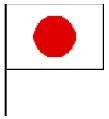
ACM/IEEE Joint Conference on Digital Library (JCDL) 2011 Report



Kazunari Sugiyama (杉山一成)

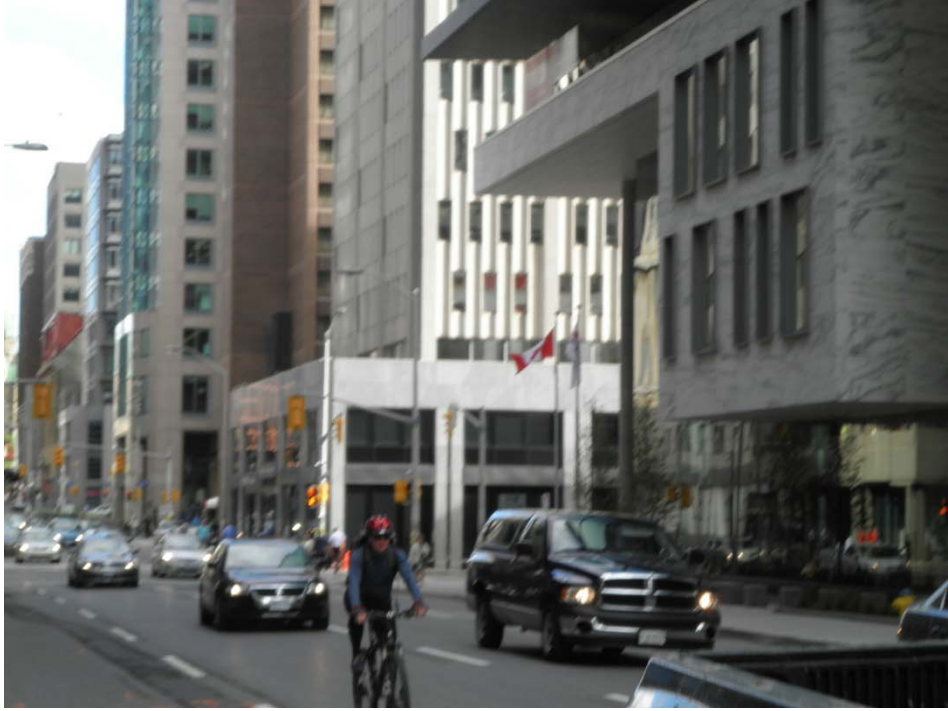
National University of Singapore

Information Access Symposium, SIG-IFAT, IPSJ

14th September, 2011

Outline of JCDL11

- Venue
  - Ottawa University, Ottawa, Ontario, Canada




uOttawa

Outline of JCDL11

- Acceptance rate
  - 23.5% [57 / 243]
    - Submitted papers: 243 papers
    - Accepted papers: 57 papers
      - 28 full papers and 29 short papers
- Future JCDL
  - 2012: Washington DC, US
  - 2013: Indianapolis, US
  - 2014: ???
    - Candidates: Argentina, Italy, UK
    - Joint with TPDL (Theory and Practice of Digital Libraries)
      - “ECDL” -> “TPDL” (since 2011)

JCDL2010
Acceptance rate: 45/155 (29.0%)
Full paper: 32/110
Short paper: 13/45

Research Topics in JCDL

- Collaborative and participatory information environments
- Cyberinfrastructure architectures, applications, and deployments
- Data mining/extraction of structure from networked information
- Digital library and Web Science curriculum development
- Distributed information systems
- Evaluation of online information environments
- Impact and evaluation of digital libraries and information in education
- Information and knowledge systems
- Information policy and copyright law
- Information visualization
- Interfaces to information for novices and experts
- Personal digital information management
- Retrieval and browsing
- Scientific data curation, citation and scholarly publication
- Social networks, virtual organizations and networked information
- Social-technical perspectives of digital information
- Studies of human factors in networked information
- Systems, algorithms, and models for data preservation
- Theoretical models of information interaction and organization
- User behavior and modeling
- Visualization of large-scale information environments

(Cited from “http://jcdl2011.org/ExtendedCallForPapers”)

Presented Research Topics

- Content analysis (18 papers)
  - information extraction, plagiarism detection, topic coherence, etc.
- Education
- Information policy, rights
- Infrastructure
- Interfaces
- Metadata, Annotation (8 papers)
- Mobile applications
- Preservation, Archive
- User's information needs (8 papers)
- Visualization
- WWW

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"Measuring Historical Word Sense Variation"

"SharedCanvas: A Collaborative Model for Medieval Manuscript Layout Dissemination"

Content Analysis

"Measuring Historical Word Sense Variation"

David Bamman (Tufts University, US),
Gregory Crane (Tufts University, US)

Outline

- Automatically classify Latin word senses

Track the historical variation of these senses

more than 2,000 years span

  - Example: "radical"

    "Oxford English Dictionary"

    (1) Political meaning (1783 -)

    "advocating thorough or far-reaching political or social reform"

    (2) Slang term

    "Excellent, fantastic"

