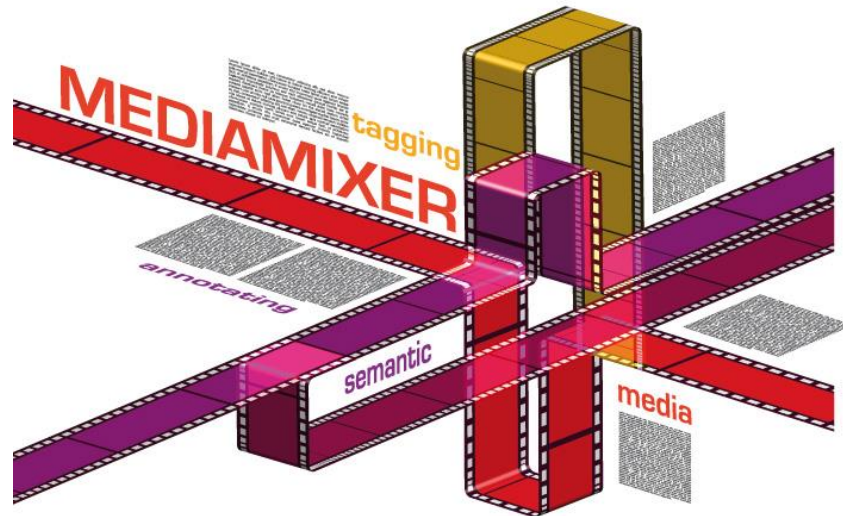


Describing Media Assets

media fragment specification and description



Raphaël Troncy

<raphael.troncy@eurecom.fr> / @rtroncy

2 October 2013

[Home](#)

Drupal 8 now has Schema.org RDF mappings (but don't pop the champagne yet)

Submitted by Lin on Sun, 2013-07-07 23:53

You may have seen the announcement last week that Dries **approved** and **committed** a patch which changes Drupal core's default RDF mappings. When any new Drupal 8 site is installed, the markup will include RDFa that uses terms from the **Schema.org** vocabulary. Of course, as with anything Schema.org, this announcement got some attention.

RECENT BLOG POSTS

- ▶ [Drupal 8 now has Schema.org RDF mappings \(but don't pop the champagne yet\)](#)
- ▶ [Microdata updates: Preliminary Views/Panels support and Google Summer of Code](#)
- ▶ [Drupal 7 field modules by popularity](#)
- ▶ [Exploring Drupal module interactions with pidgin UML](#)
- ▶ [Microdata in Drupal early preview](#)

[more](#)

Once upon a time ...

JISC IE Technical Foundations

JISC IE Technical Foundations



← Aggregation and the Resource Discovery Taskforce vision

JiscEXPO Programme Synthesis →

Consuming and producing linked data in a content management system

Posted on [September 15, 2010](#) by [Thom Bunting](#)

At this summer's Institutional Web Management Workshop in Sheffield ([IWMW 2010](#)), I demonstrated how it is becoming feasible for a content management system both to consume and to produce linked data resources. In a parallel session, I presented an overview of the current state of play in '[Semantic content management: consuming and producing RDF in Drupal](#)'. In a [video-recorded plenary session](#) (specifically in a nine-minute segment of the recording, from 34 through 42 minutes), I briefly reviewed how a modern CMS can enrich local datasets with remote linked datasets– and, by engaging with the web of data, produce new insights. Here I explain the scope of what I demonstrated at this event, outline some practical implementation procedures, and evaluate initial results.



Recent Comments

- [What are Persistent Identifiers? « JISC consultation on identifiers 2010 on Identifiers: Quick Reference](#)
- [Adrian Stevenson on Consuming and producing linked data in a content management system](#)
- [Linked Data for Events: the IWMW Case Study « UK Web Focus on Consuming and](#)

Once upon a time ...

JISC IE Technical Foundations

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Blog Identifiers: Quick Reference

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... leading to sharing Media Fragments

- **Publishing status message containing a Media Fragment URI**
 -
 -
 -

... leading to sharing Media Fragments

- Publishing status message containing a Media Fragment URI



Raphaël Troncy

@rtroncy

Google Goggles explained in a media fragment #teleTask

linkeddata.synote.org/synote/recordi...

