Beyond Description:

Using Schema.org to describe networks and actions in book, people, and discovery settings

American Library Association, Annual Meeting
“Understanding Schema.org” Session
Sponsors: ALCTS/LITA Metadata Standards Committee
June 29, 2014

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Abstract

At its core Schema.org is about creating machine-actionable descriptions of content. Librarians, especially cataloging librarians, have a unique understanding of the benefits of description at scale. What may be newer to our field are the additional expressions being brought into the Schema.org standard such as actions, roles, and linked data sameAs equivalencies. With the introduction of these expressions, opportunities for a more nuanced expression of identity and relationships in addition to basic description have been enabled. In this session, we'll look at some particular projects at Montana State University Library – an online web book (arc.lib.montana.edu/book/home-cooking-history-409/), a people directory application (www.lib.montana.edu/people/), and a digital collections search application (arc.lib.montana.edu/digital-collections/) – that are beginning to apply some of these additional Schema.org expressions to define relationships and linked data sources inside of web applications and web pages.

pinboard.in tag

pinboard.in/u:jasonclark/t:ala-schema/

twitter as channel (#hashtag)

#schema
@jaclark

Are you too busy to improve?

Håkan Forss @hakanforss http://hakanforss.wordpress.com

This illustration is inspired by and in part derived from the work by Scott Simmerman, "The Square Wheels Guy" http://www.performancemanagementcompany.com/

Overview

- Emerging markup practices
- Show some examples in production
- Reason for these markup practices
- Getting started
- Questions

Introducing Semantic Markup

- HTML5 semantic tags and schema.org vocabularies that help classify page types and identify content on the page

“If Google understands the content on your pages, we can create rich snippets—detailed information intended to help users with specific queries.”
https://support.google.com/webmasters/answer/99170?hl=en&ref_topic=1088472

Digital Historical Photograph Collection - Montana State University Library

Item: Women posing on college locomotive engine

Title: Women posing on college locomotive engine
Creator: unknown
Date: unknown
Description: Women posing on a college locomotive engine.
Notes:
Physical Description: Photo print - Black and White
Subjects: Locomotive
Keywords: locomotive
Photograph ID: parc-000432

Higher quality/resolution

Persistent link

Download

Embed

<a title="Women posing on college l

Share

Back to MSU Photos Homepage

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Before Schema.org markup

Digital Collections Home | Mobile

Digital Historical Photograph Collection - Montana State University Library

Item: **Women posing on college locomotive engine**

Title: Women posing on college locomotive engine
Creator: unknown
Date: unknown
Description: Women posing on a college locomotive engine.
Notes:
Physical Description: Photo print - Black and White
Subjects: Locomotive
Keywords: locomotive
Photograph ID: parc-000432

Higher quality/resolution

Persistent link

Download

Embed

<a title="Women posing on college l

Share

Back to MSU Photos Homepage

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After Schema.org markup

```
<dl>
<dt>Title</dt>
<dd>A River Runs Through It and Other
Stories</dd>
<dt>Author</dt>
<dd>Norman Maclean</dd>
<dt>Publication date</dt>
<dd>October 1, 2001</dd>
<dt>ID</dt>
<dd>0226500667</dd>
</dl>
```

```
<dl itemscope itemtype="http://schema.org/Book">
<dt>Title</dt>
<dd itemprop="title">A River Runs Through It and
Other Stories</dd>
<dt>Author</dt>
<dd itemprop="author">Norman Maclean</dd>
<dt>Publication date</dt>
<dd itemprop="pubdate">October 1, 2001</dd>
<dt>ID</dt>
<dd itemprop="isbn">0226500667</dd>
</dl>
```

sameAs - Schema.org

“URL of a reference Web page that unambiguously indicates the item's identity.”

http://schema.org/Thing
has property
http://schema.org/sameAs

Coconut Cream Pie

Cooking Time: PT6H
Cooking Method: mix, refrigerate
Category: dessert
Cuisine Type: American
Servings: 8-12 servings
Related: dbPedia entity
Ingredients:

- 6 oz cream of coconut, such as Coco Lopez 10 oz mini marshmallows 1/4 cup milk 3 cups heavy cream 2 cups shredded coconut 2 tsp coconut extract

Directions:

