schema.org
implementation introduction

Kavi Goel, Google
Sept 21, 2011
Outline

- Schema.org basics
- Types of web page content supported
- Lists, dates, and implicit information
- Common challenges
Google

Search

About 5,210,000 results (0.40 seconds)

Everything
Images
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Videos
News
Shopping
Recipes
More

San Francisco, CA
Change location

Ingredients
bananas
baking soda
walnuts
pecans
vanilla extract
baking powder
cinnamon
sour cream

Banana Banana Bread Recipe - Allrecipes.com
allrecipes.com/recipe/banana-banana-bread/- Cached
5 stars 6501 reviews - 1 hr 20 mins - 229 cal
Why compromise the banana flavor? This banana bread is moist and delicious with loads of banana flavor! Friends and family love my recipe and say it's by far...

Banana Bread Recipe - Brown Sugar Banana Nut Bread I - Nutty Banana Bread

Banana Bread Recipes - Allrecipes.com
allrecipes.com/Recipes/Bread-Cached
Looking for the perfect banana bread recipe? Allrecipes has more than 120...

Janet's Rich Banana Bread Recipe - Allrecipes.com
allrecipes.com/recipe/janets-rich-banana-bread/- Cached
4.5 stars 1327 reviews - 1 hr 10 mins - 218 cal
Sour cream guarantees a moist and tender loaf. And bananas are sliced...

Show more results from allrecipes.com

Banana Bread Recipe | Simply Recipes
simplyrecipes.com/recipes/banana_bread/- Cached
1 hr 5 mins
Jun 15, 2006 – Moist and delicious classic banana bread recipe. Easy to make, no need for a mixer. Ripe bananas, butter, sugar, egg, vanilla, baking soda, ...

Banana Nut Muffins - Orange Bread - Glazed Lemon Bread

Banana Bread Recipe - Food Network
www.foodnetwork.com/Recipes/Baking/Bread-Cached
4.5 stars 487 reviews - 3 hrs 10 mins
3 days ago – Food Network invites you to try this Banana Bread recipe.
Yahoo

Cascal

cascalestaurant.com
(650) 940-9500
400 Castro St, Mountain View, CA

Menu | More Info »

65 Reviews - I am so sick of people suggesting Cascal who have never been there. Don't let the decor fool you - that was done by someone with taste... more

[Map of Mountain View]

Cascal - Welcome to the Journey

www.cascalestaurant.com

Tapas Special
Lunch Contact
Music And

More results from cascalestaurant.com »

Cascal - Mountain View, CA

★★★★★ (1237 Reviews) - (650) 940-9500 - Mountain View, CA
(650) 940-9500 · 400 Castro St · "The prosciutto wrapped dates and mushroom empanadas are amazing."

www.yelp.com/biz/cascal-mountain-view - Cached

More results from yelp.com »

Cascal Restaurant - Contact - Cascal - Welcome to the Journey

Cascal is centrally located at the corner of California and Castro streets in the heart of downtown Mountain View, California.

www.cascalestaurant.com/about_contact.asp - Cached
Bing

**Avatar**

**Avatar - Rotten Tomatoes**
It might be more impressive on a technical level than as a piece of storytelling, but **Avatar** reafirms James Cameron's singular gift for imaginative, absorbing...
www.rottentomatoes.com/m/avatar

**Avatar** :: rogerebert.com :: Reviews
Jake Sully Sam Worthington Neytiri Zoe Saldana Grace Sigourney Weaver Col. Miles Quaritch Stephen Lang Trudy Chacon Michelle Rodriguez
rogerebert.suntimes.com/apps/pbcs.dll/article?AID=/20091211/REVIEWS/912119998

**Avatar Review**
**Avatar Review** Poetry :: Prose :: Reviews :: Interviews :: Art. Home; About; Submissions; Index of Contributors; Current Issue. AV13: Summer 2011; Past Issues. AV12: Summer 2010
www.avatarreview.net

**Avatar Review** :: Movies :: Reviews :: Paste
Never before have so many cynics wanted to hate a movie, and never have they been so thoroughly thwarted, as with James Cameron's **Avatar**. I had more than my share of...
www.pastemagazine.com/articles/2009/12/avatar-review.html

**Avatar Reviews, Ratings, Credits, and More at Metacritic**
Expert score: 83/100 - PG-13 - 162 min - 35 reviews
Jake Sully is a former Marine confined to a wheelchair. But despite his broken body, Jake is still a warrior at heart. He is recruited to travel light years to the...
www.metacritic.com/redirectcritic?m=avatar
By understanding the structured data on a web page, search engines can better present that web page to users.
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Schema.org markup allows you to describe the content on your site in a machine-understandable way using HTML5/microdata.
Schema.org enables you to describe the type of item(s) on your pages and properties of those items.
This page is about a product.
This page is about a product.

