From page to content

Which TEI representation for HTR output?

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“Next-Gen TEI”

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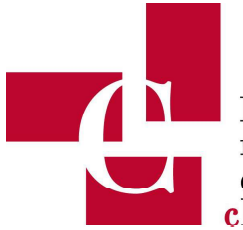


École nationale des chartes

Overview - from source documents to scholarly editions

Context: heterogeneous formats at the various stages of a digitisation workflow

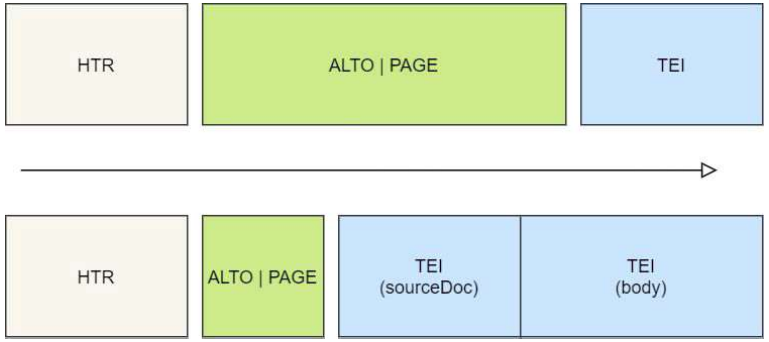
- ALTO/PAGE XML vs. TEI

Objectives:

- Improve reusability of content at various stages
- Hence, easier combination of different software solutions

Results:

- Propagation of metadata elements
- Mapping of layout, transcription information
- Architecture for integrating the content in further editions



Documenting a transcription: metadata representation with TEI

TEI

(METS XML)

PAGE XML

```
<Metadata>
      <Creator>escriptorium</Creator>
      <Created>2021-10-07T07:46:39.064183+00:00</Created>
      <LastChange>2021-10-07T07:46:39.064229+00:00</LastChange>
</Metadata>
```

```
<teiHeader>
      <fileDesc>
         <titleStmt>
            <title>FRAN_0025_3056_L-0</title>
            <respStmt>
               <resp>Transcribed with</resp>
               <name>escriptorium</name>
            </respStmt>
         </titleStmt>
         <publicationStmt>
            <p/>
         </publicationStmt>
         <sourceDesc>
            <p/>
         </sourceDesc>
      </fileDesc>
      <revisionDesc>
         <change when="2021-10-07T07:46:39.064183+00:00">Creation</change>
         <change when="2021-10-07T07:46:39.064229+00:00">Last change</change>
      </revisionDesc>
   </teiHeader>
```

Any metadata missing for documenting an automatic transcription?

→ The transcription model
→ Documenting automatic and manual post-processing, such as correction
→ Information regarding how the transcription was produced

Which TEI representation for the transcription itself?

What does the TEI have to offer for the representation of data resulting from HTR/OCR?

Beyond facsimiles, the **<sourceDoc>** element:

<sourceDoc>

<sourceDoc> contains a transcription or other representation of a single source document potentially forming part of a *dossier génétique* or collection of sources.

Screenshot from the TEI guidelines for the <sourceDoc> element (https://www.tei-c.org/release/doc/tei-p5-doc/fr/html/ref-sourceDoc.html)

How are we using the <sourceDoc>?