1. Mix cream of coconut with milk, add the marshmallows and melt marshmallows are melted.
2. Set mixture aside and let cool.
3. Once mixture is cooled/jelled put into kitchen aid mixer and whip until frothy like a latte.
4. Put mixture into another bowl.
5. Whip heavy cream till peaks form then fold into marshmallow mixture
6. Add 1 cup of coconut by hand make sure it doesn't clump up
7. Toast the other cup of coconut and set aside for garnish
8. Pour into cooked pie shells
9. Sprinkle toasted coconut on top
10. Refrigerate for at least 6 hours

arc.lib.montana.edu/book/home-cooking-history-409/item-13

```
<body vocab="http://schema.org/" typeof="WebPage">
<meta name="thumbnailUrl" content="http://upload.wikimedia.org/wikipedia/commons/thumb/8/84/Coconut_cream_pie.jpg/300px-Coconut_cream_pie.jpg" />
<article vocab="http://schema.org/" typeof="Book">
<meta property="name" content="Coconut Cream Pie" />
<meta property="creator" content="Amanda Hartsell" />
<section vocab="http://schema.org/" typeof="Recipe">
<figure>
        <h2 data-sizes="title fallback">
                <span class="chapter"><a href="./table-of-contents.html">Table of Contents</a> > Recipe and Essay</span>
                <span property="name">Coconut Cream Pie</span>
        </h2>
</figure>
<p>Cooking Time: <span property="cookTime">PT6H</span></p>
<p>Cooking Method: <span property="cookingMethod">mix, refrigerate</span></p>
<p>Category: <span property="recipeCategory">dessert</span></p>
<p>Cuisine Type: <span property="recipeCuisine">American</span></p>
<p>Servings: <span property="recipeYield">8-12 servings</span></p>
<p>Related: <a property="sameAs" href="http://dbpedia.org/page/Cream_pie">dbPedia entity</a></p>
<p>Ingredients:</p>
<section property="ingredients">
<ul>
        <li>6 oz cream of coconut, such as Coco Lopez
10 oz mini marshmallows
1/4 cup milk
3 cups heavy cream
2 cups shredded coconut
2 tsp coconut extract</li>
</ul>
</section>
<p>Directions:</p>
<section property="recipeInstructions">
<ol>
```

arc.lib.montana.edu/book/home-cooking-history-409/item-13

Role - Schema.org

“Represents additional information about a relationship or property. For example, a Role can be used to say that a Person's 'actor' role in a Movie was for some particular characterName.”

http://schema.org/Thing
has property
https://schema.org/Role

MONTANA STATE UNIVERSITY | LIBRARY

Ask A Librarian

Home Find Request Services Help Site Search

People in the library - individual results

Jason Clark

Title: Head of Library Informatics and Computing [Associate Professor]

Department: Library Informatics and Computing, Montana State University

Phone: 406-994-6801

Email: jaclark@montana.edu

Room: 139

Vita

Homepage

Get QR Embed Code

<img src="http://chart.apis.google.com/ch

Back to Staff Home page

www.lib.montana.edu/people/about?id=23

```
<div vocab="http://schema.org/" typeof="Organization">
<meta property="name" content="Montana State University (MSU) Library" />
<meta property="sameAs" content="http://www.freebase.com/m/0j3y9r1" />
<div property="member" typeof="OrganizationRole">
<ul property="member" typeof="Person" class="aboutList">
<li class="photo"><img property="image primaryImageOfPage"
src="http://www.lib.montana.edu/people/meta/img/photos/JasonClark-thumb.jpg" alt="photo of Jason
Clark" /></li>
<li class="infoContact">
<h3 property="name" >Jason Clark</h3>
<p><strong>Title: </strong><span property="jobTitle">Head of Library Informatics and Computing
[Associate Professor]</span></p>
<p><strong>Department: </strong><span property="workLocation">Library Informatics and
Computing</span>, <span property="affiliation worksFor">Montana State University</span></p>
<p><strong>Phone: </strong><span property="telephone">406-994-6801</span></p>
<p><strong>Email: </strong><span property="email">jaclark@montana.edu</span></p>
</li>
```

www.lib.montana.edu/people/about?id=23

Action - Schema.org

“An action performed by a direct agent and indirect participants upon a direct object.”