**Breadcrumbs**

**Product image**

**Name and brand**

**User review info**

**Price**
This page is about a **movie**.
This page is about a movie.

- Movie image
- Name
- Movie rating
- Genres
- Release date
- User ratings
- Description
- Director and cast
- Movie trailer link
Basic HTML for Avatar page

```html
<div>
<img src="avatar.jpg" />

<h1>Avatar</h1> (2009)

<div>
  Rated 8/10
  Users: 354,477 votes
</div>

<span>A paraplegic marine dispatched to the moon Pandora on a unique mission becomes torn…</span>

Director:
<a href="james-cameron.html">James Cameron</a>

Stars:
<a href="sam-worthington.html">Sam Worthington</a>,
<a href="zoe-saldana.html">Zoe Saldana</a> and
<a href="sigourney-weaver.html">Sigourney Weaver</a>

<a href="avatar-trailer.html">Watch Trailer</a>

</div>
```
Avatar (2009)

Rated 8/10
Users: 354,477 votes

A paraplegic marine dispatched to the moon Pandora on a unique mission becomes torn...

Director:
James Cameron

Stars:
Sam Worthington, Zoe Saldana and Sigourney Weaver

Watch Trailer
Adding itemprop

<div itemprop=“http://schema.org/Movie”>
<img src=“avatar.jpg” itemprop=“image” />

<h1 itemprop=“name”>Avatar</h1> (2009)

<div itemprop=“aggregateRating”>
  Rated 8/10  
  Users: 354,477 votes
</div>

<span itemprop=“description”>A paraplegic marine dispatched to the moon Pandora on a unique mission becomes torn...</span>

Director:  
<a href=“james-cameron.html” itemprop=“director”>James Cameron</a>

Stars:  
<a href=“sam-worthington.html” itemprop=“actors”>Sam Worthington</a>, <a href=“zoe-saldana.html” itemprop=“actors”>Zoe Saldana</a> and <a href=“sigourney-weaver.html” itemprop=“actors”>Sigourney Weaver</a>

<a href=“avatar-trailer.html” itemprop=“trailer”>Watch Trailer</a>

</div>
<div itemprop="aggregateRating"
    Rated 8/10
    Users: 354,477 votes
</div>

<span itemprop="description">A paraplegic marine dispatched to the moon Pandora on a unique mission becomes torn..."</span>

Director:
<a href="james-cameron.html" itemprop="director">James Cameron</a>

Stars:
<a href="sam-worthington.html" itemprop="actors">Sam Worthington</a>,
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<a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>

<a href="avatar-trailer.html" itemprop="trailer">Watch Trailer</a>
In schema.org, properties can themselves be items

```html
<div itemscope itemtype="http://schema.org/Movie">
  <img src="avatar.jpg" itemprop="image" />

  <h1 itemprop="name">Avatar</h1> (2009)

  <div itemprop="aggregateRating" itemscope itemtype="http://schema.org/AggregateRating">
    Rated 8/10
    Users: 354,477 votes
  </div>

  <span itemprop="description">A paraplegic marine dispatched to the moon Pandora on a unique mission becomes torn…</span>

  Director:
  <a href="james-cameron.html" itemprop="director">James Cameron</a>

  Stars:
  <a href="sam-worthington.html" itemprop="actors">Sam Worthington</a>,
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  <a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>

  <a href="avatar-trailer.html" itemprop="trailer">Watch Trailer</a>
</div>
```
In schema.org, properties can themselves be items

<div itemscope itemtype="http://schema.org/Movie">
  <img src="avatar.jpg" itemprop="image" />

  <h1 itemprop="name">Avatar</h1> (2009)

  <div itemprop="aggregateRating" itemscope itemtype="http://schema.org/AggregateRating">
    Rated <span itemprop="ratingValue">8</span> / <span itemprop="bestRating">10</span>
    Users: <span itemprop="ratingCount">354,477</span> votes
  </div>

  <span itemprop="description">A paraplegic marine dispatched to the moon Pandora on a unique mission becomes torn...</span>

