FINAL REPORT
OPEN ANNOTATION COLLABORATION
ANNOTATION MIDDLEWARE FOR SCHOLARLY PUBLICATIONS & RESOURCES
NEW YORK UNIVERSITY, Fall 2012

Use Case Context.

Our demonstration was designed to address the following five use cases.

Use Case 1: Annotate a page image (or photograph). A user visits a web resource representing the page of a physical book, e.g., http://dlib.nyu.edu/awdl/books/collectiondancie00erre/21. The user annotates a sub-region of the page image by creating a rectangular overlay with the mouse, and entering text. The user indicates whether the annotation is public or private. If the annotation is public, other users will see it when they toggle on an annotation layer while viewing the resource. If the annotation is private, it will only appear for the user who is also the creator. If a user who is the creator visits a resource, the toggle for the annotation layer will have to have 3 states: hide annotations; view annotations; view only my annotations.

Variant A: Same as above, but the web resource representing the page image contains coordinate-based OCR data. When the user posts the annotation, the text strings that are mapped to coordinates that match the region selected by the user are included in the post (contentAsText), along with the URI for the region of interest on the page.

Use Case 2: Embedded annotation feed. A course or learning management system contains 'spaces' in which research and learning (class) groups collaborate to post, share, and discuss resources. A page within the collaboration space displays a panel with a feed of all annotations (sorted by date) created by members of the space against affiliate resources.

Variant A: A discipline-based 'scholarly network' such as http://mediacommons.futureofthebook.org/ contains resources that represent members of the community (user profiles / activity profiles). A user page displays a feed of all public annotations created by the user within the network.

Use Case 3: Two targets: 'cf.' A users visits a web resource representing a page of a (digitized) physical book and marks a region of interest (see use case 1). The next day the user visits a web resource representing a blog post (i.e., a blog post) and highlights a section of text that she feels is related to the region of interest marked the day before. She opens her annotation history, finds the annotation she created the day before, and indicates that it has a second target. When she saves the updated annotation, it has two targets: the region of interest marked the day before and the text section from the blog post. Post-condition: when an annotation has multiple

targets A and B, the appearance of the annotation on the representation of A (i.e., when the annotation layer is toggled on @A) will include a "See Also" link to B.

Use Case 4: Annotating a video or audio. A user visits a web resource representing an event captured on video, for example an oral history interview or a dance performance. The page contains an embedded video player with standard user controls. The user can expand an "annotation manager" pane and begin creating or editing annotations. The user can annotate while the video is playing or paused. The annotation manager allows the user to create a new annotation or edit an existing annotation in an "annotation editor." The annotation editor allows the user to: enter or modify the text of the annotation; enter or modify the start time and end time for the annotation (both optional); enter or modify the "region of interest" of the annotation (optional); mark the annotation as "public" or "private." The "region of interest," is a rectangular subsection of the video; ideally, the annotation editor will allow the user to draw the rectangular shape over the video to set the region of interest.

Variant A: A user visits a page representing an audio resource rather than a video. Everything is the same, but there is not region-of-interest fieldset or drawing tool.

Post-conditions: The user will see a library of her annotations in the annotation manager. Any user who visits the resource will have an option to see an "annotation viewer" pane alongside the video. The viewer will display annotations in time with the video, either by scrolling them or by highlighting the ones that are relevant to the time code. The user will have the option to see all public annotations or only her own private annotations.

Use Case 5: Annotating any web resource. A user visits an "out of ecosystem" web resource, for example a home page created in static HTML. The user decides to annotate the resource, and selects the "Bookmarks" menu in her browser, and then the "NYU Annotations" bookmark. The user is directed to a page (or a popup / overlay) that contains a form pre-populated with the URI of the web resource. The user writes the body of the annotation, submits, and is returned to the target web resource.

Pre-conditions: The user must already have followed instructions for creating the "NYU Annotations" bookmark. This would likely require her to either bookmark a javascript file OR create a bookmark and then edit it with the contents of a javascript file. See for example: http://banagale.com/view-source-from-safari-on-ipad.htm

Annotation Classes associated with the Use Cases.

- oa:Annotation
- oax:Comment
- oax:Highlight

Example/Illustrative Annotations.