← Reply 🗑️ Delete ★ Favorite <http://linkeddata.synote.org/synote/recording/replay/51151#t=22,32>

9:37 AM - 8 Oct 12 · Embed this Tweet

Reply to @rtroncy

... leading to sharing Media Fragments

- Publishing status message containing a Media Fragment URI

- Use a '#' !
- Highlight a video sequence
- Highlight a region to pay attention to



Raphaël Troncy
@rtroncy

Google Goggles explained in a media fragment [#teleTask](#)
linkeddata.synote.org/synote/recordi...

← Reply 🗑️ Delete ★ Favorite <http://linkeddata.synote.org/synote/recording/replay/51151#t=22,32>

9:37 AM - 8 Oct 12 · Embed this Tweet

Reply to @rtroncy

W3C Video on the Web Workshop - 2007

W3C Video on the Web Workshop
12-13 December 2007, San Jose, California and
Brussels, Belgium



[About W3C](#)

[Call for Participation](#)

[Papers](#)

[Report](#)

[Agenda](#)

Workshop Report

The W3C logo, consisting of the letters "W3C" in a blue, sans-serif font, with a registered trademark symbol (®) to the upper right.

W3C organized a workshop on Video on the Web in December 2007, hosted by Cisco Systems, in order to share current experiences and examine the technologies. [42 position papers](#) were submitted for the Workshop and [37 organizations](#) attended the event from a wide range of applications: content producers, network companies, research institutes, hardware vendors, video platforms, browser vendors, users, etc. The meeting was hosted in San Jose, California and Brussels, Belgium, with both locations linked with high definition video.

Key topics

- **Addressing:** having global identifiers for identifying spatial and temporal clips (for deep linking, bookmarking, caching and indexing)
- **Metadata:** searching and discovering video is difficult with the volume of online video
- **Video codec:** recommending a baseline (open) video codec for the World Wide Web
- **Content protection:** managing digital rights associated with the media is key: W3C should look into metadata for digital rights

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Making video a "first class citizen"

Video in the Web




Mission



Following the [workshop in Video on the Web](#), the goal of the [Video in the Web](#) activity is to make video a "first class citizen" of the Web. Video on the Web (and this includes audio, as the two are typically used together) has seen explosive growth, improving the richness of the user experience but leading to challenges in content discovery, searching, indexing and accessibility. Enabling users (from individuals to large organizations) to put video **in** the Web requires that we build a solid architectural foundation that enables people to create, navigate, search, link and distribute video, effectively making video part of the Web instead of an extension that doesn't take full advantage of the Web architecture.

Flickr Notes




flickr [Inscription](#) [Explorer](#) [Importer](#) [Connexion](#)