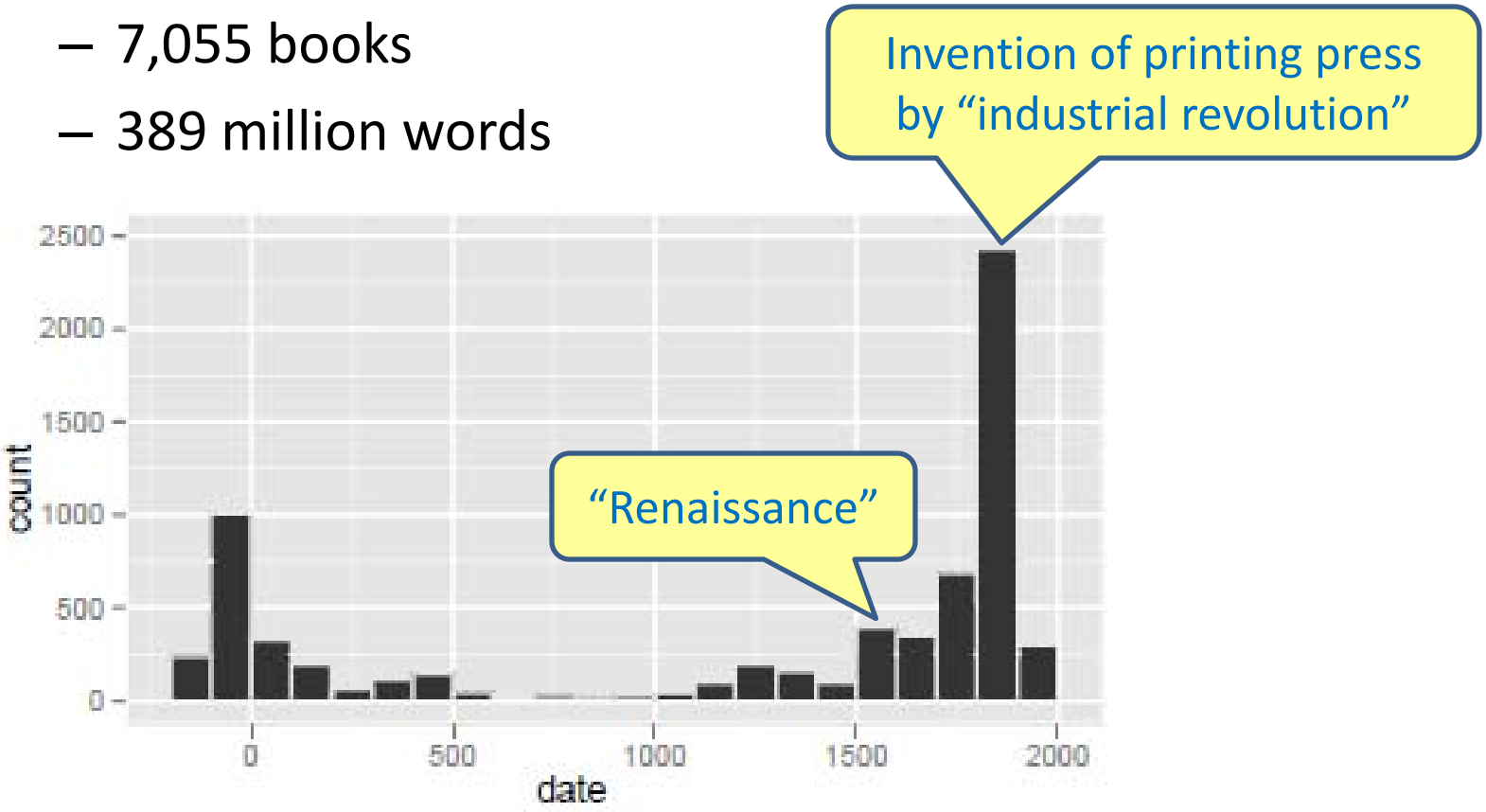
- Dataset
  - 83,892 words from the aligned parallel corpus
  - Manually annotated sample of 525 words

Proposed Approach

- Constructing Latin corpus
- Inducing Latin senses in English
- Word sense disambiguation
- Tracking sense variation over 2,000 years

