UC Berkeley School of Information

Google Books: The Metadata Mess

Google Book Settlement Conference

UC Berkeley

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Geoff Nunberg,
School of Information

The Last Library

"The cost of creating such a library and Google's significant lead time advantage suggest that no other entity will create a competing digital library for the foreseeable future." Directors of ALA, ACRL, ARL in letter to DOJ Antitrust Division, July 29, 2009

There is no Moore's Law for capture…

Hence the urgency of concerns about pricing, access, exclusivity, privacy…and "quality"

Whose interests determine "quality"?

Google Book Search is "a tremendous public good for students, for teachers, for scholars, for everyone." Derek Slater, Google

… but students, scholars and "everyone" may have different purposes for using GBS.

Three ways of using GBS

What "Googling" means: barrelling in sideways

GBS as a borough of Greater Google

> "We just feel this is part of our core mission. There is fantastic information in books. Often when I do a search, what is in a book is miles ahead of what I find on a Web site." Sergey Brin

Three ways of using GBS

Seeking out works & editions: the "destination experience"

A particular edition of *Leaves of Grass*

A good edition of Tristram Shandy

18th-c. French editions of *Don Quixote*, etc.

The importance of metadata: Who, when, where etc.

Three ways of using GBS

"Batch processing": data mining and "electronic philology"

- "It's only reporters and computational linguists who care if [hit-count estimation] is really precise." Peter Norvig, Google

Text databases and the "new philologies":

- The importance of language to social, intellectual, and political history & literary study
- Coincides emergence of large-scale historical text databases…
  - When did *happiness* replace *felicity* in 17th c?
  - Plotting the rise & fall of *propaganda*
  - How did *liberalism* spread in the early nineteenth-century European context?.

Good enough for scholarship?

Will GBS be an adequate resource for scholarly needs… now and in the future?

Depends on:

- Quality of imaging
- Reliability and robustness of search tools
- Quality and reliability of metadata
  - e.g., date, edition history, author, subject classification, etc.

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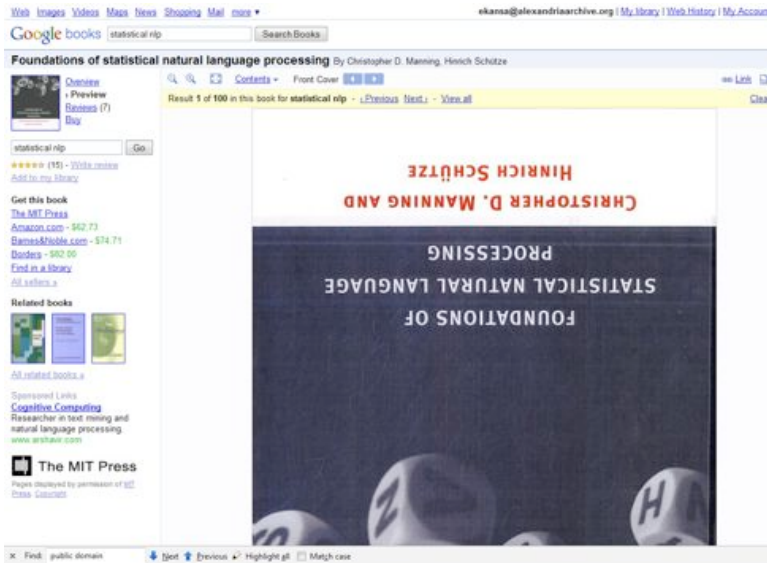
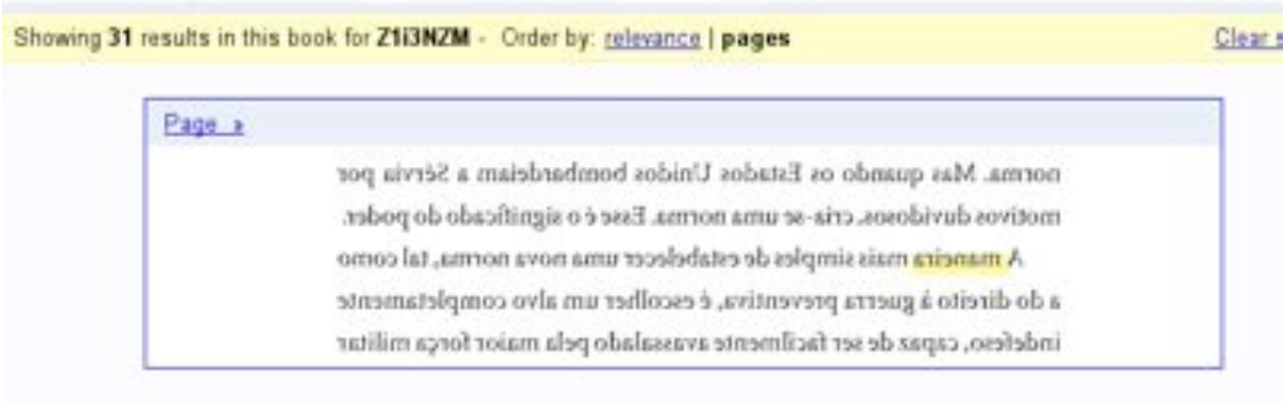
But GBS metadata are awful.