Saphira, Ranya and Iannis

Our three little babies

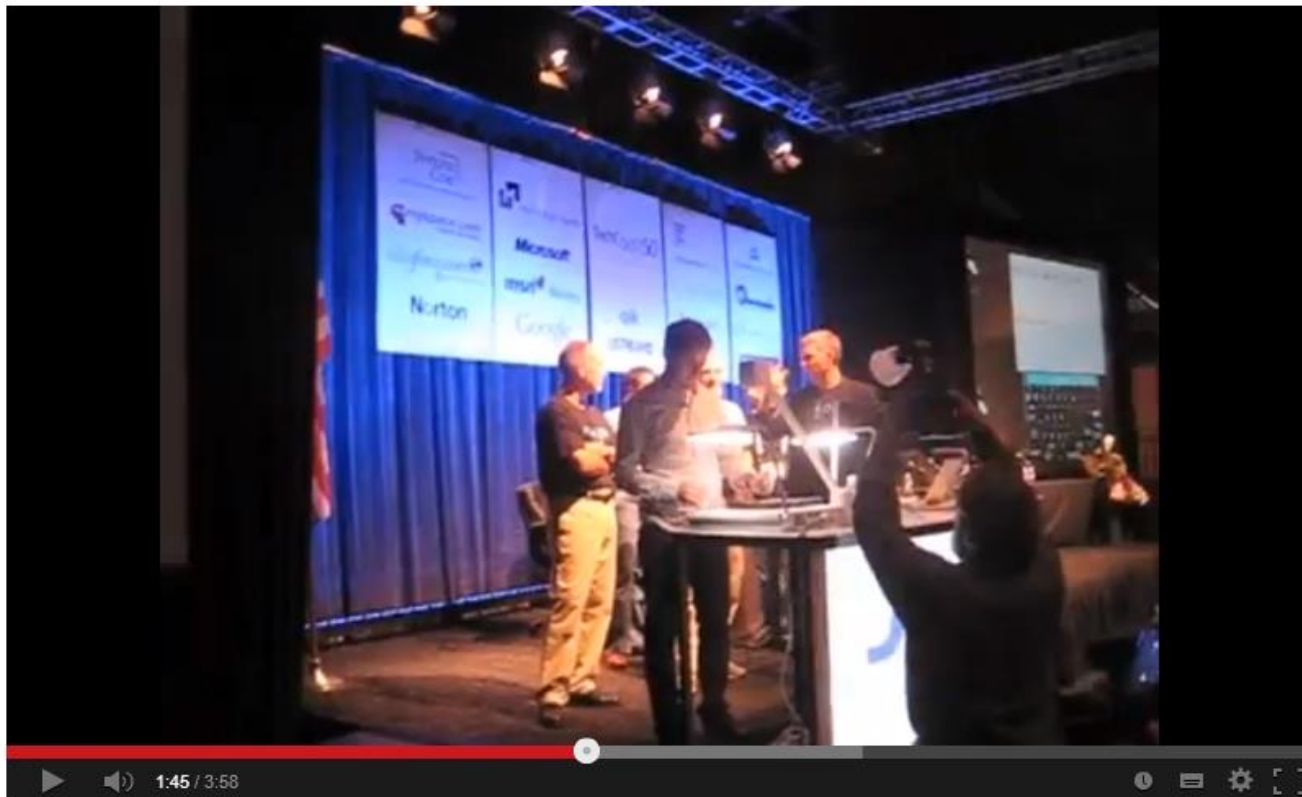
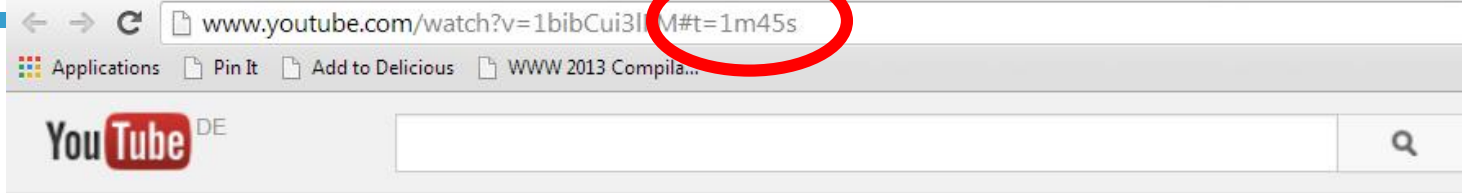
[Ajouter un commentaire](#)

 **Michael Hausenblas**
mhausenblas
Membre depuis : 2007 [+ Ajouter](#)

[saphira.blogr.com/#me](http://www.flickr.com/photos/mhausenblas/2883727293/)

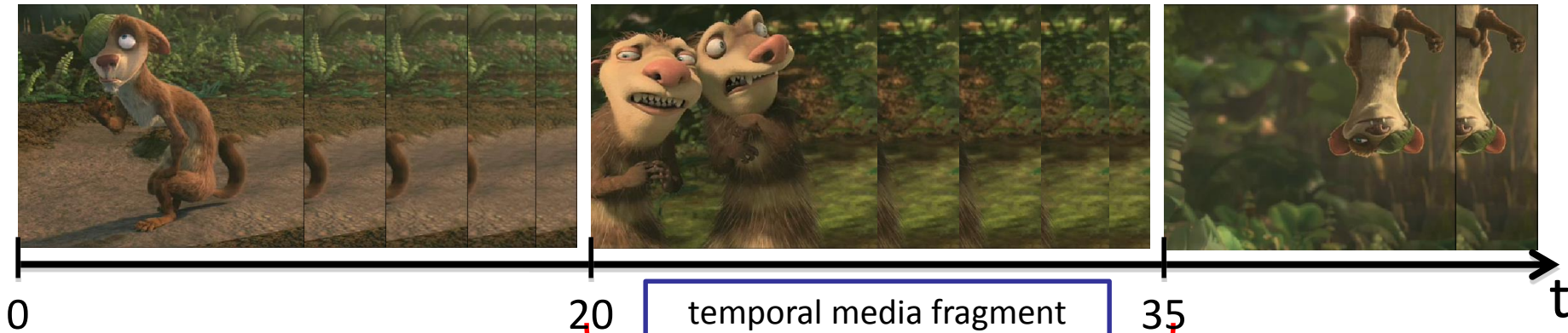
<http://www.flickr.com/photos/mhausenblas/2883727293/>

