Elementary, My Dear Watson: An Undergraduate Comic Books Course Using Enterprise AI and TEI

Steven W. Holloway
James Madison University, hollowsw@jmu.edu

Brian Flota
James Madison University, flotabc@jmu.edu

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Elementary, My Dear Watson: An Undergraduate Comic Books Course Using Enterprise AI and TEI

**Presenter 1 Title**  
Director of Metadata Strategies

**Presenter 2 Title**  
Humanities Librarian

**Session Type**  
45-minute concurrent session

**Abstract**  
Two librarians taught an Honors course at James Madison University titled “Comic Books, Analysis, and Digital Scholarship.” This non-coding-requirement course introduced students to the critical study of comic books by way of DH and online tools like IBM Watson. JMU Libraries has a growing collection of comic books (more than 10,000 single issues) and a commitment to foster DH research, hence rationale for the course. Students were introduced to online annotation platforms and comic-book-extended TEI (Text Encoding Initiative), using spreadsheet entry to code a Golden Age comic book in the public domain. In addition, the students used enterprise AI (IBM-Watson) and search engine reverse image lookups to spark engagement and to promote digital literacy, most notably a hermeneutics of suspicion in relation to the corporate interests vested in these powerful tools. The blend of comic books and these technologies proved an excellent entryway into DH projects at the undergraduate level.

**Location**  
KIPJ Room G

**Keywords**  
Digital Humanities, Comic books, Graphic novels, Text Encoding Initiative, XQuery. Text mining, Digital scholarship

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This 45-minute concurrent session is available at Digital USD: https://digital.sandiego.edu/symposium/2019/2019/19
Elementary, My Dear Watson: An Undergraduate Comic Books Course Using Enterprise AI and TEI

2019 Digital Initiatives Symposium
April 30, 2019

Brian Flota
Steven W. Holloway
James Madison University Libraries
Origins of Course

- Donation of comic book collection in 2015
- Participation in Digital Humanities and Social Sciences Institute (see next slide)
- Proposal of course as a Summer leave project
- LOTS of reading and goofing around with tech
- Collaboration with Educational and Instructional Technologists
State of DH at JMU

- There is no “center” or official home for DH at JMU nor are there any specific graduate courses
- Six-week symposia for faculty, formerly the Digital Humanities and Social Sciences Institute, recently re-branded as Networked Humanities, exists
- This results in many un-unified satellite projects and infrastructures for such projects to be assisted
CHALLENGES

- Create a non-coding requirement class that succeeds in DH Moderate, entails the academic study of North American comic books and graphic novels, and doesn't get us fired
Goals of course

- Introduce students to the history of North American comic books and to Comic Studies
- Also introduce students to the collection of single-issue comic books in JMU Libraries’ Special Collections
- In-depth study of a few canonized graphic novels via technology-assisted close readings
- Emphasis on the craft of characterization in comic books
- Understanding of copyright & trademark as it relates to comic books research
- Intro to DH teamwork
- Intro to simple and extended comic book annotation
- Intro to a variety of non-coding tools that deepen student understanding of the subject matter
- Stealth TEI/CBML markup of a comic book
- Some understanding of current trends in computer-assisted comic books research

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Course github pages with guides, text extracts, code

https://stevenholloway.github.io/ComicBooksCourse.github.io/
ComicLife guides for all tools

TEI/CBML Scripting

Pixlr Editor

Or, how I learned to stop worrying and love comic book hacking

IBM Watson's Personality Insights
**Tools for Image Analysis**

**Hypothes.is**

Used for annotating a comic book in the public domain (*Phantom Lady #17* in the Digital Comic Museum)

---

*Repholkm*  
Aug 30, 2018  

I like how the artist has both Betty and Sandra outside of their panels establishing the franticness of the action scene. The framing creates more of a sense of panic, as if the women are trying to escape more than their captors but also escape off the page and perhaps even away from their gendered society.