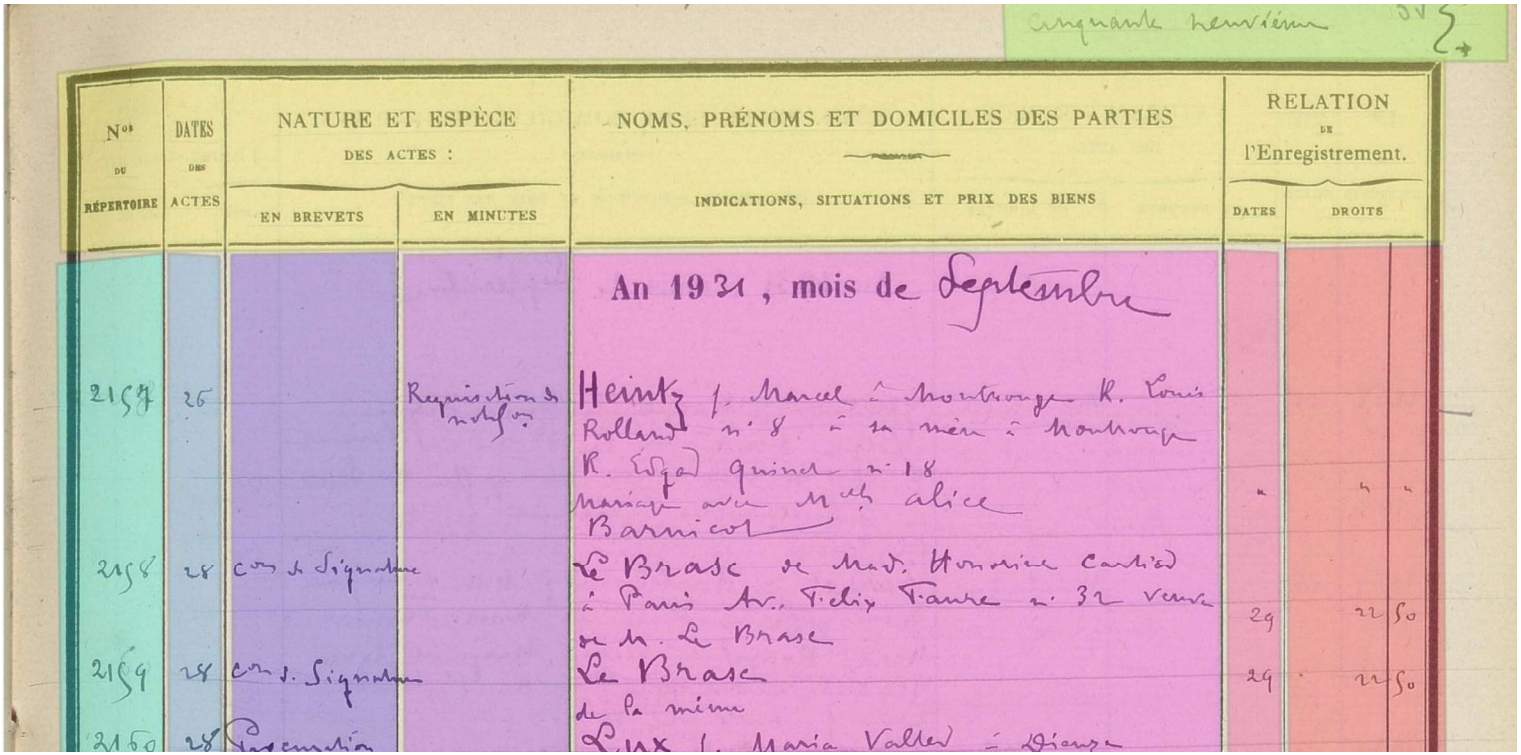
Two key principles:

→ The <sourceDoc> must be the strict transposition of all automatic transcription output elements.

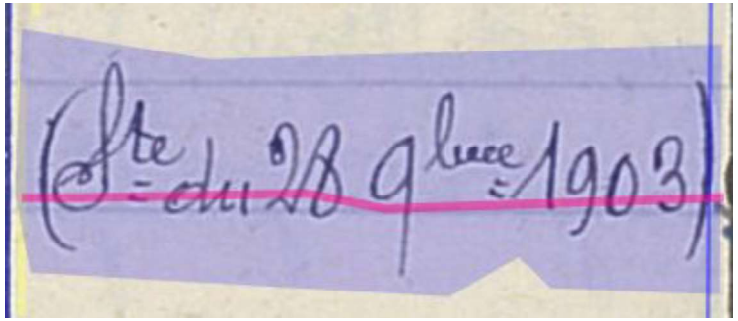
→ All elements in <body> are the user's responsibility and contain their interpretation/edition of the transcription.

A few words about automatic text recognition terminology

A page layout can be segmented into one or several **text regions**, each with their own coordinates:



Text lines can be nested in a text region.



A line of text combines:

- A baseline (pink) or a topline: a line defined by at least 2 points
- A mask (blue): a polygon defined by at least 3 points
- A text node

Representation of a page with TEI using the **<sourceDoc>** element

The PAGE XML <Page> element, with basic metadata, for instance:

```
<Page imageFilename="FRAN_0025_3056_L-0.jpg" imageWidth="2894" imageHeight="4393">
```

becomes a <sourceDoc> element in TEI:

```
<sourceDoc>
   <graphic url="FRAN_0025_3056_L-0.jpg" width="2894px" height="4393px"/>
```

PAGE XML and TEI structure of an image content:
text regions and baselines

```
<TextRegion id="eSc_textblock_afbab800"  custom="structure {type:col_1;}">
  <Coords points="421,615 421,2236 465,2211 465,2266 421,2269 425,2449 410,4148
```

```
<TextLine id="eSc_line_86b00a8e" >
  <Coords points="285,838 293,812 322,798 380,801 377,863 289,874"/>
  <Baseline points="289,841 389,845"/>
  <TextEquiv>
    <Unicode>198</Unicode>
  </TextEquiv>
</TextLine>
    ...
```