YouTube Temporal Addressing (Sept 2008)

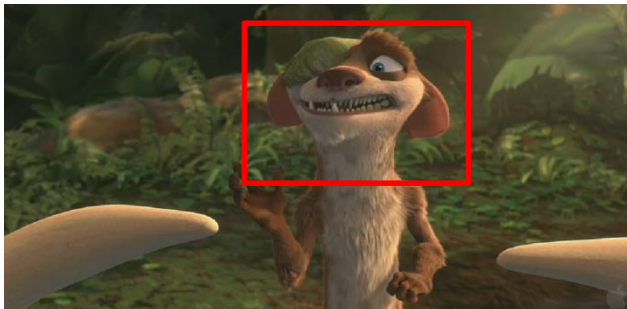


TechCrunch 50: Swype

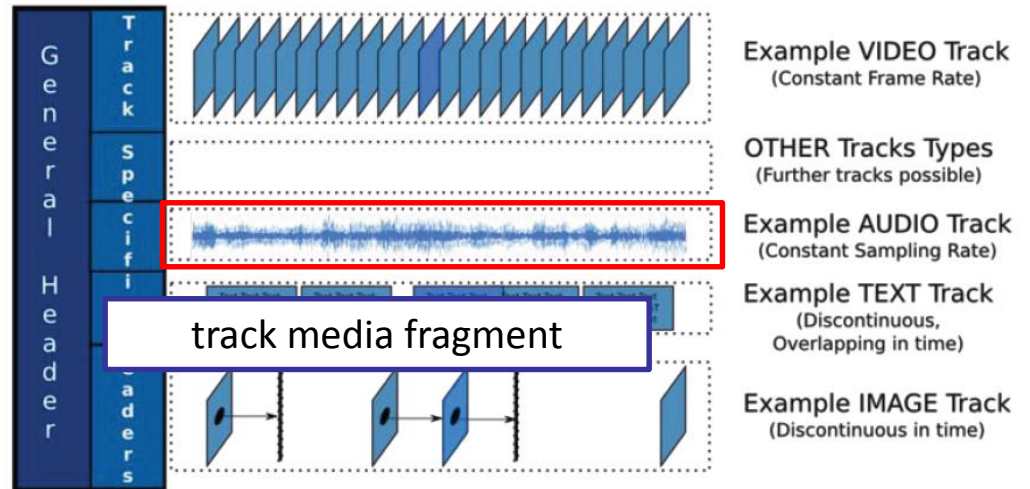
What are Media Fragments?



spatial media fragment



“Scared Scene”



Media Fragments (temporal)



Original resource length

Fragment beginning

Playback progress

Fragment end

Media Fragments (spatial)

semi-opaque
overlay



highlighted
fragment

<http://ninsuna.elis.ugent.be/MFPlayer/html5>

Media Fragments URIs

- **Bookmark / Share parts (fragments) of audio/video content**
- **Annotate media fragments**
- **Search for media fragments**
- **Develop Mash-ups/Collage**
- **Conserve bandwidth**



<http://www.w3.org/TR/media-frags-reqs/>

<http://www.w3.org/TR/media-frags/>

Requirements

- **r01: Temporal fragments:**
 - a clipping along the time dimension from a start to an end time that are within the duration of the media resource
- **r02: Spatial fragments:**
 - a clipping of an image region, only consider rectangular regions
- **r03: Track fragments:**
 - a track as exposed by a container format of the media resource
- **r04: Named fragments:**
 - A temporal media fragment that has been given a name through some sort of annotation mechanism

URI Scheme

- **Using URI query part:**

```
http://www.example.org/video.ogv?t=60,100
```

- **Using URI fragment part:**

```
http://www.example.org/video.ogv#t=60,100
```

- **Mixing both:**

```
http://www.example.org/video.ogv?t=60,100  
#t=10,15
```

URI Fragments vs. URI Queries

#t=20,30	?t=20,30
secondary resource, notion of context	primary resource, no notion of context
extraction needs to be expressible in byte ranges	no adaptation restrictions
no provisions for communi-cating fragments to the server	key-value pairs are sent to the server
potentially cacheable	not cacheable