Quality Issues : Botched Scans, OCR, &c.





Metadata Issues: 1899, annus mirabilis

KILLER IN THE RAIN
by RAYMOND CHANDLER - Fiction - 1899
It was in the pulp detective magazines of the 1930s that Raymond Chandler's
definitive take on the hard-boiled detective story first appeared. ...
No preview available - About this book - Add to my library - More editions

CULTURE AND SOCIETY 1780-1950 - Page 206
by RAYMOND WILLIAMS - Social Science - 1899
This was the positive result of the life of the **family** in a small house, ... are
not separated from personal **relationships**; and Lawrence knew from this, ...
Limited preview - About this book - Add to my library - More editions

CONDITION HUMAINE, LA
by ANDRE MALRAUX - Fiction - 1899 - 352 pages
En mars 1927, l'armée du Kuomintang dirigée par Chang-Kaï-Shek s'approche de
Shanghai. Les communistes de la ville organisent le soulèvement des ouvriers ...
No preview available - About this book - Add to my library - More editions

PORTABLE DOROTHY PARKER, THE
by DOROTHY PARKER, SETH - Fiction - 1899 - 640 pages
The second revision in sixty years, this sublime collection ranges over the
verse, stories, essays, and journalism of one of the twentieth century's most
...
No preview available - About this book - Add to my library - More editions

Christine
by Stephen King - Fiction - 1899 - 324 pages
Page 11
PRÓLOGO Esta é a história de um triângulo amoroso — suponho que este seria o
nome — formado por Amie Cunningham, Leigh Cahot e, naturalmente, Christine. ...
No preview available - About this book - Add to my library - More editions

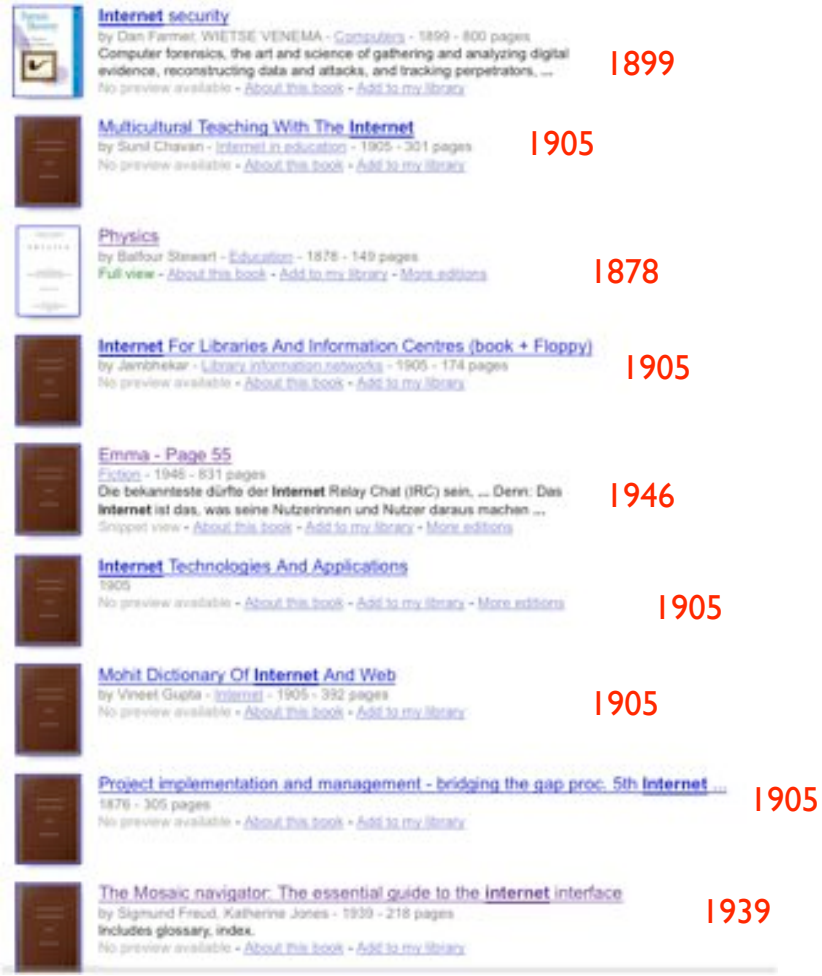
GRAPES OF WRATH, THE: TEXT AND CRITICISM
by JOHN STEINBECK - Literary Criticism - 1899 - 696 pages
This book includes the restored text corrected by scholar Robert DeMott, a map
of the Joad family's journey, Steinbeck's declaration of intent in writing ...
No preview available - About this book - Add to my library - More editions