http://schema.org/Thing
has property
https://schema.org/Action
or
https://schema.org/potentialAction

```
<script type="application/ld+json">
{
  "@context": "http://schema.org",
  "@type": "Organization",
  "name": "Montana State University (MSU) Library",
  "sameAs": "http://www.freebase.com/m/0j3y9r1",
  "potentialAction": {
    "@type": "ViewAction",
    "target": [
      "http://www.lib.montana.edu",
      {
        "@type": "EntryPoint",
        "urlTemplate": "http://www.lib.montana.edu",
        "contentType": "text/html"
      }
    ]
  }
}
</script>
```

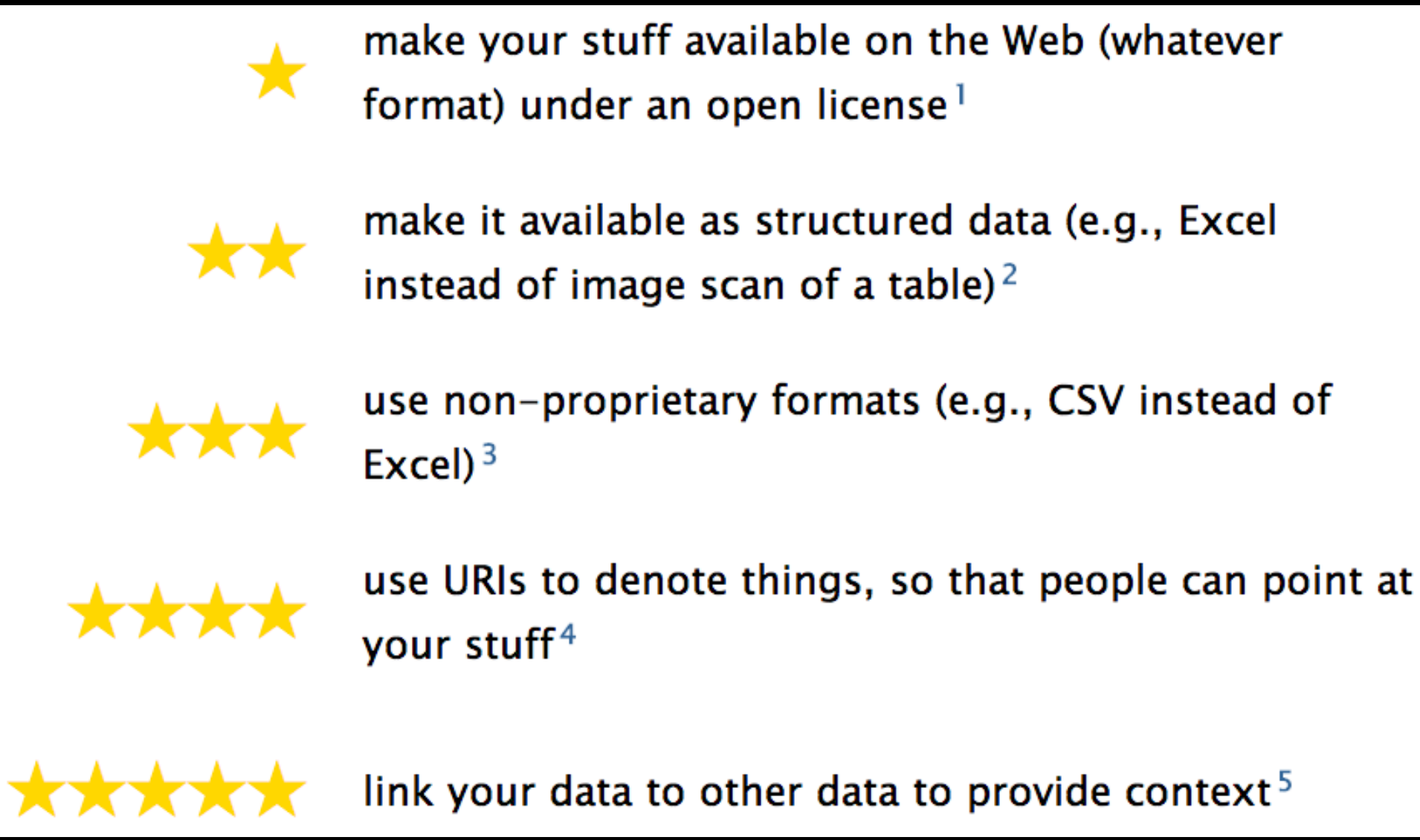
Why Schema.org?