---

*Madison1*  
Sep 3, 2018  

What stands out to me is how easily prevented Betty’s death could have been if Phantom Lady had acted without her disguise or if she had already been disguised. I see a couple of explanations for this choice. It could have potentially been a product of time and money constraints, necessitating much quicker and simpler story progression. Alternatively, I see this choice as representative of the misogyny of the time, wherein the heroine is unwilling to act undisguised, bound by societal views of assertive women and acting helpless as she flees from the fight. Sandra’s decision to protect her identity took priority over saving Betty’s life. Even knowing that Betty was moments from death, as her killers were already in the room with her, Sandra chose not to act on her own.
Tools for image analysis

Commercial search engine reverse lookups

Tailor-made for illustrating search-engine bias

1. The giant search engines support a feature called "reverse-image lookup." You can either enter the URL of an online image, or upload an image file, and Google, Bing, and Yandex will try to identify its source and match similar image resources on the web! Cool!
Tools for image analysis

TEI/CBML, using Google Sheets

What is CBML?

Comic Book Markup Language, or CBML, is an XML vocabulary for encoding multiform documents that are variously called comics, comic books, and “graphic novels” as well as other documents that integrate comics content or that share formal features with comics content.
## Tools for Image Analysis

**TEI/CBML, using Google Sheets**

<table>
<thead>
<tr>
<th>panelGrp_Num</th>
<th>panel_Number</th>
<th>panel_Transition</th>
<th>panel_Character</th>
<th>panelNote_Des</th>
<th>PanelNote_Res</th>
<th>PanelNote_Ger</th>
<th>Gender_mark</th>
<th>note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.7</td>
<td></td>
<td></td>
<td>#sandra_knight</td>
<td>Sandra sweeps the floor while con</td>
<td>dress</td>
<td>bare-leg</td>
<td>sandra_knight</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td></td>
<td></td>
<td>#Mints</td>
<td>Mints and his twc</td>
<td>MNG</td>
<td>none</td>
<td>mints</td>
<td></td>
</tr>
<tr>
<td>1.3.1</td>
<td>#Henchman_One</td>
<td></td>
<td>#Mints</td>
<td>Mints is eating a</td>
<td>MNG</td>
<td>#fedora</td>
<td>henchman_one</td>
<td></td>
</tr>
<tr>
<td>1.3.2</td>
<td>#Henchman_Two</td>
<td></td>
<td>#Mints</td>
<td>Mints and his her</td>
<td>MNG</td>
<td>#fedora</td>
<td>henchman_two</td>
<td></td>
</tr>
<tr>
<td>1.3.3</td>
<td>#aspect-to-aspect</td>
<td>Mints</td>
<td>#Mints</td>
<td>Mints and his her</td>
<td>MNG</td>
<td>#fedora</td>
<td>suit tie short-l mints</td>
<td></td>
</tr>
<tr>
<td>1.3.4</td>
<td>#scene-to-scene</td>
<td>Mints</td>
<td>#Mints</td>
<td>Mints and his her</td>
<td>MNG</td>
<td>#fedora</td>
<td>suit tie mints</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#Henchman_One</td>
<td></td>
<td>#Mints</td>
<td>Mints and his her</td>
<td>MNG</td>
<td>#fedora</td>
<td>suit sl henchman_one</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#Henchman_Two</td>
<td></td>
<td>#Mints</td>
<td>Mints and his her</td>
<td>MNG</td>
<td>#fedora</td>
<td>suit sl henchman_two</td>
<td></td>
</tr>
</tbody>
</table>