COMPLETE SHORTER FICTION OF VIRGINIA WOOLF, THE
by SUSAN DICK - Fiction - 1899
This volume brings together all of Virginia Woolf's short stories and sketches.
Limited preview - About this book - Add to my library - More editions

YELLOW SUBMARINE
by THE BEATLES - Juvenile Fiction - 1899 - 40 pages
Uma aventura fascinante com a maior banda de rock de todos os tempos! Era uma
vez - ou duas, talvez - um paraíso chamado Pepperland. ...
No preview available - About this book - Add to my library - More editions

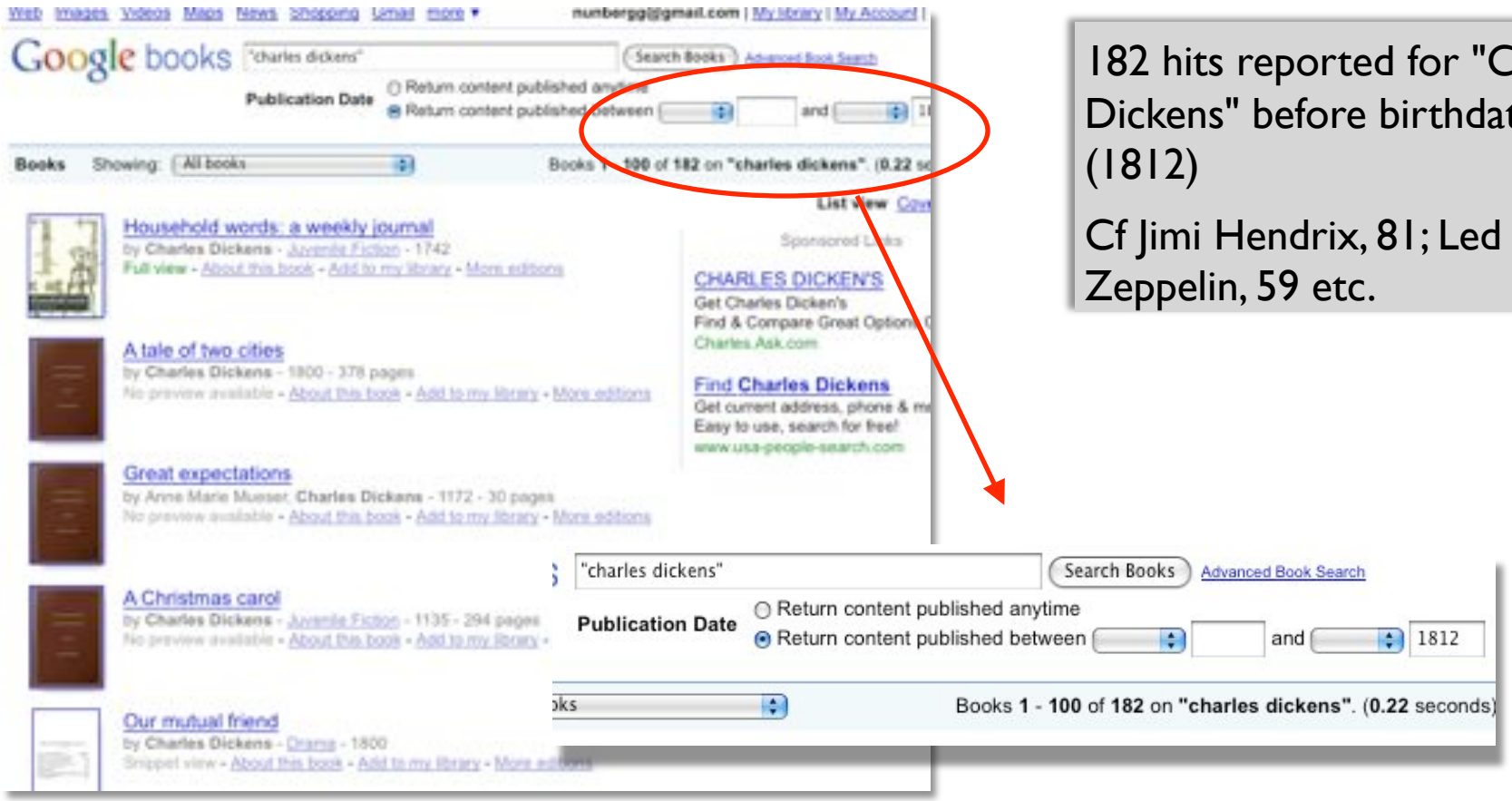
Random Dates

The pervasiveness of misdatings



527 hits returned for "Internet" before 1950

Famous before their lifetime



182 hits reported for "Charles Dickens" before birthdate (1812)

Cf Jimi Hendrix, 81; Led Zeppelin, 59 etc.

Ego-surfing, Edgar Cayce Style

"Our reputation precedes us"

VIRTUAL COMMUNITY: HOMESTEADING ON THE ELECTRONIC FRONTIER
by HOWARD RHEINGOLD - Computers - 1899
Limited preview - About this book - Add to my library - More editions