- Libraries as publishers in Web of Data
- Machines understanding our data = Significance
- Can improve findability in search engines (search engine optimization)
- Can create efficiencies in our own indexing (e.g., digital collections search)

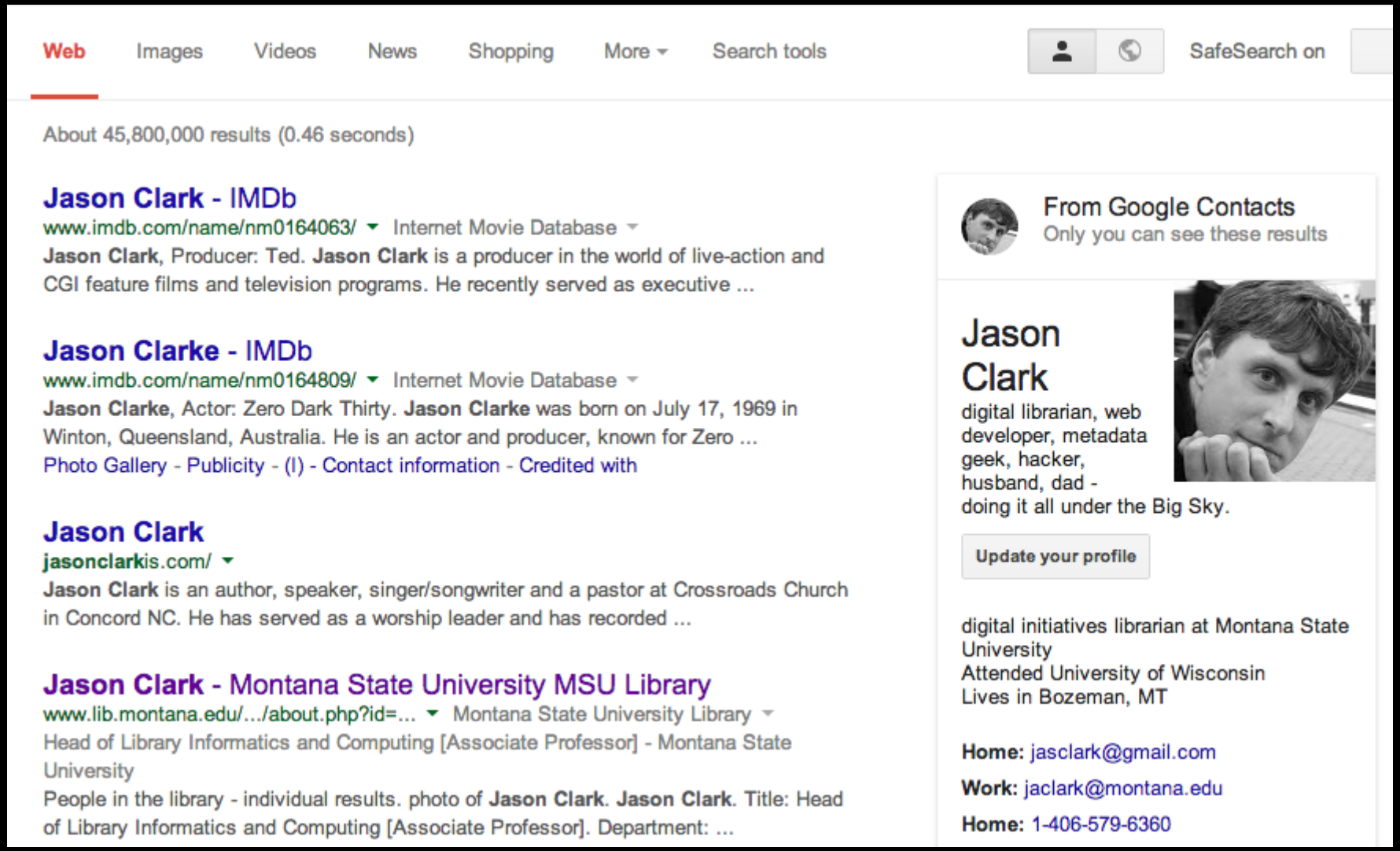
What is Linked Open Data?

- Practice of publishing structured, machine actionable data with an open license for sharing and reuse.