  Director:  
  <a href="james-cameron.html" itemprop="director">James Cameron</a>

  Stars: 
  <a href="sam-worthington.html" itemprop="actors">Sam Worthington</a>, <a href="zoe-saldana.html" itemprop="actors">Zoe Saldana</a> and <a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>

  <a href="avatar-trailer.html" itemprop="trailer">Watch Trailer</a>
</div>
The full markup

<div itemprop=itemtype="http://schema.org/Movie">
  <img src="avatar.jpg" itemprop="image" />

  <h1 itemprop="name">Avatar</h1> (2009)

  <div itemprop="aggregateRating"
      itemscope itemtype="http://schema.org/AggregateRating">
    Rated <span itemprop="ratingValue">8</span> / <span itemprop="bestRating">10</span>
    Users: <span itemprop="ratingCount">354,477</span> votes | 2,834 reviews
  </div>

  <span itemprop="description">A paraplegic marine dispatched to the moon Pandora on a unique mission becomes torn…</span>

  Director:
  <a href="james-cameron.html" itemprop="director">James Cameron</a>

  Stars:
  <a href="sam-worthington.html" itemprop="actors">Sam Worthington</a>,
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  <a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>

  <a href="avatar-trailer.html" itemprop="trailer">Watch Trailer</a>
</div>
schema.org item types

Organization of http://schema.org:

• One page per item type. Page lists item properties and example markup.

• Item types are arranged in a hierarchy. You can also find a list of common item types and a full list of supported types.
schema.org item types

Item types of broad interest on many websites:

- AggregateRating and Review
- Offer, AggregateOffer, and Product
- VideoObject
- WebPage
schema.org item types

• Schema.org already covers a lot of types and properties, but more can be added using the extension mechanism
Special cases

• Lists of items: use the *url* property

• Dates, times, and implicit information
List of items

<table>
<thead>
<tr>
<th>Event</th>
<th>Date and time</th>
<th>Location</th>
<th>Sell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marc Anthony Tickets</td>
<td>Fri, 09/23/11</td>
<td>Oracle Arena</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:00 p.m.</td>
<td>Oakland, CA</td>
<td></td>
</tr>
<tr>
<td>How Sweet the Sound Tickets</td>
<td>Tue, 10/18/11</td>
<td>Oracle Arena</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7:30 p.m.</td>
<td>Oakland, CA</td>
<td></td>
</tr>
<tr>
<td>Phoenix Suns at Golden State Warriors</td>
<td>Tue, 10/18/11</td>
<td>Oracle Arena</td>
<td></td>
</tr>
<tr>
<td>(Preseason)</td>
<td>7:30 p.m.</td>
<td>Oakland, CA</td>
<td></td>
</tr>
<tr>
<td>Foo Fighters Tickets</td>
<td>Wed, 10/19/11</td>
<td>Oracle Arena</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7:00 p.m.</td>
<td>Oakland, CA</td>
<td></td>
</tr>
<tr>
<td>The Lord of the Rings In Concert: The Fellowship of the Ring Tickets</td>
<td>Sat, 10/22/11</td>
<td>Oracle Arena</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2:00 p.m.</td>
<td>Oakland, CA</td>
<td></td>
</tr>
<tr>
<td>Lord of the Rings In Concert: The Fellowship of the Rings Tickets</td>
<td>Sat, 10/22/11</td>
<td>Oracle Arena</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:00 p.m.</td>
<td>Oakland, CA</td>
<td></td>
</tr>
<tr>
<td>Portland Trail Blazers at Golden State Warriors Tickets (Preseason)</td>
<td>Thu, 10/27/11</td>
<td>Oracle Arena</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7:30 p.m.</td>
<td>Oakland, CA</td>
<td></td>
</tr>
<tr>
<td>Event</td>
<td>Date</td>
<td>Time</td>
<td>Venue</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>--------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Marc Anthony</td>
<td>Fri, 9/23/11</td>
<td>8:00pm</td>
<td>Oracle Arena, Oakland CA</td>
</tr>
<tr>
<td>Phoenix Suns</td>
<td>Tue, 10/18/11</td>
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<tr>
<td>Foo Fighters</td>
<td>Wed, 10/19/11</td>
<td>7:00</td>
<td>Oracle Arena, Oakland CA</td>
</tr>
</tbody>
</table>
### Stubhub HTML with markup