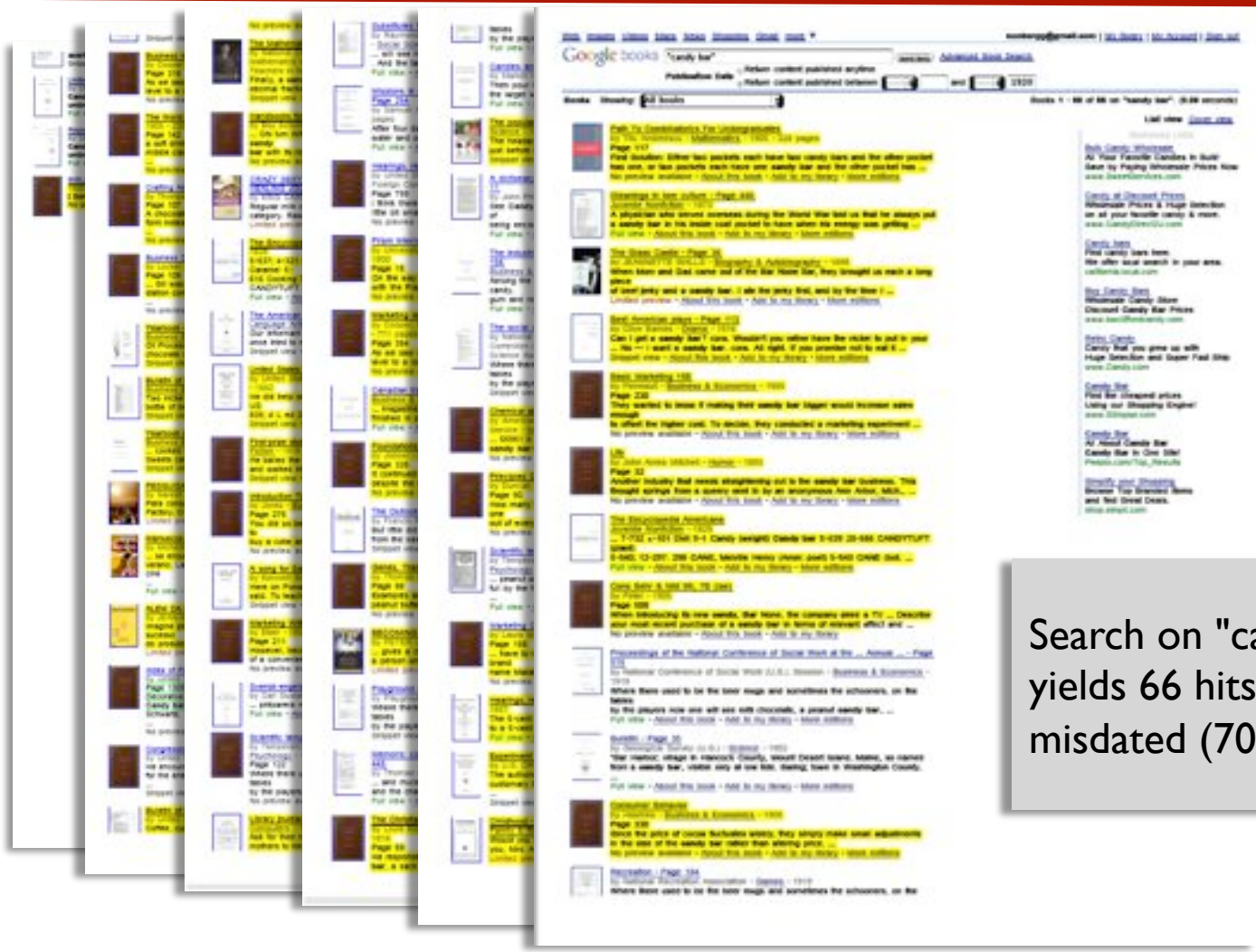
Do Que É Feito O Pensamento
by STEVEN PINKER - Psychology - 1899 - 344 pages
Page 411
... no really good?" Além disso, como ressaltou o linguista **Geoffrey Nunberg**, ...
embora de fato imaginar o diálogo How brilliant was it? View INão

VIDA SOCIAL DA INFORMAÇAO, A
by JOHN SEELY BROWN, **PAUL DUGUID** - Computers - 1899 - 300 pages
Com base em suas experiências profissionais como cientista-chefe e pesquisador-

Annual report of the American historical Association - Page 198
History - 1884
... Berkeley Seized Letters as Legal Evidence in the Paris Revolutionary Tribunal, 1793-1794. **Carla Hesse**, University of California, ...
Snippet view - About this book - Add to my library - More editions

New Jersey history
by New Jersey Historical Society - History - 1971
... **Annalee Saxenian**, "In Search of Power: The Organization of Business Interests in Silicon Valley and Route 128,' Economy and Society 18 (1989): 25-70 ; ...
Snippet view - About this book - Add to my library - More editions

The frequency of misdatings



Search on "candy bar" < 1920 yields 66 hits, 46 of them misdated (70%)

Classification Errors

Hamlet
by William Shakespeare - Antiques & Collectibles - 1994 - 71 pages
très douces manières et de grande mine. En vérité, pour parler de lui avec tact, il est le calendrier, la carte de la gentry ; vous trouverez en lui le ...
Limited preview - About this book - Add to my library - More editions

MADAME BOVARY:보봐리 부인(불문학작품 40)
by G.**FLAUBERT** - Antiques & Collectibles - 1988 - 430 pages
No preview available - About this book - Add to my library

Speculum - Page 283
by Mediaeval Academy of America, JSTOR (Organization) - Health & Fitness - 1962
WERNER JAEGER, Early Christianity and Greek **Paideia**. Cambridge, Massachusetts: Belknap Press of Harvard University Press, 1961. Pp. ii, 154. $8.25. ...
Snippet view - About this book - Add to my library - More editions

Mae West: An Icon in Black and White - Page 267
by Jill Watts - Religion - 2003 - 400 pages
Diamond Lil's iand **Mae West**'si successful perpetuation of female trans- ... In the midst of this revival of the **cult** of ...
Limited preview - About this book - Add to my library - More editions