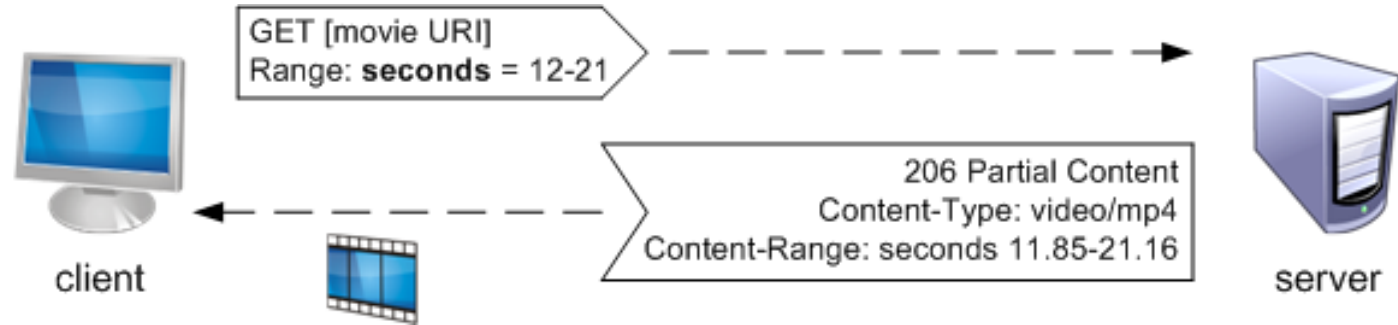
- **The media fragment URI syntax can be used for URI queries**
- **We will focus on URI fragments**

Media Fragments Resolution

- **For the URI query part:**
 - The media file is only processed on server side
 - The UA receives a **new** video file
- **For the URI fragment part:**
 - Smart UA will strip out the fragment definition and encode it into custom http headers (Range header)
 - (Media) Servers will handle the request, slice the media content and serve just the fragment (corresponding byte ranges)
... while old ones will serve the whole resource

