TEI Simple: state of the nation

TEI Simple Massive (SR, BPZ, MM, MT)

March 2015

Reminder of objectives

1. The highly constrained and prescriptive element subset of TEI Simple
2. The processing model (Simple Processing Model: SPM)
3. Formal mapping of the TEI elements used by Simple to the CIDOC CRM
4. TEI-Performance Indicators
5. Integration of TEI Simple into the TEI infrastructure

Deliverables

1. A TEI ODD customization with the choices and constraints, SPM notation, and RDF mapping
2. Multi-stage tutorial documentation based on examples using page images and XML
3. Implementation(s) of the Processing Engine (PE)

These outputs will be offered to the TEI Technical Council to decide on how to best to incorporate and maintain them

TEI Simple: original work plan

October	Complete customization with closed value lists for attributes	**DONE**
November/ December	Complete definition of the SPM	**DONE**
December/ January/ February	Implementation of the SPM	**DONE (proof of concept)**
January/ February	Documentation and examples	**NOT COMPLETED**
March	TEI Performance indicators	**STARTED**
April	Mapping to RDF	**TO BE DONE**

Progress on TEI-Simple subset

- 114 TEI-Simple elements located in the <body> of a text. (A lesson from the MONK Project about unecessary variation.)
- Decided to leave <teiHeader> alone (rightly?)
- Customization maintains simplicity with closed value lists for selected attribute classes (e.g., <name>, <cell>, <row>).
- Completed conversion routine to TEI-Simple from normal TEI files.
- Schematron <constraint>s make it possible to check any special constraints specified in the TEI-simple ODD file that are not already required in the TEI-Simple schema.
- Besides Schematron, validation against a TEI-Simple RelaxNG schema, using Jing.
- Schematron and Jing validation occur in a single Ant task (Ant runs in oXygen, on many platforms, and efficiently uses a single instance of the Java Virtual Machine).
- Tested on whole of EEBO etc. for all of TCP 60K+ files (EEBO, ECCO, Evans)

Simple processing model: SPM

- workflow (flowchart)
- extensions to tei model etc
- example PM for simple elements
- implementation of pe to html in xslt

SPM: how does that work?

1. TEI Simple schema ODD contains instructions for intended processing of TEI Simple elements
2. instructions are simple XML fragments stating which task from a limited TEI Simple function library should be executed when processing that element
3. multiple processing instructions may occur to define expected behaviour in various contexts or output formats
4. Processing Engine is able to transform TEI Simple source documents into output format(s) according to processing instructions from TEI Simple ODD

Source documents

TEI Simple XML

Necessary changes to TEI

TEI ODD language needs to be extended with following elements and attributes (proposal pending consideration by TEI Council):

- <model> *@behaviour* (specifies the actions to undertake), *@predicate* (circumstances where this rule applies), *@output* (output for which rule applies), *@useSourceRendition* (should processing take into account original rendition))
- <modelSequence> (groups sequences of tasks that are to be executed)
- <modelGrp> (groups <model>s and <modelSequence>s for readability and conciseness
- <rendition> (specifies the formatting of the output)

TEI Simple Processing model example

TEI Simple schema ODD has been enhanced with processing models for TEI Simple elements :

```
<elementSpec mode="change"
 ident="note">
 <model predicate="@place"
  behaviour="note(.,@place)"/>
 <model predicate="parent::div and not(@place)"
  behaviour="block(.)">
  <rendition>margin-left: 10px;margin-right: 10px;
font-size:smaller;</rendition>
 </model>
 <model predicate="not(@place)"
  behaviour="inline(.)">
  <rendition scope="before">content:" [";</rendition>
  <rendition scope="after">content:"] ";</rendition>
  <rendition>font-size:small;</rendition>
 </model>
</elementSpec>
```

TEI Simple Processing model example (2)

```
<elementSpec mode="change" ident="q">
 <model predicate="l"
  behaviour="block(.)" useSourceRendition="true">
  <rendition>margin-left: 10px; margin-right: 10px;
</rendition>
 </model>
 <model predicate="ancestor::p or ancestor::cell"
  behaviour="inline(.)" useSourceRendition="true">
  <rendition scope="before">content: '‘';</rendition>
  <rendition scope="after">content: '’';</rendition>
 </model>
 <model behaviour="block(.)"
  useSourceRendition="true">
  <rendition>margin-left: 10px; margin-right: 10px;
</rendition>
 </model>
</elementSpec>
```

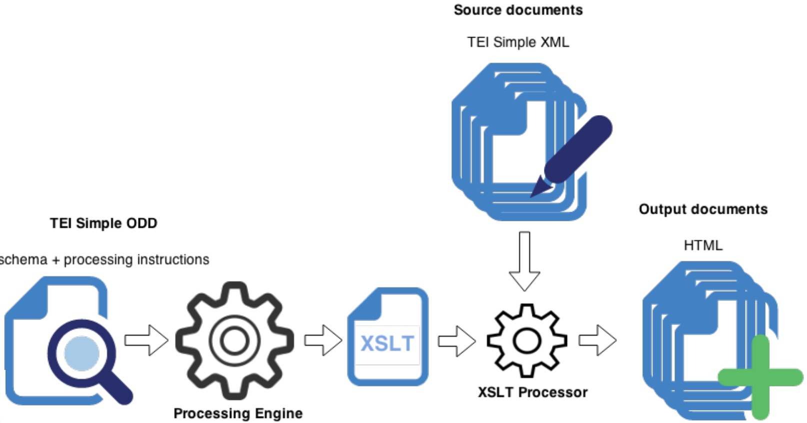
TEI Simple function library

A number of core tasks have been identified and corresponding function library created. Only functions from this library are allowed for use in TEI Simple ODD

