Production: Knowledge panels and author/subject/work pages

This page provides additional details around the integration of information from Wikidata, DBPedia, and the Library of Congress (LOC) linked data service into the Cornell production catalog. We began this work as part of LD4P2 and LD4P3 discovery explorations around knowledge panels and author and subject pages. After multiple discussions with our library user representatives and modifications based on their feedback, we coordinated with the Discovery and Access team, the group responsible for our catalog implementation, to move forward with this integration. These features are subject to change as we continue to support and build on them.

Examples and screenshots

On the page for this Middlemarch item, the user can click on "author info" to open up the knowledge panel for George Eliot.



Clicking on "view full info" will lead to the author page for George Eliot, as you can see below.

Finager Window 19	Mary Ann Evans (22) Anne or Marian), kno poet, journalist, tran She wrote seven nov Marner (1851), Rome (1871–72) and Danie she emerged from p known for their reali depiction of the cour Occupation: Place of Birth: Place of Birth: Place of Birth: Place of Birth: Educated at:	dovember 1819 – 22 December 1880; alternatively Mary win by her pen name George Eliot, was an English novelist, slator and one of the leading writers of the Victorian era. els: Adam Bede (1859), The Mill on the Floss (1860), Silas la (1852–63), Fleik Hölt, the Radical (1866), Middlemarch Deronda (1876), Like Charles Dickens and Thomas Hardy, oxincial England; most of her works are set there. They are sm, psychological insight, sense of place and detailed ntryside. (Fram DBPedial 7) Novelist Warvickshire (England) Chelsea (London, England) United Kingdom of Great Britain and Ireland* Bedford College*	Library Holdings Total Works By: 171.Titles Total Works About: 427.Titles Books (56) Journals/Periodicals (4) Manuscripts/Archives 11 Miscaforms (5) Musical Becordings (2) Donmaical Becordings (2) Theses (25) Videos (1)	
			Browse related items by call number:	

Users can also reach this author page through our author browse list here:

	CORNELL UNIVERSITY Library		MENU
LIBRAR	Y CATALOG	Sign in Selected Items (0) Search History Search	Tips Borrow Direct Interlibrary Loan
Eliot, Georg	ge, 1819-1880 Author (A-Z) Sorted By Name	V Q ADVANCED SEARC	H ? ASKALIBRARIAN & MYACCOUNT
Start over Browse <u>« Previous N</u>	"Eliot, George, 1819-1880" in author headiı ^{ext.}	ngs	
Titles	Headings		Туре
171	Eliot, George, 1819-1880. Author info *		Personal Name
1	Eliot, George, active 17th century Author Info *		Personal Name
	Eliot (George) Centennial Conference		Event
	Eliot (George) Fellowship		Corporate Name
17 https://newcatalog.library.com	Flint Coorde Fielding 1894_1971 Authorida - elledw/browse/info?authq=Eliot, George, 1819-1880.8browse_type=Author8cheading	ype=Personal Name	Personal Name

Similarly, users can reach the subject page for a heading from the subject browse list (as shown below). We are not currently implementing separate subject info buttons from the item view page. Clicking on the "subject info" button next to the heading "Russo-Japanese War" will take the user to the subject page.

