

Beyond TEI

Digital Editions with XPath & XSLT for the Web & in \LaTeX

Sarah Lang

Harvard, April/May 2022



1. The workshop
2. Intro to HTML (& Bootstrap)

The workshop

Goals

1. get to know XPath & XSLT (and learn how to use it)
2. understand the role of XML/TEI, XPath and XSLT in Digital Editing
3. be able to use XSLT to generate HTML and \LaTeX output from TEI
4. Two days isn't enough for you to master XSLT!

Schedule

Day 1, morning XML, TEI and Digital Editing → repetition of the basics, making sure we're all on the same page, understanding why we're even learning XSLT.

Day 1, afternoon Navigating XML documents using XPath, introduction to HTML (& Bootstrap) and \LaTeX (& *reledmac*)

Day 2 Transforming XML documents into HTML & \LaTeX output formats using XSLT

Single point of entry for all workshop-related materials: [L^AT_EX Ninja blogpost](#) & [Github Repository](#) ('additional resources' directory)

Introductions

Please introduce yourselves!

1. Name, pronouns, field/topic of study
2. Why did you come to this workshop?
3. Previous experience with Digital Humanities (DH) or editing?

Contact

🐦 @SarahALang_
@latex_ninja

🏠 sarahalang.com
latex-ninja.com

@ sarah.lang@uni-graz.at

Sarah Lang (she/they)

- originally from Germany, now in Graz (Austria)
- Studied Latin, French & History (teacher's education) in Graz & Montpellier (France), then Archaeology Bachelor, Master in Religious Studies & Philosophy
- got a DH certificate & started working at Zentrum für Informationsmodellierung (ZIM) / Centre for Information Modelling in Graz
 - Moral Weeklies/Spectators → gams.uni-graz.at/mws
 - Graz Repository of Ancient Fables (GRaF) → gams.uni-graz.at/graf
 - *PhD thesis*: Decoding alchemical *Decknamen* digitally. A Polysemantic Annotation and Machine Reasoning Algorithm for the Corpus of Iatrochymist Michael Maier (1568–1622)
- Now: teaching in Graz, Passau & Vienna; PostDoc in Graz. *Research interests*: history of science (alchemy), Neo-Latin, text mining and computer vision

Intro to HTML (& Bootstrap)

Understanding websites...

Why are we doing this workshop? The motivation from our abstract:

- ✓ But what happens after an edition is encoded in TEI?
- 👉 While it is an **ideal format for archiving digital data**, it is **less than ideal for viewing and interacting with the edited text**.
- 👉 The data transformation language XSLT allows editors to create multiple representations from their data encoded in XML, enabling the creation of both digital and print editions.

Goals for the next session

- ✓ learn some theory basics
- ✓ everybody on the same page on XML/TEI for digital editing
- ✗ creating websites in HTML (& Bootstrap)

Hyper Text Markup Language (HTML) i

.HTML

Defines the structure of websites. Due to their common origin in SGML: lots of similarity with XML but, unlike XML's extensibility, HTML has a fixed tag set (much less!).

The most important HTML elements to remember

html, head, body. div, p, h1-6. span, ul, ol, li. table, tr, td.

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
    <style> /* preferably in extra file */
      p.important {
        color: green;
      }
    </style>
    <script>
      alert("Hello! I am an alert box!!");
    </script>
  </head>
  <body>
    <h1>This is a Heading</h1>
    <p style="color:red">I am a paragraph</p>
    <p>I like
      <span style="color:blue">blue</span>.</p>
    <p class="important">
      Note that this important!</p>
  </body>
</html>
```

(full example on the next slide)

Hyper Text Markup Language (HTML) ii

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
    <style> /* better in extra file
h1 {
  color: blue;
  font-family: verdana;
  font-size: 300%;
}
p {
  color: red;
  font-family: courier;
  font-size: 160%;
}
p.important {
  color: green;
}
</style>
<script>
  alert("Hello World!");
</script>
</head>
```

```
<body>
  <h1>This is a Heading</h1>
  <p>This is a paragraph. <br />
    <a href="https://www.w3schools.com">
      This is a link</a>
  </p>
  
  <p style="color:red">I am a paragraph</p>
  <p title="I'm a tooltip">
    This is a paragraph.
  </p>
  <p>My mother has
    <span style="color:blue">blue</span>
    eyes.</p>
  <p class="important">
    Note that this is an important
    paragraph. :)</p>
</body>
</html>
```

CSS = Cascading Style Sheets

.CSS

- included via a stylesheet link in HTML or written inline
- describes the styling of websites
- separation of form & content:
 - **HTML**: content in structured form
 - **CSS**: the layout
 - (**JavaScript**: dynamic parts)
- the **Bootstrap framework** offers a ready-made, responsive design to reuse: box and grid model
- uses selectors to define layout

```
h1 {  
  font-family: Arial  
}
```

```
p {  
  font-family: Arial ;  
  color: red  
}
```

```
.person {  
  font-weight:bold;  
  font-size:smaller;  
  font-style:italic;  
}
```

Resources

- 15min to Bootstrap
- CSS3-Cheatsheet
- **W3 Schools**: W3schools CSS
- W3S Tables of properties
- CSS ZenGarden

modifying websites dynamically

.JS

- JS can change websites without having to reload them ('dynamically').
remember when you had to manually refresh pages?
- When we want to highlight something using a check box, we use js.
- Unlike HTML (which is a markup language, think of it like a file format), js is a programming language (like XSLT).
- → we won't learn this today! But there is a mini example and you will load js components when using Bootstrap and the GAMS wippets later.