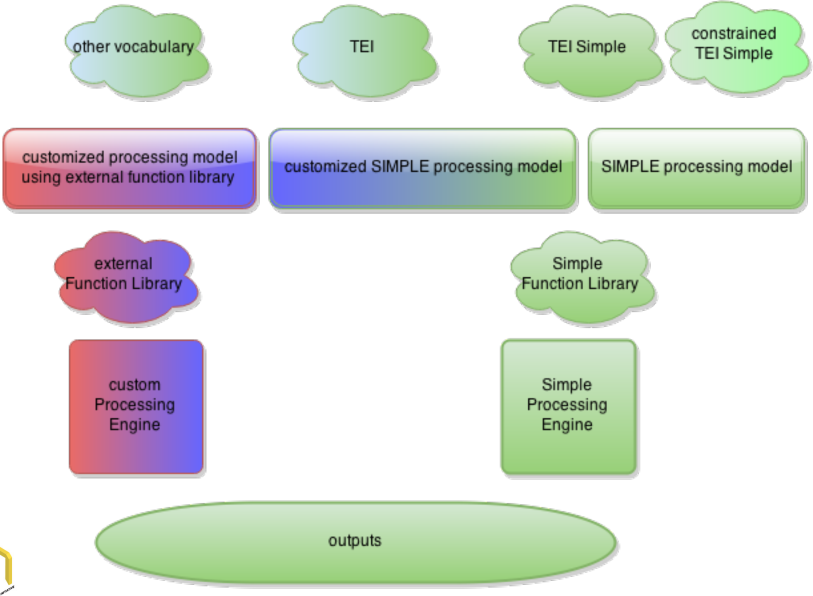
- tei:inline
- tei:block
- tei:break
- tei:paragraph
- tei:heading tei:title
- tei:anchor
- tei:graphic tei:figure
- tei:glyph
- tei:note
- tei:alternate
- tei:link
- tei:list tei:listItem
- tei:table tei:row tei:cell
- tei:index

PE implementation

As a proof of concept an implementation of PE and Simple function library has been created in XSLT. It consists of XSLT stylesheets suite that generate transform stylesheets based on processing models from TEI Simple ODD.



TEI Simple universe and beyond



The Performance Indicator

The aim is to be able to show for a given text

- Whether it claims to conform to the TEI Simple view of the world
- How it matches up against various encoding criteria
- Which directions it has gone in

The idea is that one can browse a corpus of texts and quickly filter on the basis of encoding (cf `http://www.ota.ox.ac.uk/tcp/`)

Formal editorial decisions

Each of these elements has format attributes (as well as prose) for providing quantifiable information

Within <encodingDesc>/<editorialDecl>:

- <correction >
- <hyphenation >
- <normalization >
- <punctuation >
- <quotation >

Extensions we need on <editorialDecl>

- add "sampled" to values for @status on <correction>
- add "standoff" to values for @method on <correction>
- add @quality to <correction>, with a datatype of *data.probability* (cf Martin's analysis of EEBO)
- add @scheme to <editorialDecl> (eg `<scheme="teisimple">`)
- make <interpretation> member of att.declaring to allow categorization

Typical categorizations

Named entities, from ‘Teddie loved Buckingham Palace’:

- named entities recognized (Buckingham)
- phrases identified (Buckingham Palace)
- identifying unique things (correlating Edward and Teddie)
- linked to external authority (King Edward VIII)

Date from ‘dated Mons, 3rd August’:

- marked up as date
- normalized date

POS tagging:

- word recognition
- sentence recognition
- tagging with POS
- lemmatization

Marking up categorizations

In the header:

```
<category xml:id="named">
 <catDesc>personal name recognition</catDesc>
 <category>
  <category xml:id="named-1">
   <catDesc>identified names</catDesc>
  </category>
  <category xml:id="named-2"/>
  <catDesc>joined together names to form unique
individuals</catDesc>
  <category xml:id="named-3">
   <catDesc>linked people to external sources</catDesc>
   <category xml:id="named-3-1">
    <catDesc>mostly done but didn't bother with
servants</catDesc>
   </category>
  </category>
 </category>
</category>
```

In <editorialDecl>:

```
interpretation decls="#named-3-1"/>
```

Another example of PI, from DTA

```
<extent>
 <measure type="images">537</measure>
 <measure type="tokens">88183</measure>
 <measure type="types">5053</measure>
 <measure type="characters">516483</measure>
</extent>
```

Mapping to RDF (CRM and FRBRoo)

Planned to write X3ML mapping file and test transformation on EEBO texts

(cf `https://github.com/delving/x3ml` and `http://139.91.183.3/3M/`)

Integration with TEI Council

Scheduled for May? meeting of Council, at which James Cummings will present the PM and PI markup additions, and the Simple customization

Upcoming activities

- SR creating oXygen framework which references schemas and HTML transforms using XSLT PE
- WM delivers eXist-based system with PE
- MB delivers command-line Java-based PE
- Northwestern demo edition testing design/programmer differentiation
- MT organizes a Simple Hackathon in May/June to test PM 1.0
- (if needed, create PM 2.0, and ask WM, MT and MB to redo PE implementations)
- MM writes documentation/tutorial of the Simple Weltanschauung based on markup of real texts (referencing facsimiles)
- James Cummings presents TEI Simple at DH2015