5 Star Linked Open Data

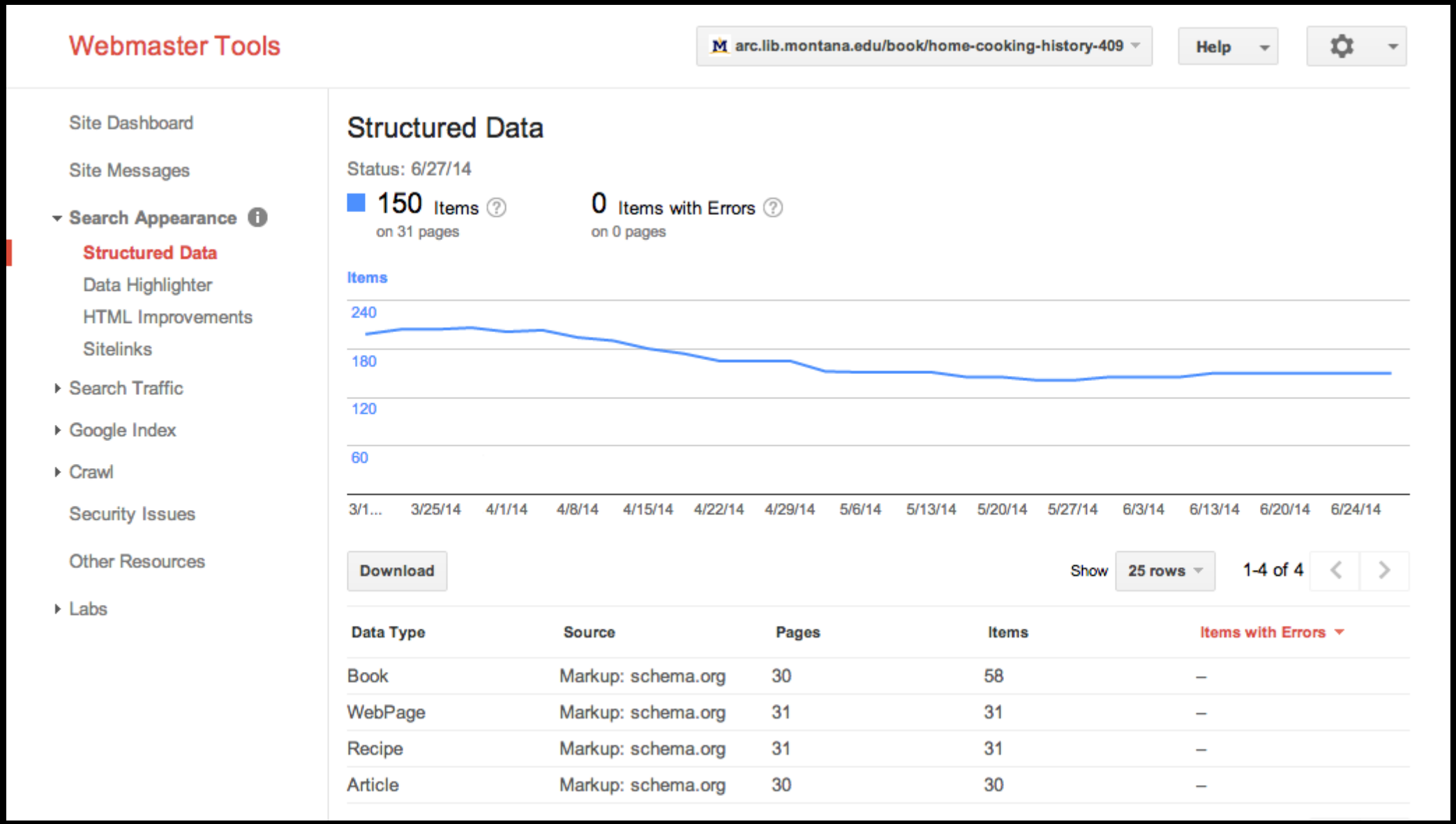


http://5stardata.info/



*Tentative results for SEO - This is a personal result set.