PAGE XML

TEI

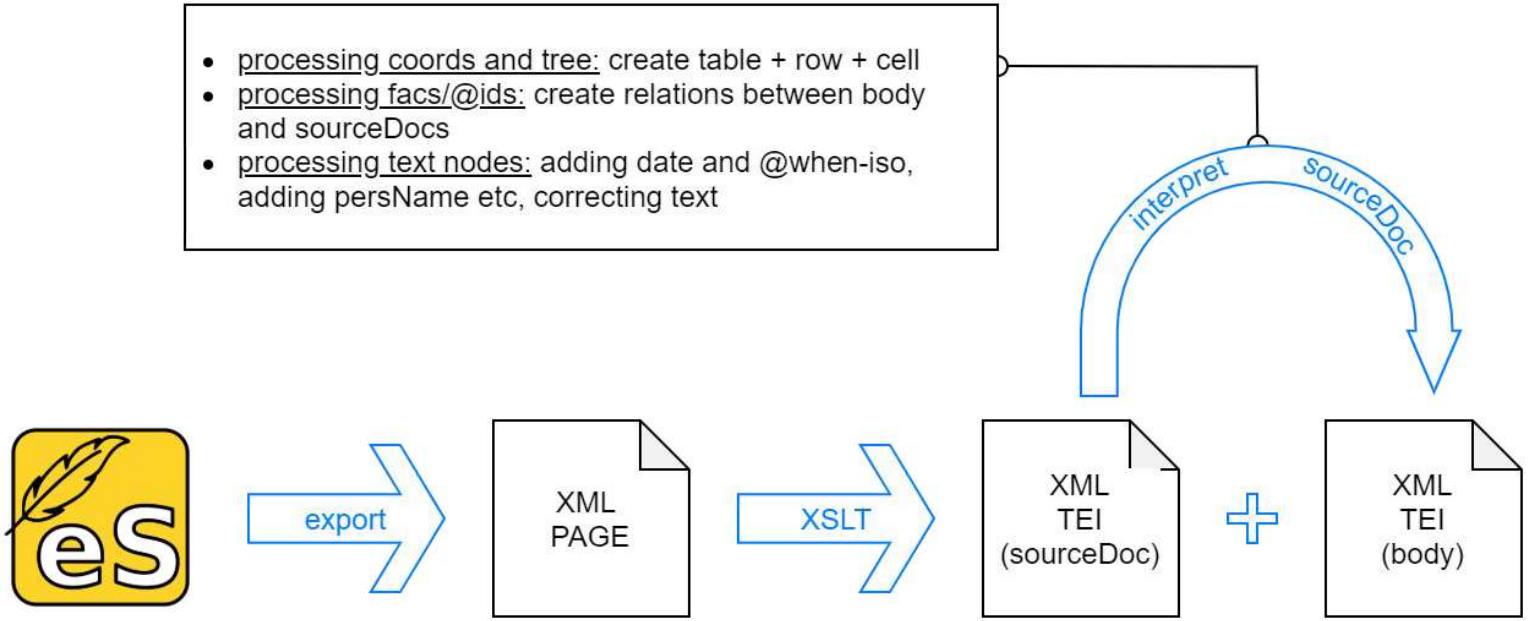
```
<surfaceGrp>
        <surface xml:id="eSc_textblock_afbab800"
                 type="structure_{type:col_1;}"
                 points="421,615 421,2236 465,2211 465,2266 421,2269 425,2449
```

```
<zone xml:id="eSc_line_86b00a8e"
      type="mask"
      points="285,838 293,812 322,798 380,801 377,863 289,874">
   <path type="baseline" points="289,841 389,845"/>
   <line>198</line>
</zone>
...
```

All TEI elements together:

```
<sourceDoc>
   <graphic url="FRAN_0025_3056_L-0.jpg" width="2894px" height="4393px"/>
   <surfaceGrp>
      <surface xml:id="eSc_textblock_afbab800"
               type="structure_{type:col_1;}"
               points="421,615 421,2236 465,2211 465,2266 421,2269 425,2449 410,4148 362,4213 205,4228
         <zone xml:id="eSc_line_86b00a8e"
               type="mask"
               points="285,838 293,812 322,798 380,801 377,863 289,874">
            <path type="baseline" points="289,841 389,845"/>
            <line>198</line>
         </zone>
         <zone xml:id="eSc_line_4218ebcd"
               type="mask"
               points="278,981 285,940 311,929 380,948 384,992 359,1028 318,1028 282,1006">
            <path type="baseline" points="278,981 384,992"/>
            <line>199</line>
         </zone>
         <zone xml:id="eSc_line_8c08ca3b"
               type="mask"
               points="271,1120 300,1068 366,1076 377,1112 369,1167 344,1145 278,1160">
            <path type="baseline" points="274,1123 379,1114"/>
            <line>200</line>
         </zone>
```

Linking interpreted content in the <text> elements with the various components available in <sourceDoc>



Simplification of the LEPIDEMO workflow

Keeping the link with IIIF image servers?

```
<graphic url="https://gallica.bnf.fr/iiif/ark:/12148/btv1b10224708f/f1/full/full/0/native.jpg"
source="https://gallica.bnf.fr/iiif/ark:/12148/btv1b10224708f/manifest.json"
 width="4872px" height="6496px"/>
```

Conclusion

- All elements from PAGE XML and ALTO files can be mapped to a <sourceDoc> element
- Switching to TEI earlier in the pipeline simplifies the workflow
- We present a proof of concept and a series of rather stable specifications and call for feedback from the community

The next steps are:

- Testing an implementation in a software like eScriptorium (under scrutiny)
- Adapting tools like TEI Publisher so they can readily display sourceDoc contents