Australian women: contemporary feminist thought - Page 153
by Norma Grieve, Ailsa Burns - Foreign Language Study - 1994 - 356 pages
The group moved more or less at random from the writings of Michel **Foucault** to lesbian-feminist philosophy, from Freud to Freud's commentators and critics. ...
Snippet view - About this book - Add to my library - More editions

Classification Errors

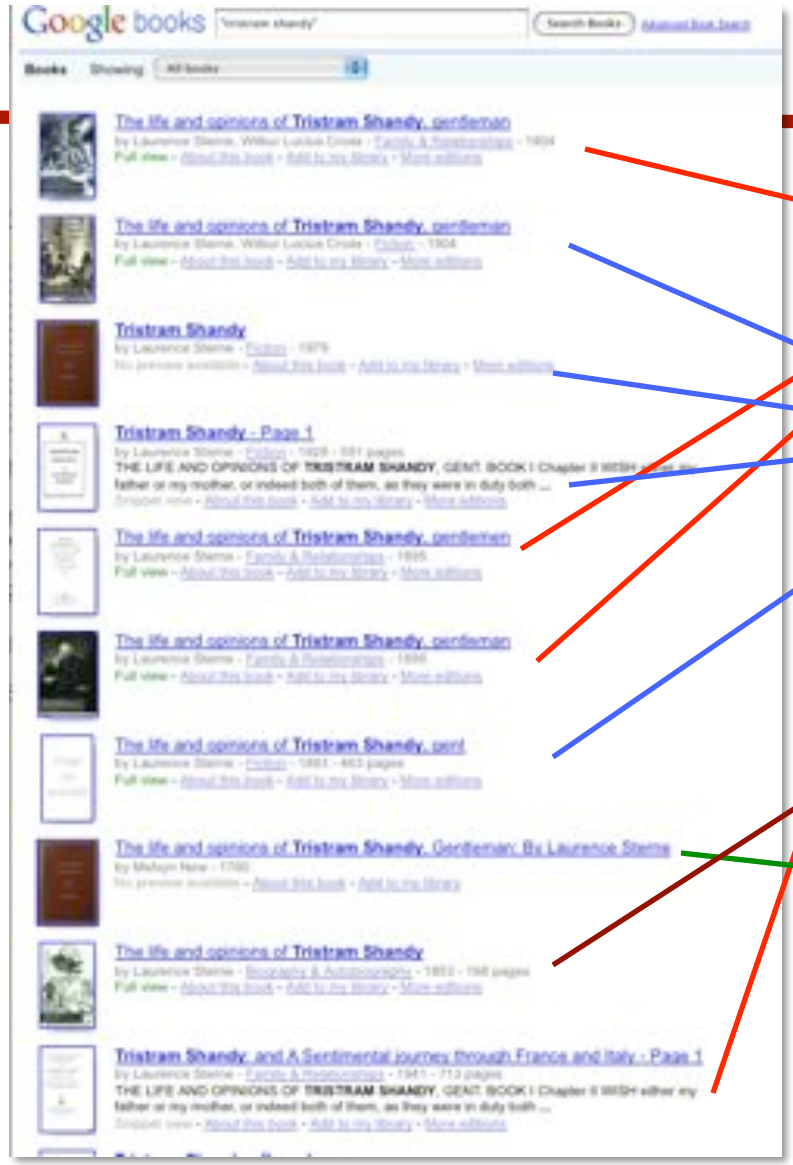
The merchant of Venice
by Christopher Rice, William **Shakespeare** - Foreign Language Study - 2007 - 72 pages
No preview available - About this book - Add to my library - More editions

The **Century dictionary**: an encyclopedic lexicon of the English language - Page 6180
edited by William Dwight **Whitney** - Family & Relationships - 1891
JD **Whitney**, The Yosemite Book, p. 24. 2. A device used in dredging, for sweeping
the sea-bed in order to obtain delicate forms of marine life, ...
Full view - About this book - Add to my library - More editions

Melting the earth: the history of ideas on volcanic eruptions - Page 76
by Haraldur Sigurdsson - Foreign Language Study - 1999 - 260 pages
Dante also speculated on the powers that had raised the lands above the primeval ocean, opting for an extraterrestrial force. Action was effected "by way of ...
Snippet view - About this book - Add to my library - More editions