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### Tools for Text Analysis

**TEI/CBML: NoSQL Database, XQuery Scripting**

<table>
<thead>
<tr>
<th>balloon_Type</th>
<th>balloon_Who</th>
<th>balloon_Text</th>
<th>caption_Text</th>
<th>uniform_Type</th>
<th>weapon_Type</th>
<th>transporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>dialogue</td>
<td>Don_Borden</td>
<td>AW... MORE CUSTOMERS... AND I'M ABOUT READY TO DROP ON MY FEET!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dialogue</td>
<td>Henchman_One</td>
<td>COME HERE, CUTIE! YOU LOOK GOOD ENOUGH TO EAT!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dialogue</td>
<td>Sandra_Knight</td>
<td>WHAT'LL IT BE? HEY...</td>
<td></td>
<td></td>
<td>plate</td>
<td></td>
</tr>
<tr>
<td>dialogue</td>
<td>Sandra_Knight</td>
<td>OH, DO I? WELL, I SUGGEST YOU TRY THE SPECIALTY OF THE HOUSE, WISE GUY!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dialogue</td>
<td>Henchman_One</td>
<td>NOW, WAS THAT NICE? OF COURSE, IF YOU WANNA PLAY ROUGH...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dialogue</td>
<td>Sandra_Knight</td>
<td>OH, DON, H-HELP! HE'S GOT A KNIFE!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dialogue</td>
<td>Don_Borden</td>
<td>SANDRA!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dialogue</td>
<td>Henchman_One</td>
<td>YOU'LL WHAT?</td>
<td></td>
<td></td>
<td>knife</td>
<td></td>
</tr>
<tr>
<td>dialogue</td>
<td>Sandra_Knight</td>
<td>YOU BRUTE, I'LL...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
<cbml:panel n="1.3.5" ana="#subject-to-subject" characters="#sandra_knight #anonymous_criminal">

<tei:note resp="#SWH" type="panelDesc">Sandra, attempting to wait on table, is grabbed around the waist by one of the Soda Mint Gang members</tei:note>
<tei:note type="gender-markers" subtype="sandra_knight" ana="#dress #long-hair #apron #high-heeled-shoes #bare-arms"/>
<tei:note type="gender-markers" subtype="anonymous_criminal" ana="#fedora #suit #shirt #short-hair #facial-hair"/>
<cbml:balloon type="speech" ana="#dialogue" who="#sandra_knight">WHAT'LL IT BE? HEY...!</cbml:balloon>
<cbml:balloon type="speech" ana="#dialogue" who="#anonymous_criminal">COME HERE CUTIE! YOU LOOK GOOD ENOUGH TO EAT!</cbml:balloon>
<tei:fw place="end" type="number">3</tei:fw>
</cbml:panel>
Tools for text analysis

TEI/CBML: NoSQL database, XQuery scripting

```xml
<gender-markers>
{
  let $document := doc('/db/apps/teicomix/data/PL17_TEI.xml')
  for $person in $document//tei:person
  let $id := $person/@xml:id
  let $gender := $document//tei:note[@subtype=$id]/ana
  let $t := $gender ! tokenize(., "\s")
  let $c := count($t)
  group by $c order by $c descending
  return

  <character name="{$id}" total-hits="{count($t)}" distinct-markers="{count(distinct-values($t))}>{distinct-values($t)}
</character>
```

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Tools for Text Analysis

IBM Watson's Personality Insights

IBM Watson? Wasn't that a stunt involving the televised Jeopardy! game and a computer? Weren't the human contestants skunked??

IBM Watson is the "face" of IBM's enterprise artificial intelligence service. For a price, Watson will perform big-data miracles in the service of competitive business intelligence.
Tools for Text Analysis

Final Course Text Mining Project: Compare Criminal Slang in Phantom Lady #17 and Batman: The Dark Knight Returns

The criminals in *Phantom Lady* #17, stories 1-3, and the mutants in *Batman: The Dark Knight Returns*, communicate through distinctive vocabularies/jargon and syntactic constructions. This project will explore the secondary literature on criminal slang or cant of the 1940s and 1980s, and will use one or more of the text corpora tools like Voyant or TAPoRware for machine text analysis. Your team will extract ALL of the text spoken by crooks in PL#17, stories 1-3, and the mutants in *BTDKR* (double-keying or OCR, your call), and then run it through these tools.
QUESTIONS???

Email:

DR. BRIAN FLOTA (flotabc@jmu.edu)

Dr. Steven W. Holloway (hollowsw@jmu.edu)

Course Github Pages:

https://stevenholloway.github.io/ComicBooksCourse.github.io