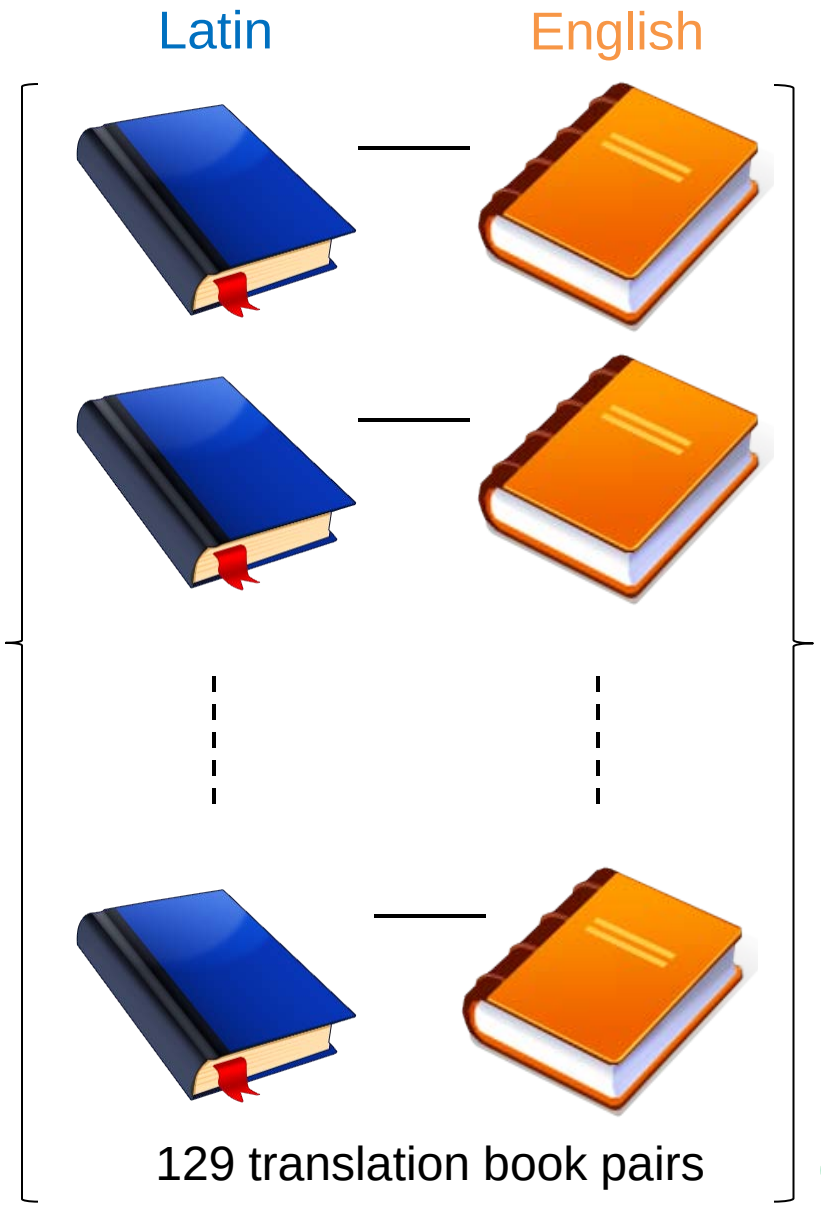
Constructing Latin Corpus

- Collect Latin books from Internet Archive (http://www.archive.org/)
  - 7,055 books
  - 389 million words



(Cited from D. Bamman and G. Crane: “Measuring Historical Word Sense Variation,” JCDL2011)

Inducing Latin senses



40,323 sentence pairs

MGIZA
GIZA++

Alignments at the level of individual words

Clean alignments for 504,857 words

Aggregate English Translations for each Latin Lemma

3,412 Latin-English translation pairs
(Training set for word sense disambiguation)

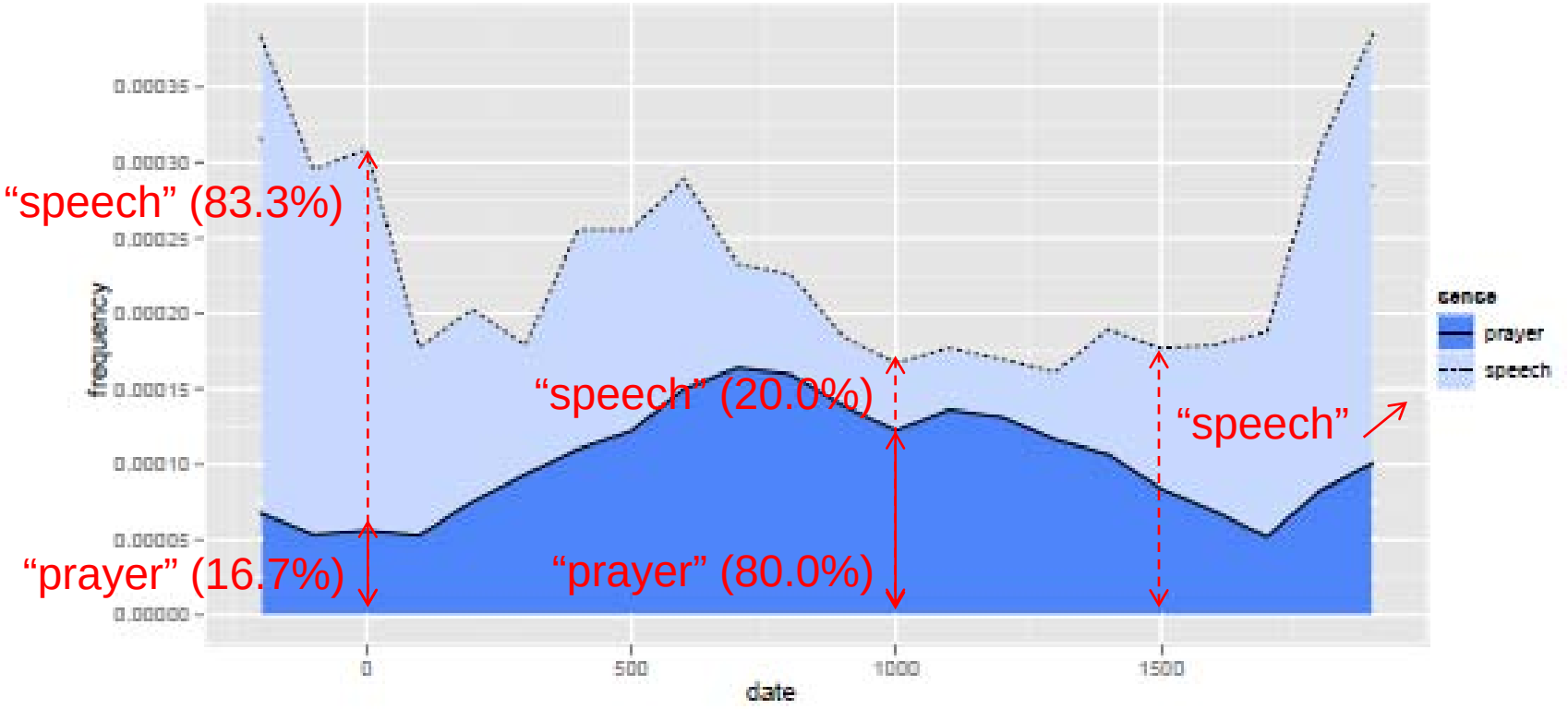
Word Sense Disambiguation

- Classifiers
  - Language model classifier
    - Trained on Uni-gram, bi-gram, 5-gram, 6-gram
  - Naïve Bayes
    - Trained on uni-gram
  - TF-IDF
    - Uni-gram
  - K-nearest neighbor
- Features
  - 20 words around each target word
- Baseline
  - Simply select the most frequent sense from the lexicon