Catalogue of copyright entries - Page 744
by Library **of** Congress. **Copyright** Office - Drama - 1923
13, Feb., 1922» 0 Feb. 25, 1922 : 2 c. and aff. Mar. **9**. ... **Volume** of production — united States ...
Full view - About this book - Add to my library - More editions

The Pervasiveness of Misclassification



family and relationships (4)

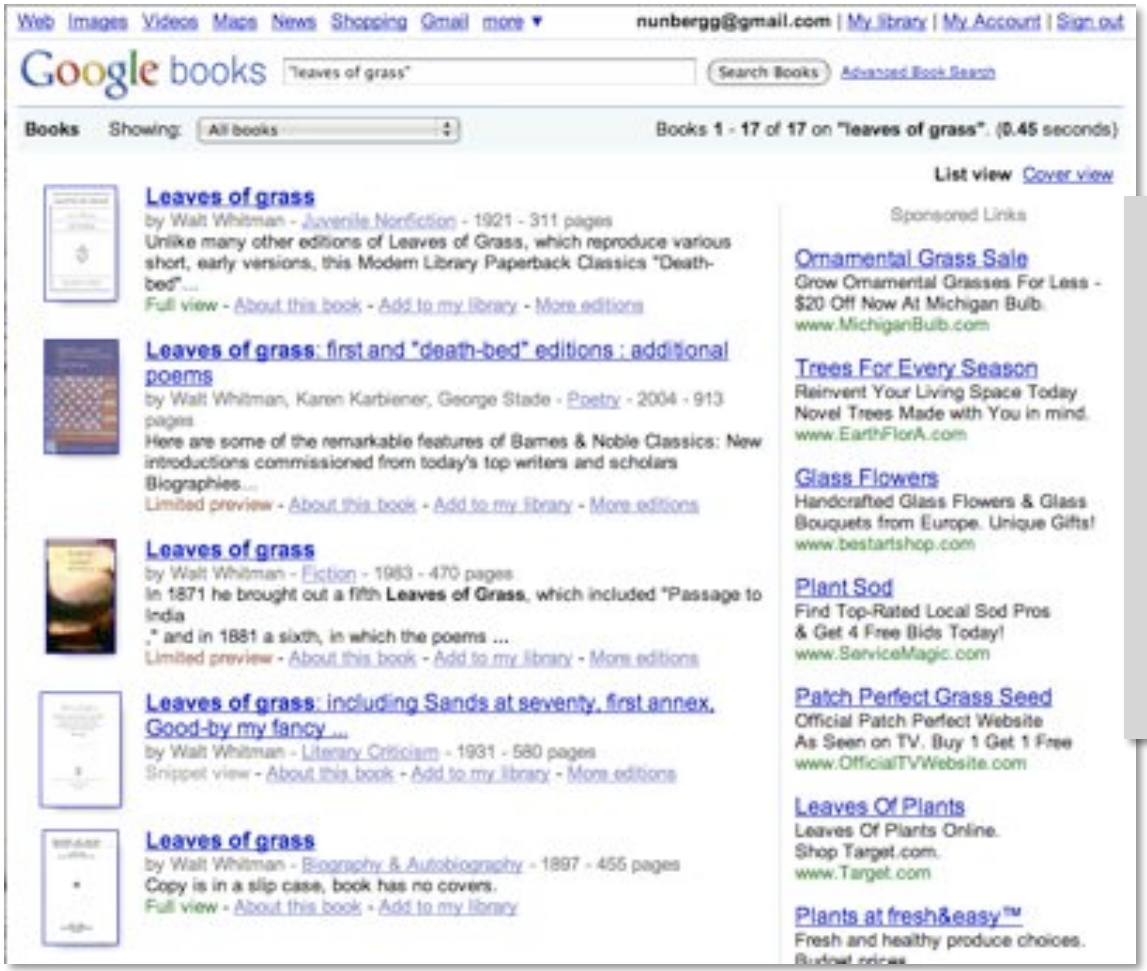
fiction (4)

biography and autobiography (1)

Unlabeled (1)
(others classified as "music," "history," "literary collections")