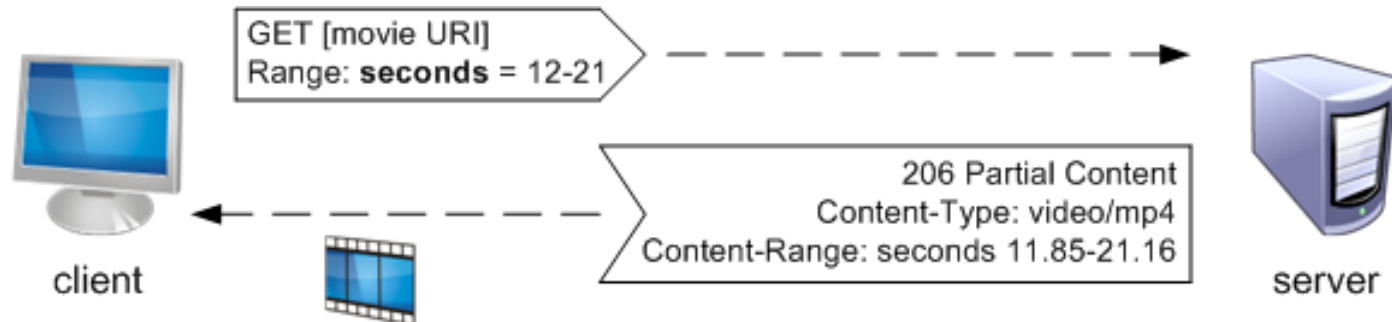
Media Fragments Resolution

- **2 ways handshake**

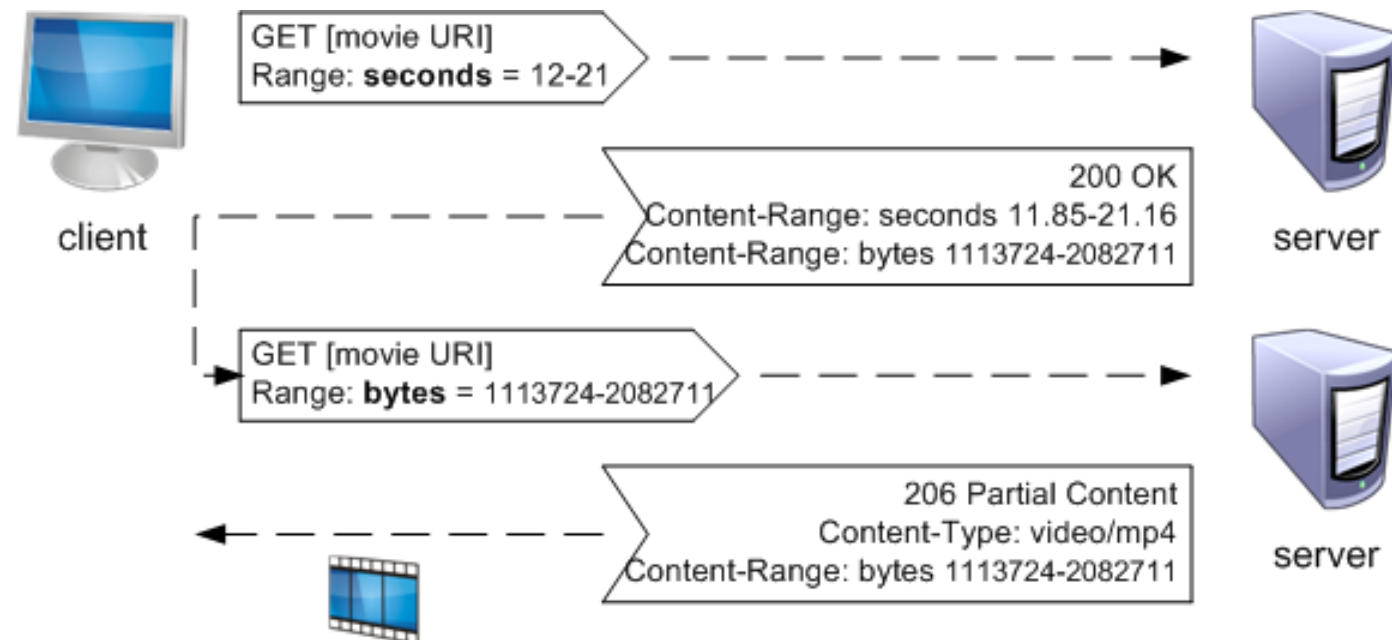


Media Fragments Resolution

- **2 ways handshake**



- **4 ways handshake**



Influence of Media Formats

- **Fragment extraction needs to be expressible in terms of byte ranges**
- **Requirements for the different axes**
 - temporal: presence of intra-coded frames (i.e., random access points)
 - spatial: presence of independently coded spatial regions
 - track: need to be identifiable by a name
- ***Conclusion: temporal and track axes are realistic, spatial fragments can hardly be expressed in terms of byte ranges***

Media Fragment Clients

■ Web Browsers

- Firefox (since version 9, now version 23)
- Safari (since Jan 2012, [announcement](#))
- Chrome (since Jan 2012, [announcement](#))

■ Library (or Polyfill)

- mediafragment.js:
<https://github.com/tomayac/Media-Fragments-URI>
- xywh.js: <https://github.com/tomayac/xywh.js>

■ Custom Players:

- Ligne de Temps: <http://ldt.iri.centrepompidou.fr/ldtplatform/ldt/>
- Synote: <http://smfplayer.synote.org/smfplayer/>
- Noterik, Condat, JSI, etc.

Media Fragment Servers

- **Ninsuna:** <http://ninsuna.elis.ugent.be/MediaFragmentsServer>
- **Southampton-Eurecom:** node.js based implementation
- **YouTube:** partial support, syntax difference
- **Dailymotion:** partial support, syntax difference

- **Fully integrated media adaptation and delivery platform**
 - media adaptation and media packaging core is independent of media formats
 - ☞ based on model-driven content adaptation & delivery technique
 - only high-level adaptation operations such as scene selection and frame rate scaling
 - ☞ no transcoding is applied
 - ☞ ideal candidate for Media Fragment implementation
 - more information: <http://ninsuna.elis.ugent.be>

MF-specific Features of NinSuna



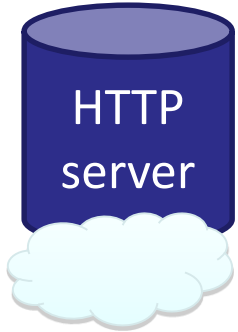
- **Support for Media Fragment URI queries**
 - both HTTP and RTSP implementation
 - try some URIs at
 - ☞ <http://ninsuna.elis.ugent.be/MediaFragmentsServer#Test>
 - ☞ http://ninsuna.elis.ugent.be/DownloadServlet/apple/10,000_BC_t_railer_2.mp4?track=5;6
- **Support for Media Fragment URI fragments**
 - i.e., support for the MF-specific HTTP headers
- **Combining Media Fragment URI queries and fragments**
 - e.g., <http://foo.com/media.mp4?t=10,40#t=5,10>