Tracking sense variation over 2,000 years

- Apply 6-gram language model classifier to 389 million words

Latin word “oratio” (“prayer,” “speech” in English)



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Metadata, Annotation

- “SharedCanvas: A Collaborative Model for Medieval Manuscript Layout Dissemination”

  Robert Sanderson (Los Alamos National Laboratory),
  Benjamin Albritton (Stanford University),
  Rafael Schwemmer (e-codices),
  Herbert Van de Sompel (Los Alamos National Laboratory)

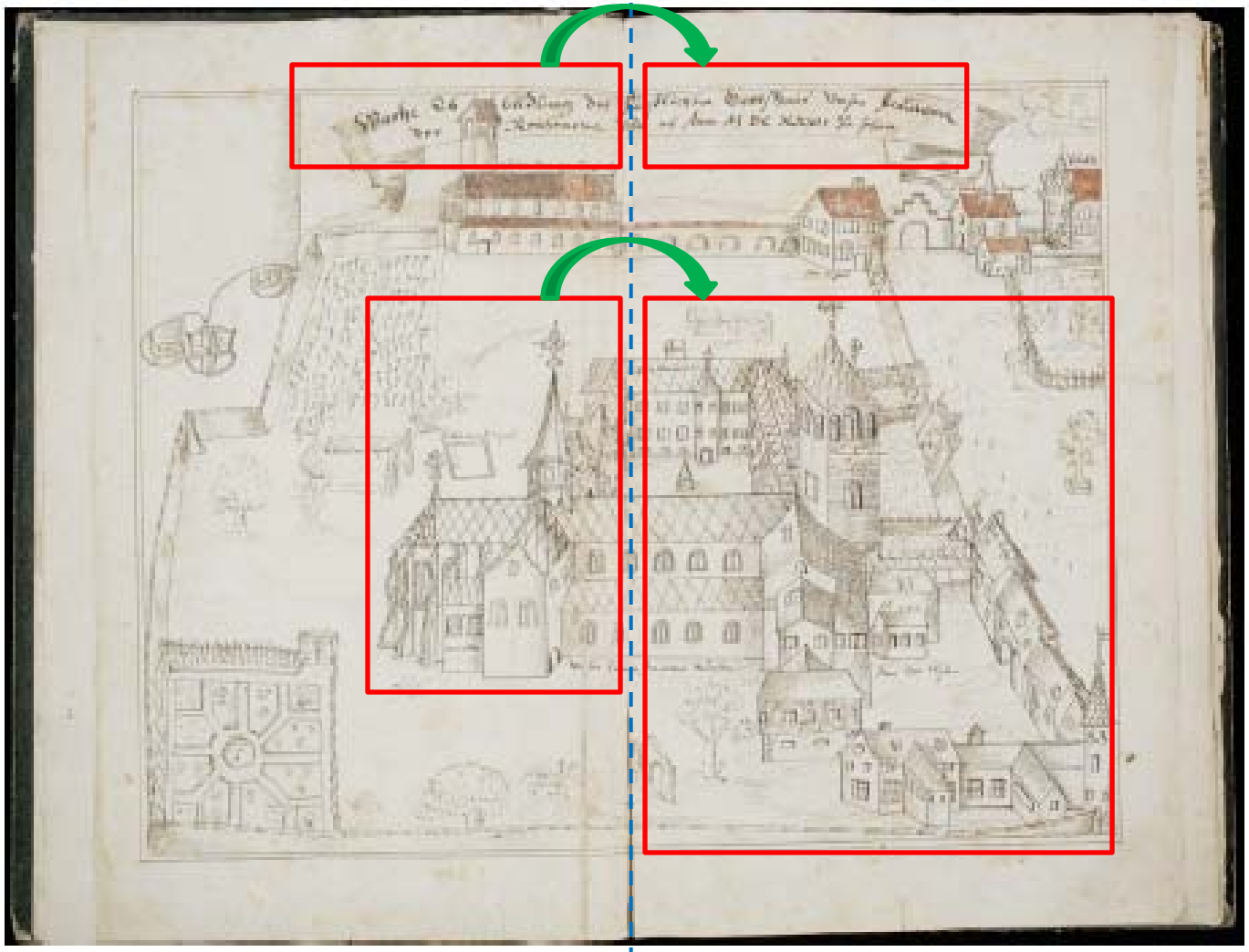
Outline

- Model interrelationships of images, texts, and other resources for medieval manuscripts or culturally important hand written documents
- Smooth interoperability between manuscripts
- Construct links to DL resouces

Proposed Approach

- Construct data model of medieval manuscripts to satisfy the following requirements:
  - Images and their relationship with the physical object
  - Texts and their relationship with the images
  - Sequencing of the images and texts
  - Rendering of images and texts