Classifications of first 10 hits for *Tristram Shandy*

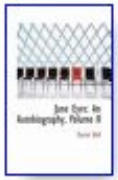
The Pervasiveness of Misclassification



First 10 hits for *Leaves of Grass* classify it as:

Juvenile Nonfiction
Poetry
Fiction
Literary Criticism
Biography & Autobiography,
Counterfeits and Counterfeiting

More bad metadata



Jane Eyre: An Autobiography
by Currer **Bell** - History - 2008 - 364 pages
Limited preview - About this book - Add to my library - More editions

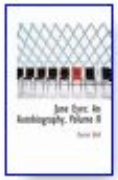
Jane Eyre
by Charlotte Brontë - Governesses - 1986 - 483 pages
No preview available - About this book - Add to my library - More editions

Jane Eyre
by Charlotte Brontë - Love stories - 2000 - 452 pages
No preview available - About this book - Add to my library

Jane Eyre
by Charlotte Brontë, Basil Davenport - Architecture - 1946 - 474 pages
Snippet view - About this book - Add to my library - More editions

Jane Eyre
by Charlotte Brontë, Clare West - Antiques & Collectibles - 1992 - 105 pages
No preview available - About this book - Add to my library - More editions

More bad metadata



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Other metadata issues

Books ascribed to authors of introductions, or given no author at all.

Other metadata issues

Books ascribed to authors of introductions, or given no author at all.

Titles linked to unrelated works.

"Errors" constitute only a fraction of "bad "metadata

Who is to blame and what is to be done?

"We got the metadata from the libraries":

yes, sometimes… but libraries didn't classify *Hamlet* as "antiques and collectibles" or *Speculum* as "Health & Fitness"

Libraries don't use headings like "Antiques and Collectibles" and "Health & Fitness" in the first place… cf Google's decision to use BISAC

The world according to BISAC: 3000 subheadings vs. 200,000 for LOC

The world according to BISAC

Making space for Bambi & Bullwinkle

JNF003260	JUVENILE NONFICTION / Animals / Cows *
JNF003230	JUVENILE NONFICTION / Animals / Deer, Moose & Caribou
JNF003050	JUVENILE NONFICTION / Animals / Dinosaurs & Prehistoric Creatures
JNF003060	JUVENILE NONFICTION / Animals / Dogs
JNF003210	JUVENILE NONFICTION / Animals / Ducks, Geese, etc.
JNF003070	JUVENILE NONFICTION / Animals / Elephants

… and Schiller, Petrarch & Verlaine

POE011000	POETRY / Canadian
POE012000	POETRY / Caribbean & Latin American
POE005030	POETRY / Continental European
POE005020	POETRY / English, Irish, Scottish, Welsh
POE014000	POETRY / Epic *

The world according to BISAC

Making space for Bambi & Bullwinkle

JNF003260	JUVENILE NONFICTION / Animals / Cows *
JNF003230	JUVENILE NONFICTION / Animals / Deer, Moose & Caribou
JNF003050	JUVENILE NONFICTION / Animals / Dinosaurs & Prehistoric Creatures
JNF003060	JUVENILE NONFICTION / Animals / Dogs
JNF003210	JUVENILE NONFICTION / Animals / Ducks, Geese, etc.
JNF003070	JUVENILE NONFICTION / Animals / Elephants

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POE011000	POETRY / Canadian
POE012000	POETRY / Caribbean & Latin American
POE005030	POETRY / Continental European
POE005020	POETRY / English, Irish, Scottish, Welsh
POE014000	POETRY / Epic *

Squeezing the universal library into a sububan bookstore

Correcting the Problem

Google: "We're on it (but it isn't a first priority)"

- Correcting errors as noticed (like bad scans)?
- Crowd Sourcing?
- But errors/bad metadata affect 000,000's of records
- "Error correction" doesn't address poor & missing metadata, inconsistent/confusing/inappropriate classification schemes
- Why should the metadata decisions be left to Google engineers?

Correcting the Problem

HathiTrust to the rescue?

- But HathiTrust makes available only out-of-copyright works, has (relatively) limited computational resources

Why should Google have no obligations to do GBS right?

- Google Book Search is "a tremendous public good for students, for teachers, for scholars, for everyone." Derek Slater, Google
- But a public good implies a public trust