	Headings	Туре
506	Russo-Japanese War, 1904-1905 Subject Info -	Topical Term
484	Russo-Japanese War (1904-1905)	Event
2	Russo-Japanese War, 1904-1905	Geographic Name
1	Russo-Japanese War, 1904-1905 > Addresses, essays, lectures	Topical Term
3	Russo-Japanese War, 1904-1905 > Art and the war Subject info *	Topical Term
2	Russo-Japanese War, 1904-1905 > Art and the war > Exhibitions	Topical Term
1	Russo-Japanese War, 1904-1905 > Austria	Topical Term
2	Russo-Japanese War, 1904-1905 > Bibliography	Topical Term
5	Russo-Japanese War, 1904-1905 > Campaigns Subject Info +	Topical Term
	Russo-Japanese War, 1904-1905 > Campaigns > China Subject info *	Topical Term
stalog.library.c	Anrower Term: cornell.edu/browse/info?authq=Russo-Japanese War, 1904-1905&browse_type=Subject&headingtype=Topical Term 4 (5)	
Russo-	Japanese War, 1904-1905 The Russo-Japanese War (Russian: Pyccuo-anduckas Boliká, romanized: Rússko-yapóńskaya voyná; Japanese: 日富戦争, romanized: Nichiro sensó, lit. Japanese-Russian War) was fought between the Empire of Japan and the Russian Empire during 1904 and 1960 sover tvial imperial ambitions in	Library Holdings Total Works About: 506 Titles Books (490)
Imag	Manchuria and Korea. The major theatres of military operations were the Liaodong Peninsula and Mukden in Southern Manchuria, and the seas around Korea, Japan, and the Yellow Sea. <u>(riom DBredia</u> ?)	Journals/Periodicals (11) Manuscripts/Archives.(4)
Imag	Manchuria and Korea. The major theatres of military operations were the Liadong Perinaulua and Mukden in Southern Manchuria, and the seas around Korea, Japan, and the Yellow Sea. (From DBPedia (3))	Journals/Periodicals (11) Manuscripts/Archives.(4) Maps.(1) Microforms (53)
Imag Reference Broader	Manchuria and Korea. The major theatres of military operations were the Liaodong Peninsula and Mukden in Southern Manchuria, and the seas around Korea, Japan, and the Yellow Sea. (<u>From DBRedia(?</u>)) ete Information Term: <u>Eastern question (Far East)</u> . Works about: 1021.	 Journals/Periodicals(11) Manuscripts/Archives.(4) Maps.(1) Microforms.(53) Theses.(4)
Image Reference Broader Heading	Manchuria and Korea. The major theatres of military operations were the Liaodong Peninsula and Mukdei ni Southern Manchuria, and the seas around Korea, Japan, and the Yellow Sea. (<u>From DBPedia(?</u>)) tee Information tee Information Eastern question (Far East). Works about: 1021 Type: Topical Term	Journals/Periodicals(11) Manuscripts/Archives(4) Maps(1) Microforms(53) If Microforms(53) Itresex(4) Videos(2)
Reference Broader Heading Alternate	Manchuria and Korea. The major theatres of military operations were the Liaodong Peenisula and Mukden in Southern Manchuria, and the seas around Korea, Japan, and the Yellow Sea. (From DBRedia [2]) the Information tee Information	Journals/Periodicals(11) Manuscripts/Archives.(4) Maps.(1) Microforms.(53) Disess.(4) Videos.(2) Browse related items by call number: DS516 - DS517.9, JZ1395.R87

When there is a one to one correspondence between a Name/Title authorized access point and a Wikidata Work, the user can see information from Wikidata inline with the rest of the catalog record, e.g page for The Magic Flute.

Catalog	Köchel catalogue (1st edition) : 620			
numbers.				
First	30 Sep, 1791			
performance				
date:				
First	Theater auf der Wieden			
performance				
location:				
Librettist:	Emanuel Schikaneder			
Some of this info	ormation comes from the <u>Discogs database</u> 🗹.			
Highlight the Discogs data.				
Some of this information comes from Wikidata				
Remove the Wikidata highlighting.				

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For items in the catalog that contain more than one work and have Name/Title authorized access points and matching Wikidata Works, e.g. this Vivaldi con moto item, the user can click on "work info" to open up the knowledge panel for any of the works.

Included work:	Vivaldi, Antonio, 16	Vivaldi, Antonio, 1678-1741, Concertos,
	minor. Work info »	violin, string orchestra, RV 232, D major
	Vivaldi, Antonio, 16	Works: <u>1 Title</u>
	major. Work info »	Works about: 0 Titles
	<u>Vivaldi, Antonio, 16</u> <u>major.</u> Work info »	Catalog numbers: Rinaldi catalog : R. op. 36, n. 4 Fanna catalogue : F. I n. 18
	Vivaldi, Antonio, 16	Ryom-Verzeichnis : RV 232
	major. Work info »	Pincherle catalog : P. 200
	<u>Vivaldi, Antonio, 16</u>	Tonality: D major
	major. Work info »	Instrumentation: violin, string orchestra, continuo group
	<u>Vivaldi, Antonio, 16</u>	View full info »
	minor. Work info »	

Clicking on "view full info" will lead to the work page for any of the works, as you can see below.