Images and their Relationship with the Physical Object

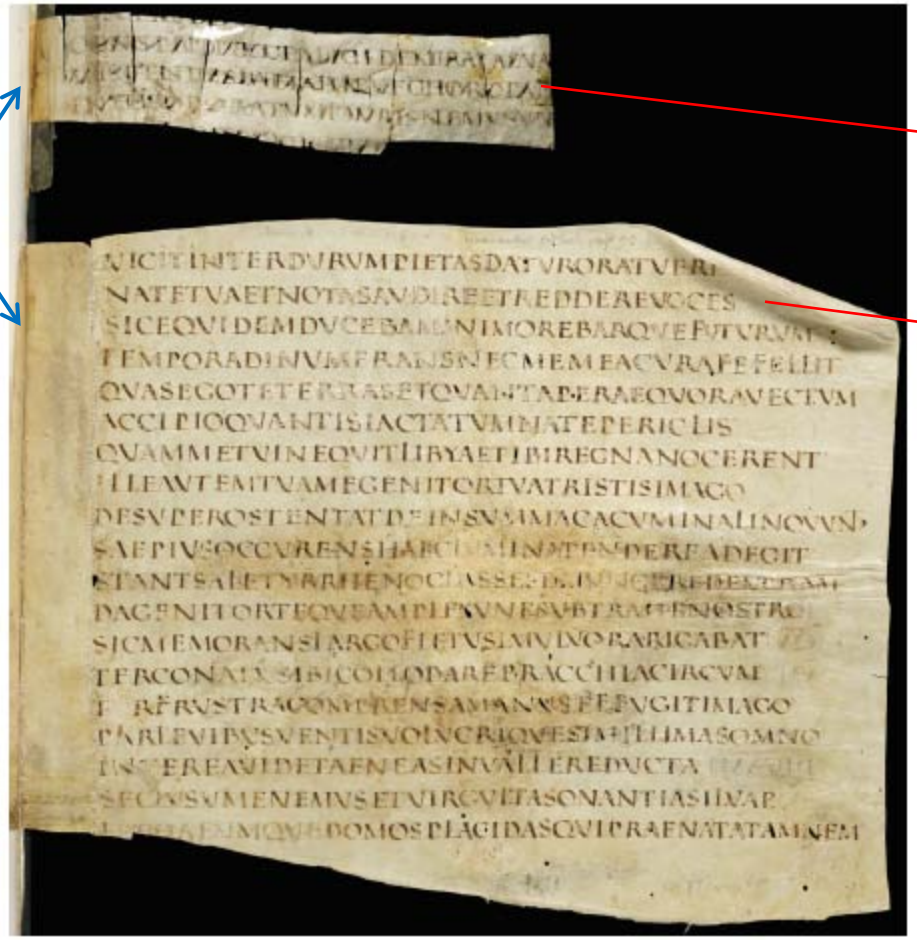


Important
to have mappings
from the parts of
the image to
another page

(Cited from R. Sanderson et al.: “SharedCanvas: A Collaborative Model for Medieval Manuscript Layout Dissemination,” JCDL2011)