Examples of Use Cases 1 and 5 are shown below and are available on our demonstration site, http://annotations.dlib.nyu.edu/home These examples show annotations of image and text, using a RESTful annotation service.
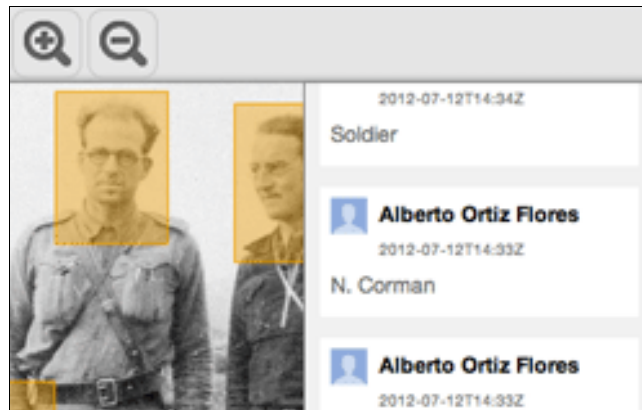

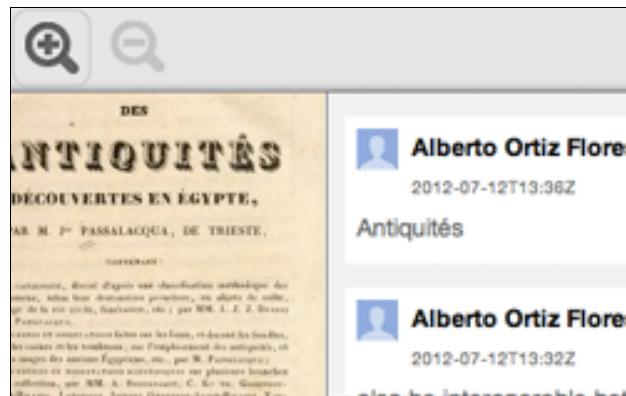Fig 1. Annotation of a photograph.
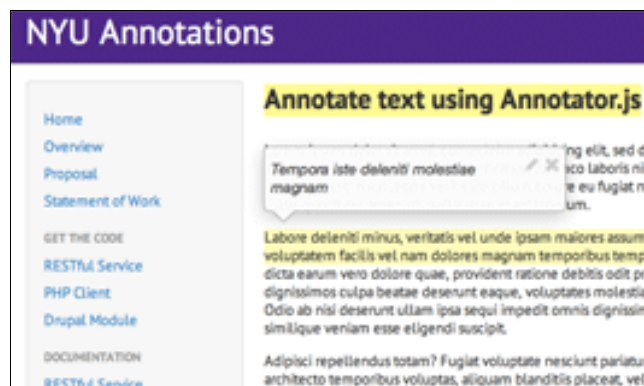

Fig 2. Annotation of a scanned book page.

Fig 3. Annotation of web-based text.

Summary.

New York University's demonstrations have focused primarily on the communities of users who make annotations and on the architecture of an independent annotation service, rather than on the annotation protocol specification itself. For example, in our demonstrations, the data encapsulation is JSON rather than either the original OAC XML or the W3C adjustments to it.

We did successfully implement a RESTful annotation service and client libraries in form of php and a Drupal module. All code and examples may be found at http://annotations.dlib.nyu.edu/home

Our next steps will likely follow on our Variant A of Use Case 2: discipline-based scholarly networks. During 2012, we have separately investigated the requirements of scholars for a variety of community-centric annotation processes toward, e.g., reputation management and new methods of academic peer review. We plan to continue this work, creating independent user profile services to complement the annotation services.

The bulk of our OAC work was carried out by a technology consulting firm. This firm was successful in creating the database and server infrastructure to support our OAC service. But they were often not able to deliver satisfactory user interface components, and so we did not complete our Use Cases 3 and 4.

As our use cases indicate, we feel the OA work would benefit from representations of agency, by people or automated processes, e.g., "person P created annotation A."

Also, our use cases demonstrate the need to better facilitate chains of annotations that represent conversations and discourse. For example, what happens when an annotation is deleted or is updated by a newer version?

While our context raises these questions of annotations and their relation to user and community management, we do not necessarily recommend that the OA standard should accommodate these needs. But a set of best practices that use OA in community settings would be welcome and is a possible direction of our future work at NYU.