A 'Hello World!' example

```
1 document.getElementById("demo").innerHTML = "Hello JavaScript";
```

Bootstrap Framework i

“ Bootstrap is a free and **open-source CSS framework** directed at **responsive, mobile-first front-end web development**. It contains HTML, CSS and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. (Wikipedia) ”

How to use Bootstrap?

1. load the scripts in the HTML head
2. figure out new Bootstrap elements using W3Schools Tutorials.
 - <https://www.w3schools.com/howto/>
 - <https://www.w3schools.com/bootstrap/>

Bootstrap Framework ii

We need to include the bootstrap stylesheet from this `<link>` in the HTML `<head>` but also the javascript plugins.

Careful, `<head>` in HTML is equivalent to the `<teiHeader>`. Headings in HTML are called: `<h1>`-`<h6>`.

Under `<examples>`, Bootstrap offers different types of ready-to-use websites. I have included one in our practice XSL templates. → Link to the source-Code of the starter template → append it in the address or click right and 'inspect element' or sth)

```
<html>
  <head>
    <meta charset="utf-8">
    <link rel="stylesheet" href="https://...bootstrap.min.css">
    <script src="https://code.jquery.com/jquery-3.2.1.slim.min.js"></script>
  </head>
  <body> [...] </body>
</html>
```

Bootstrap Framework iii

```
<!doctype html>
<html lang="en">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">

    <!-- Bootstrap CSS -->
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/
bootstrap.min.css" rel="stylesheet"
integrity="sha384-1BmE4kWBq78iYhFldvKuhfTAU6auU8tT94WrHftjDbr
CEXSU1oBoqyl2QvZ6jIW3" crossorigin="anonymous">

    <title>Hello, world!</title>
  </head>
  <body>
    <h1>Hello, world!</h1>
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/
js/bootstrap.bundle.min.js"
integrity="sha384-ka7Sk0Gln4gmtz2MlQnikT1wXgYsOg+
OMhuP+IlRH9sENBO0LRn5q+8nbTov4+1p"
crossorigin="anonymous"></script>

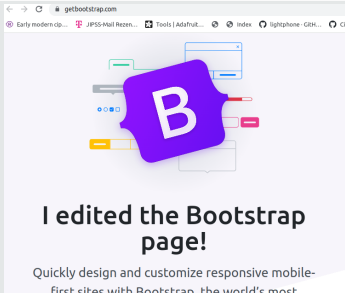
  </body>
</html>
```

Resources

1. Lessons 1 and the start of 2 on Dash (signup required).
2. Codecademy HTML (good but verbos)
3. Interneting is hard:
 - Intro
 - Chapter 2: HTML Basics
4. Mozilla Learn HTML & in German
5. W3Schools interactive HTML or respectively the more text based HTML tutorial.
6. Learn HTML.org
7. Web Design in 4 minutes (CSS)
8. W3Schools tutorials

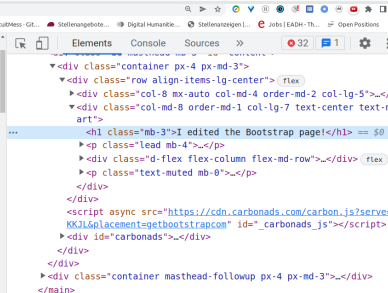
.html files and your browser

- clicking on a **.html** file will open up a browser (which parses and interprets the code). This doesn't mean it's on the internet! (check the address line, it links to your local computer)
- ergo: the webbrowser's job is downloading a website's code, i.e. getting it for you, and also reading & displaying that code. The second part is what happens when you open a local **.html** file.
- To inspect the code of a local file, open as text (for example in Oxygen XML).
- To inspect a web page's code online, right-click and chose 'inspect' (or sth like that). In the Dev Tools, you can edit this code (only on your local browser, of course), try it out!



I edited the Bootstrap page!

Quickly design and customize responsive mobile-first sites with Bootstrap. the world's most



```
<div class="container px-4 px-md-3">
  <div class="row align-items-lg-center">
    <div class="col-8 mx-auto col-md-4 order-md-2 col-lg-5">
      <div class="col-md-8 order-md-1 col-lg-7 text-center text-m
        art">
        ...
        <h1 class="mb-3">I edited the Bootstrap page!</h1> == $0
        <p class="lead mb-4"></p>
        <div class="d-flex flex-column flex-md-row">
          <p class="text-muted mb-0"></p>
        </div>
        <script async src="https://cdn.carbonads.com/carbon.js?serve=
          KKJL&placement=getbootstrapcom" id="_carbonads_js"></script>
        <div id="carbonads"></div>
      </div>
    </div>
  </div>
  <div class="container masthead-followup px-4 px-md-3">
</main>
```

HTML Practice!

To understand the basics of HTML and the 'web triad' (HTML, CSS, JS) better, do one of the following exercises:

['Dash' HTML / CSS tutorial](#) (great but signup required)

[W3Schools tutorial](#)

Start working on the XPath/XSLT exercise sheet (resources/materials folder), XSLT 2.1 part. Feel free to use the slides and cheatsheet for help.