Images and their Relationship with the Physical Object

Related images



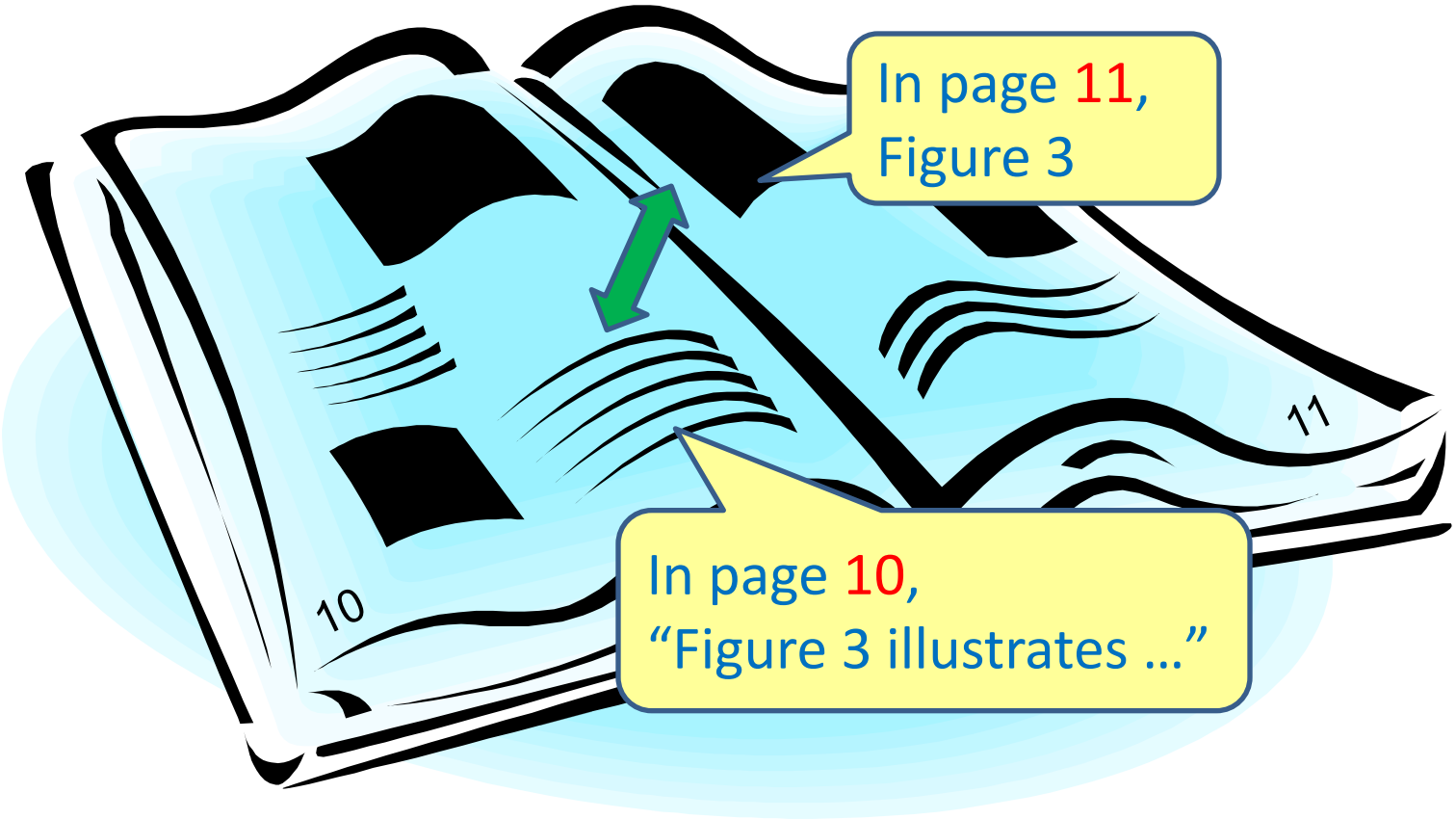
Collected in 4th century

Collected in 15th century

Assembled in 15th century

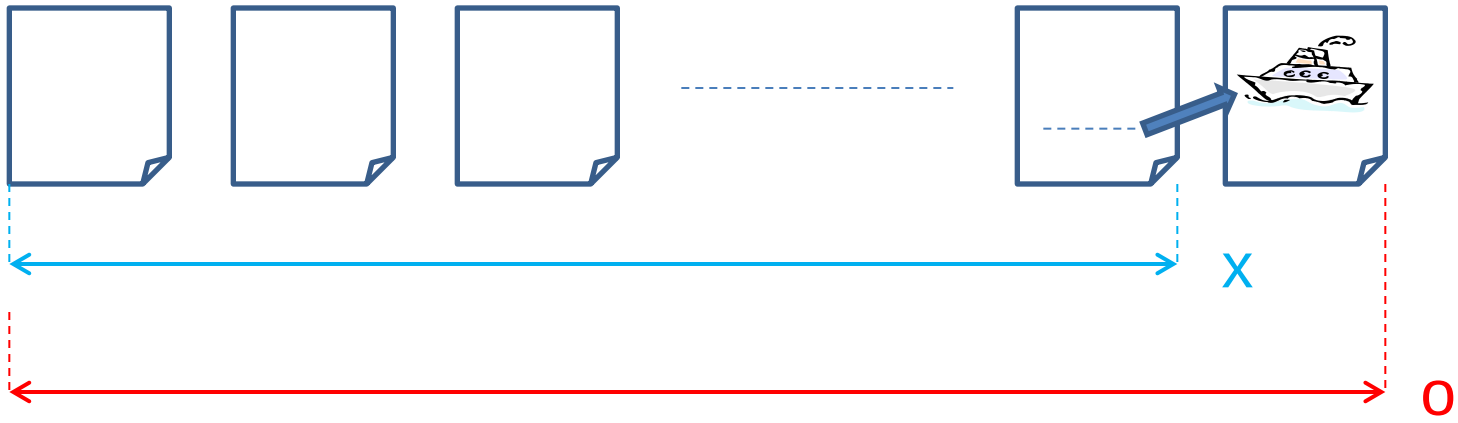
(Cited from R. Sanderson et al.: “SharedCanvas: A Collaborative Model for Medieval Manuscript Layout Dissemination,” JCDL2011)