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marc Anthony</strong></td>
<td>Fri, 9/23/11</td>
<td>8:00pm</td>
<td>Oracle Arena, Oakland CA</td>
</tr>
<tr>
<td><strong>Phoenix Suns</strong></td>
<td>Tue, 10/18/11</td>
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</tr>
<tr>
<td><strong>Foo Fighters</strong></td>
<td>Wed, 10/19/11</td>
<td>7:00</td>
<td>Oracle Arena, Oakland CA</td>
</tr>
<tr>
<td>Event Name</td>
<td>Date</td>
<td>Time</td>
<td>Location</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------</td>
<td>----------</td>
<td>---------------------------</td>
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<td>Wed, 10/19/11</td>
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<td>Oracle Arena, Oakland CA</td>
</tr>
</tbody>
</table>
The *url* property

<table>
<thead>
<tr>
<th>Name</th>
<th>Date and Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marc Anthony</td>
<td>Fri, 9/23/11, 8:00pm</td>
<td>Oracle Arena, Oakland CA</td>
</tr>
<tr>
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<td>Wed, 10/19/11, 7:00</td>
<td>Oracle Arena, Oakland CA</td>
</tr>
</tbody>
</table>

...
# Dates and times

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marc Anthony</td>
<td>Fri, 9/23/11, 8:00pm</td>
<td></td>
<td>Oracle Arena, Oakland CA</td>
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<tr>
<td>Foo Fighters</td>
<td>Wed, 10/19/11, 7:00</td>
<td></td>
<td>Oracle Arena, Oakland CA</td>
</tr>
</tbody>
</table>
Dates and times

Consider this date: 11/6/10

Is it...

– November 6, 2010?
– June 11, 2010?
– June 10, 2011?
Dates and times

Dates can be represented in a normalized way: 
YYYY-MM-DD

2010-06-11 maps unambiguously to: 
– June 11, 2010
Dates and times

Dates can be represented in a normalized way: YYYY-MM-DD

2010-06-11 maps unambiguously to:
   – June 11, 2010

The `<time datetime="2010-06-11">June 11</time>` HTML element is used for dates and times:
Dates and times

Times can also be unambiguously represented using the ISO date/time standard:

- add a “T” (for “time”)
- Use 24:00 time with $hh:mm$

$\text{June 11, 2010 8:30pm}$ becomes:
$2010-06-11T20:30$
<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marc Anthony</td>
<td>Fri, 9/23/11, 8:00pm</td>
<td>Oracle Arena, Oakland CA</td>
</tr>
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<td>Tue, 10/18/11, 7:30pm</td>
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<tr>
<td>Foo Fighters</td>
<td>Wed, 10/19/11, 7:00pm</td>
<td>Oracle Arena, Oakland CA</td>
</tr>
</tbody>
</table>
The **meta** tag
The **meta** and **link** tags

- **Breadcrumbs**
- **Product image**
- **Name and brand**
- **User review info**
- **Price**
The **meta** and **link** tags

**Implicit properties:**
- Product rating = 4.5 / 5
- price currency = dollars
The meta tag

Implicit properties using meta

<meta itemprop="ratingValue" content="4.5"/>
<meta itemprop="priceCurrency" content="USD"/>

Schema.org allows the meta tag to be used not just in the HTML <head> section but in the <body> as well.
<div>
    <img src="rei-traverse-30.jpg" />

    <h1>REI Traverse 30 Pack</h1>

    <div>
        Product rating:
        <img src="4-5-stars.jpg" />
        <span>79</span> reviews
    </div>

    <span>$79.50</span>
</div>
<div itemprop="name">REI Traverse 30 Pack</div>

Product rating:
<span itemprop="reviewCount">79</span> reviews

$79.50
REI Traverse 30 Pack

Product rating:

4.5 stars
79 reviews

$79.50
The **link** tag

**Implicit properties using link**

```html
<div>
    You can specify dates in an unambiguous way using the ISO 8601 standard.
    
    <link itemprop="url"
</div>
```
Common questions

• How much should I mark up?

• How do I minimize page load times given the additional markup on my page?
Common questions

• How much should I mark up?
  No hard and fast rules, so use judgment. Choose the information that is most important in describing the items on your pages.

• How do I minimize page load times given the additional markup on my page?
  Page load time generally hasn’t been an issue for sites who have implemented markup. Markup tends to compress well using tools like Gzip.
Gotchas

• Nested items
• Inline markup vs hidden text
• Corner cases – linebreaks, missing data, ...

Tip: use the rich snippets testing tool to test your markup
Applications of this data

• Search engine improvements:
  – Bing Tiles, Yahoo enhanced results, Google rich snippets
  – Many potential applications of the data, i.e. Google Recipe View

• Sharing data across an industry
Thank you!