Structured Data in Your Index



www.google.com/webmasters/tools/

Search Digital Collections - Montana State University (MSU) Library

Search | Explore | About

Search MSU Library Digital Collections

coconut+cream

Search for coconut cream (Returning 2 matches from a 100 item set)

Filter
- All
- Images
- Documents
- Videos
- Sounds

Sort
- Relevance
- Date

Popular Searches
- search our digital collections...
- farm
- computer
- search our digital collections...
- native americans in montana

Recent Searches
- coconut

Coconut Cream Pie - Amanda Hartsell
arc.lib.montana.edu/book/home-cooking-history.../item-13.html
6 oz **cream** of **coconut**, such as Coco Lopez 10 oz mini marshmallows 1/4 cup
milk 3 cups heavy **cream** 2 cups shredded **coconut** 2 tsp **coconut** extract.
more

Table of Contents - Montana State University
arc.lib.montana.edu/book/home-cooking.../table-of-contents.html
Preface by Mary Murphy; **Coconut Cream** Pie by Amanda Hartsell; My Mother's
Chocolate Sheet Cake by Angie Keesee; Chicken Noodle Soup by Brandon ...
more

arc.lib.montana.edu/digital-collections/index.php?q=coconut+cream

```
 "items": [
  {
   "kind": "customsearch#result",
   "title": "Coconut Cream Pie - Amanda Hartsell",
   "htmlTitle": "\u003cb\u003eCoconut Cream\u003c/b\u003e Pie - Amanda Hartsell",
   "link": "http://arc.lib.montana.edu/book/home-cooking-history-409/item-13.html",
   "displayLink": "arc.lib.montana.edu",
   "snippet": "Table of Contents \u003e Recipe and Essay Coconut Cream Pie. Cooking Time: PT6H.
\nCooking Method: mix, refrigerate. Category: dessert. Cuisine Type: American.",
   "htmlSnippet": "Table of Contents &gt; Recipe and Essay \u003cb\u003eCoconut Cream\u003c/b\u003e
Pie. Cooking Time: PT6H. \u003cbr\u003e\nCooking Method: mix, refrigerate. Category: dessert. Cuisine
Type: American.",
   "cacheId": "UYDP4twwC2wJ",
   "formattedUrl": "arc.lib.montana.edu/book/home-cooking-history.../item-13.html",
   "htmlFormattedUrl": "arc.lib.montana.edu/book/home-cooking-history.../item-13.html",
   "pagemap": {
    "Book": [
     {
      "name": "Coconut Cream Pie",
      "creator": "Amanda Hartsell"
     }
    ],
    "cse_image": [
     {
      "src": "http://upload.wikimedia.org/wikipedia/commons/thumb/8/84/Coconut_cream_pie.jpg/300px-
Coconut_cream_pie.jpg"
     }
    ],
    "cse_thumbnail": [
     {
      "width": "240",
      "height": "192",
      "src": "https://encrypted-tbn1.gstatic.com/images?q=tbn:ANd9GcTnLhjOI-i2e-
u30bgaJG3yrMbOxi2E6cX7SjA4xMjAza9TH0kkFh5xRVA"
     }
    ],
```


Google Custom Search Engine JSON API Result

Getting Started

1. Think about entities you want to surface - type of web page, organization, person, etc.

2. Find those entities in schema.org vocabulary

3. Draft your new markup
   a. Use Google Structure Data Markup Helper Tool

4. Test your markup in Google Structured Data Testing Tool

5. Publish it on the web.

Schema.org in Libraries

- NCSU Libraries, Jason Ronallo
  - http://journal.code4lib.org/articles/6400
- Duke Libraries, Sean Aery
  - http://www.cni.org/topics/information-access-retrieval/discovery-turned-inside-out-using-schema-org-and-google-site-search-with-library-digital-collections-2/
- RDFa and Schema.org, Dan Scott
  - http://coffeecode.net/archives/271-RDFa-and-schema.org-all-the-library-things.html

A Research Team Effort

Scott Young: Digital Initiatives Librarian at Montana State University. Scott works to make information more open and accessible through front-end web development, semantic web development, user experience research, and social media. Catch up with him on Twitter @hello_scott_.

Jason Clark: Head of Digital Access and Web Services at Montana State University Library

Patrick O'Brien: Semantic Web Research Director at Montana State University Library.

Kenning Arlitsch: Dean of the Library at Montana State University. His book, co-authored with Patrick OBrien is titled Improving the Visibility and Use of Digital Repositories through SEO, and was published in February 2013. He occasionally tweets from @kenning_msu.

Questions?

twitter.com/jaclark
www.lib.montana.edu/~jason/talks.php