditor-General \(Corporations\)](#)

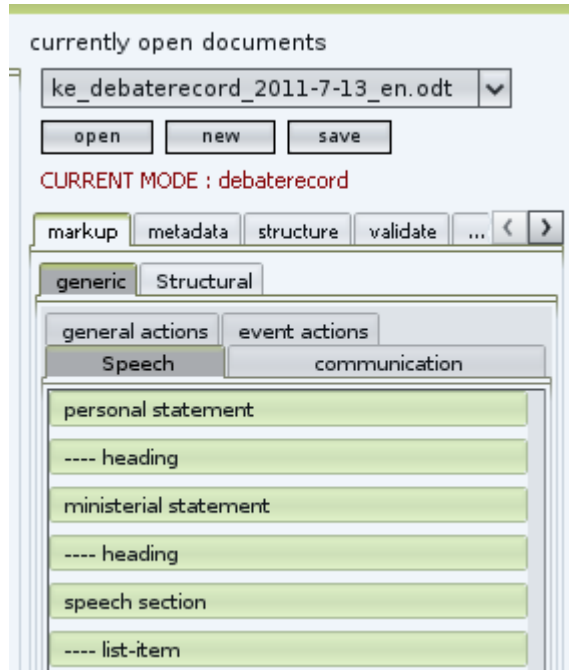
The right-hand panel, titled 'currently open documents', shows the document 'ke\_debatercord\_2011-7-13\_en.odt' in 'CURRENT MODE : debatercord'. The 'markup' tab is selected, and the 'Speech' sub-tab is active. The configuration panel lists several elements:

- personal statement
- heading
- ministerial statement
- heading
- speech section
- by
- body
- item num

The status bar at the bottom indicates 'Page 1 / 1', 'Default', 'English (USA)', 'INSRT STD', 'debatercord', and '100%'.



# Action UI Layout



Switchable UI  
Layouts,

Tabbed buttons or  
Collapsible actions

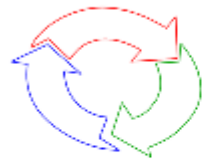
Rendered from  
Configuration



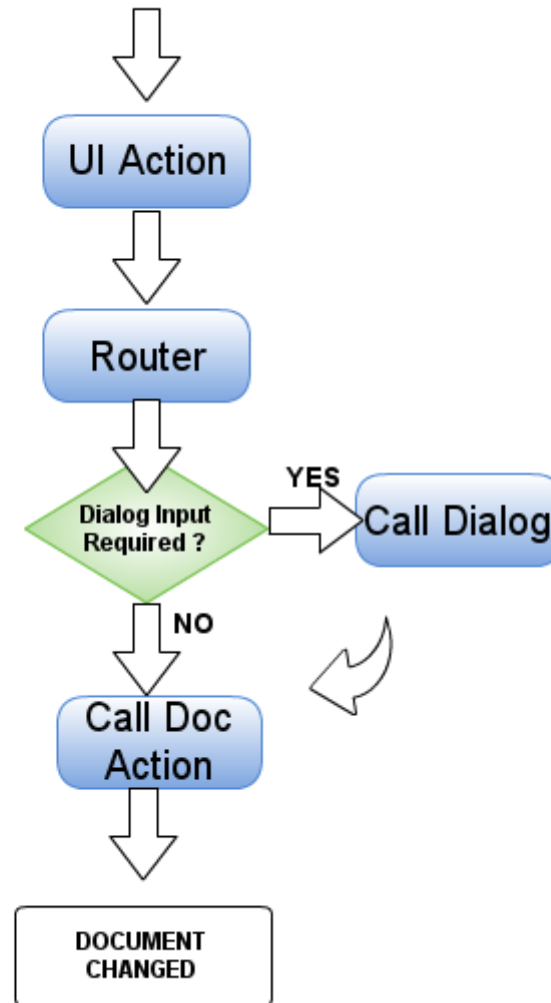
# Action UI Layout



User Context -  
Enable / Disable



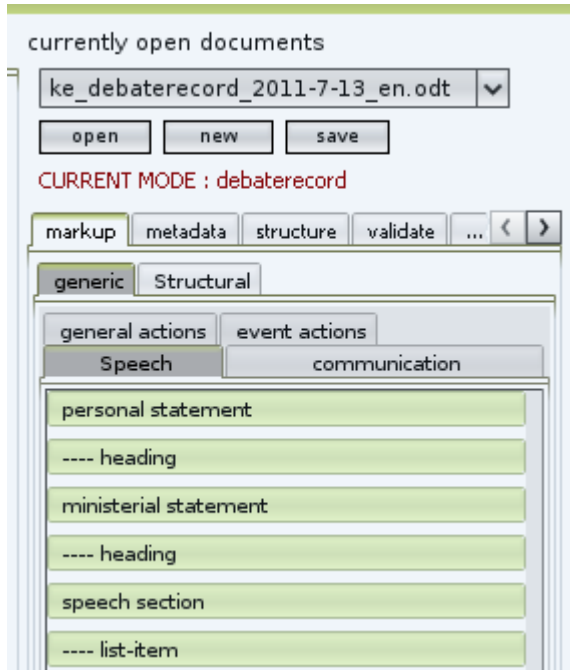
User Click



CONFIGURATION



# Action UI Layout



Switchable UI  
Layouts,

Tabbed buttons or  
Collapsible actions