Texts and their Relationship with the Images



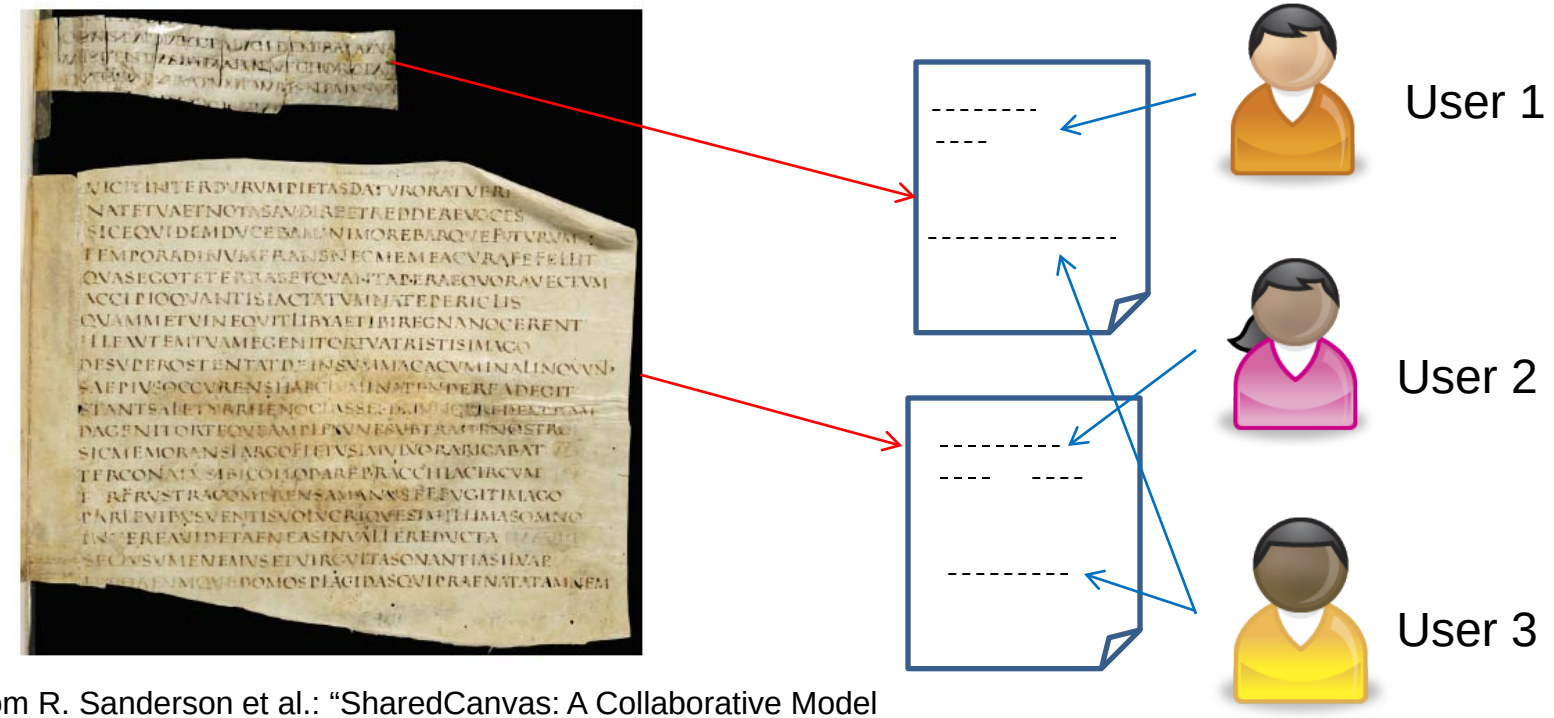
Sequencing of the Images and Texts

- When users are interested in particular contents, systems must provide textual sections correctly.



Rendering of Images and Texts

- Collaborative environment for manuscript description between different communities and individuals (like social tagging services)



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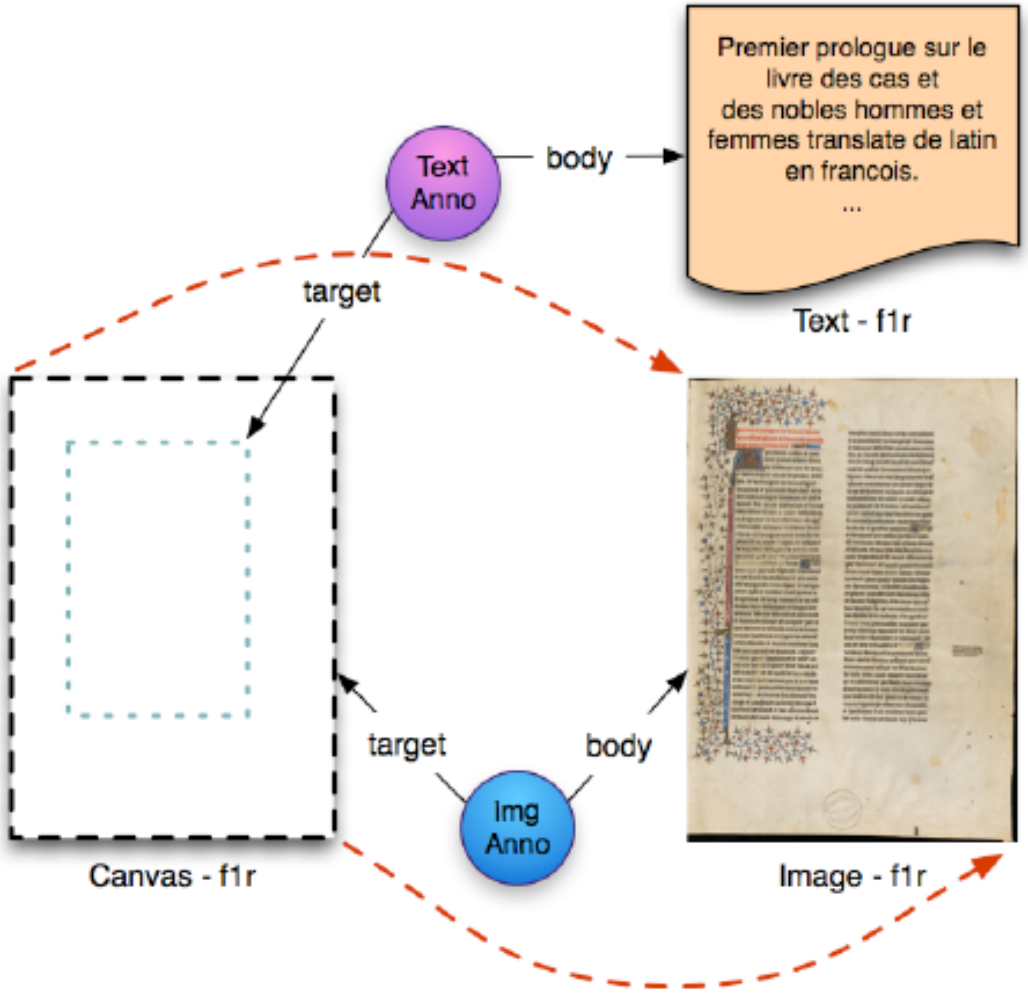
SharedCanvas