Vivaldi, Antoni	o, 1678-1741. Concertos, violin, string orchestra, RV 2	32, D major
Catalog numbers:	Rinaldi catalog : R. op. 36, n. 4 * Fanna catalogue : F. I n. 18 * Ryom-Verzeichnis : RV 232 * Pincherle catalog : P. 200 *	Library Holdings Total Works: <u>1 Title</u> Total Works to Differ
Tonality:	D major *	Total Works About: UTILIES
Instrumentation:	violin, string orchestra, continuo group *	
	* <u>From Wikidata</u> 🗗	
Reference Information	tion	
Alternate Form(s):	Vivaldi, Antonio, 1678-1741. Concertos, violin, string orchestra, F. I, 18, D major	
	Vivaldi, Antonio, 1678-1741. Concertos, violin, string orchestra, P. 200, D major	
	Vivaldi, Antonio, 1678-1741. Concertos, violin, string orchestra, R. op. 36, no. 4, D major	

Data integration

- · Knowledge panels
- We now include an image and short description from Wikidata.
- Author, works, and subject browse pages:
 - We now include
 - An image from Wikidata
 - A description from DBPedia (or a description from Wikidata if the former is not available)
 - Additional Wikidata information for people such as citizenship, education, and pseudonyms
 - Additional Wikidata information for works such as thematic catalog numbers for musical works, first performance date/location, and dedications.
 - The LOC classification number which is used to generate a link to our call number browse.

Implementation

All of the data on the page is retrieved using dynamic lookups against external data sources to retrieve information. We also check against our configuration to see which data or authorities should show information from external sources. (This process is described in greater detail below). Currently, the author knowledge panel and author and subject pages rely on a string lookup of the authorized heading string against the id.loc.gov suggest service. This lookup returns a URI which we then use to retrieve LOC information such as the classification number and to query Wikidata. DBPedia queries use a combination of Wikidata QID and label searches to retrieve descriptions. Additionally, we have requested the inclusion of LOC identifiers or URIs within the catalog Solr indices and, in the future, we hope to be able to use that information directly instead of relying on string lookups to get LOC URIs .

The image below shows how information is being retrieved for the heading for George Eliot. Blue arrows represent queries or JSON retrieval. The gray boxes include the string heading or the identifiers. The image displays the local names for the URIs to make the image easier to read. The white boxes with black borders underneath the URIs show the properties we are retrieving for that URI.



When we don't want to show specific data

We implemented a system whereby we can exclude information from being displayed for specific authors or subjects. Using a YAML file, we can designate whether we wish to hide all external data or whether we wish to hide certain properties for a specific author or subject heading.

For example, if we want to not display the image and description for the heading "Eliot, George, 1819-1880" but wish to display the remaining properties we retrieve from Wikidata, such as citizenship and place of education, we would include the following in the YAML file:



If we did not want to show any of the information we retrieve from Wikidata or DBPedia for this specific heading, we would instead write the following in the YAML file:

? "Eliot, George, 1819-1880" : ~

What happens when external data services are not available

If the external lookups or APIs are not functioning, we try to ensure the knowledge panel and author and subject pages still load with the information from our own browse indices.

Additional changes

We also updated aspects of the design of both the author knowledge panel and the subject and author pages. We incorporated library holdings search information into the author and subject pages to allow users to more easily find related information and resources. Our author and subject browse indices already included the "total works by" and "total works about" information. In order to ensure that the library holdings information search results reflected works by and about the authors, we employed an advanced search using a boolean OR to query for results where the heading was the author or the subject (using the same author and subject fields search fields that are used for the links for "total works by" and "total works about" links).

Code

Related sections of code include:

- Knowledge panel
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/assets/javascripts/pops.js
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/controllers/kpanel_controller.rb
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/views/kpanel/panel.html.erb
- Author and subject pages
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/assets/javascripts/author_browse.js
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/assets/javascripts/subject_browse.js
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/assets/javascripts/retrieve_lcsh.js
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/controllers/browse_controller.rb
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/views/browse/_author_info.html.erb
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/views/browse/_subject_info.html.erb
- Configuration for what not to display for specific headings
 - https://github.com/cul-it/blacklight-cornell/blob/dev/app/controllers/handle_external_data_controller.rb
 https://github.com/cul-it/blacklight-cornell/blob/dev/app/controllers/handle_external_data_controller.rb
 - https://github.com/cul-it/blacklight-cornell/blob/dev/public/excludeEntities.yml
- Related additions to routes.rb
 - o get 'panel'=> 'kpanel#panel'
 - get 'kpanel/index'
 - # Permissions for showing certain external info
 - get '/check_permissions' => 'handle_external_data#check_permissions', as: 'check_permissions'

Additional information about specific code changes can be found in the Discovery and Access documentation for this work here.

Thanks and acknowledgements

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