(1) Canvas, Image and Text

Canvas:
A kind of medium that links text and image



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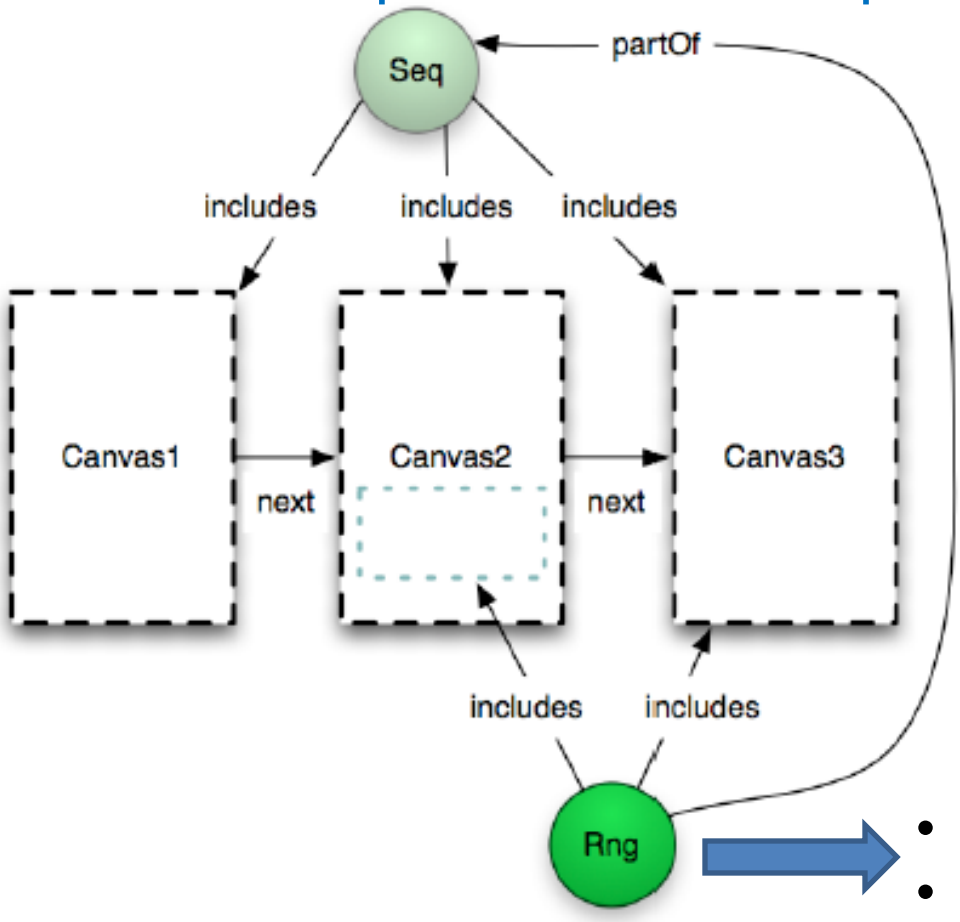
SharedCanvas

(2) Sequence and Range of Canvases

Multiple canvas to be presented to users

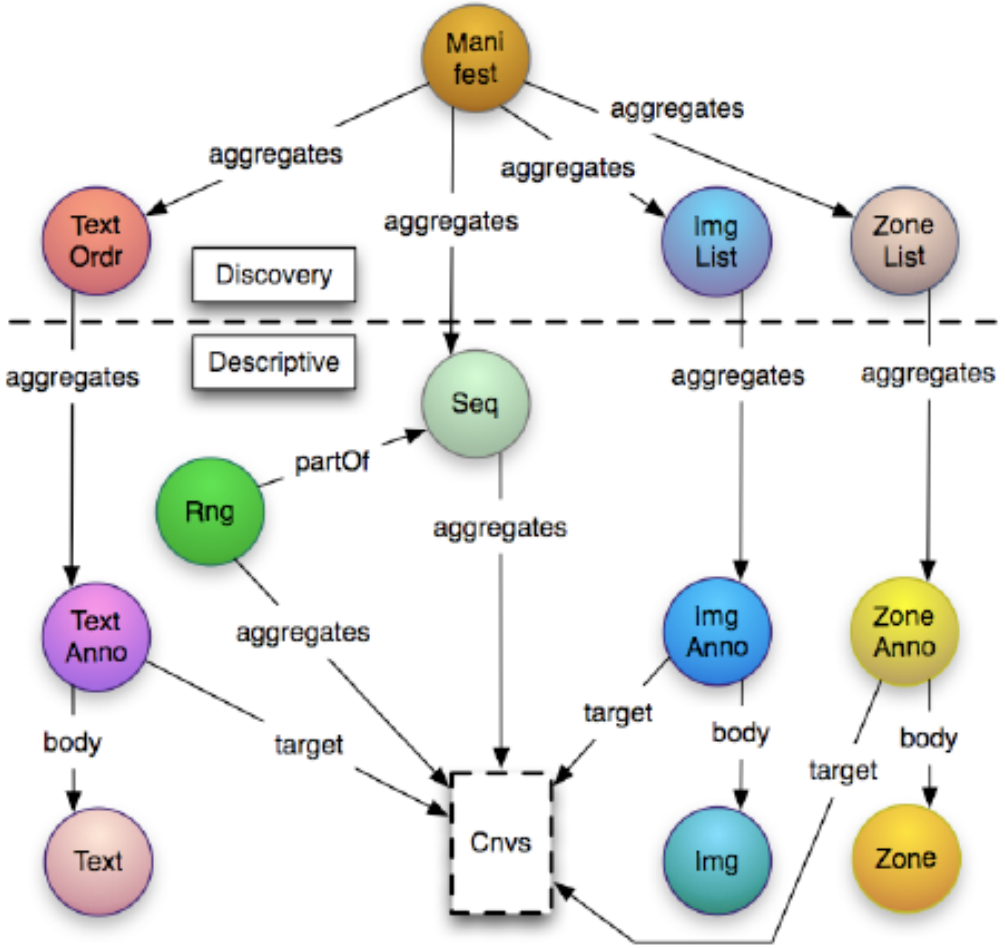


- Model textual or physical boundaries
- “Rng” is a part of “Seq”

(Cited from R. Sanderson et al.: “SharedCanvas: A Collaborative Model for Medieval Manuscript Layout Dissemination,” JCDL2011)

SharedCanvas

(3) Group of Sequenses



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TextOrdr:
Organize small annotations
to satisfy reading order requirement

ImgList:
Organize image annotations

ZoneList:
Maintain all of their associated
annotations by delimiting
Text and Images

Manifest:
Manage multiple sequences
for a single manuscript

(See the paper about
instantiation of SharedCanvas)

Doctoral Consortium

- 10 PhD students
  - Germany (1), Norway (2), Portugal (1), UK (1), US (5)
- Topics
  - Metadata
  - IR and NLP in Semi-structured data
  - Applications
  - Information Discovery
- Travel support for students