Media Fragments Proxy

- **Goal**: make existing media resources, served by generic HTTP Web servers, available as Media Fragments
- **Biggest problem for content providers willing to support Media Fragments**
 - media extractor (dependent on underlying media formats)
- **Solution**: an approach that
 - works with existing HTTP Web servers (apache, IIS)
 - works with existing Web caches
 - works with not so smart user agents

Media Fragments Proxy

<http://foo.com/video.ogv#t=11,19>



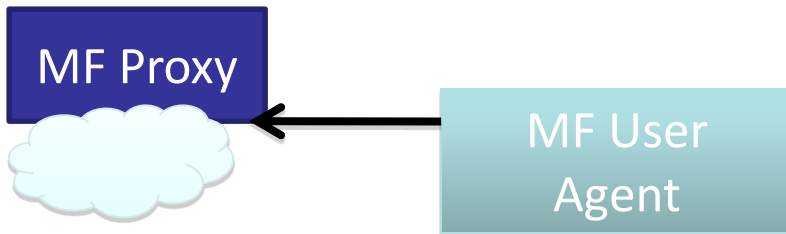
<http://ninsuna.elis.ugent.be/MFProxy?url=<mediaURI>>

Media Fragments Proxy

<http://foo.com/video.ogv#t=11,19>



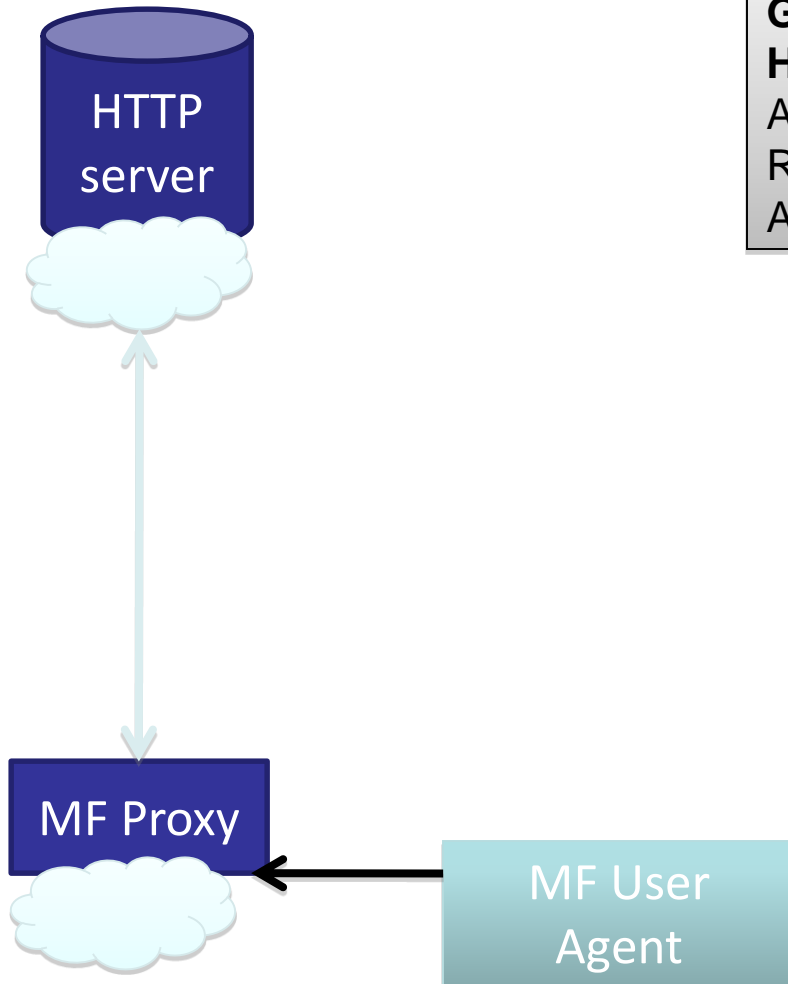
```
GET /?url=http://foo.com/video.ogv HTTP/1.1
Host: MFProxy.com
Accept: video/*
Range: t:npt=11-19
Accept-Range-Redirect: bytes
```



<http://ninsuna.elis.ugent.be/MFProxy?url=<mediaURI>>

Media Fragments Proxy

<http://foo.com/video.ogv#t=11,19>



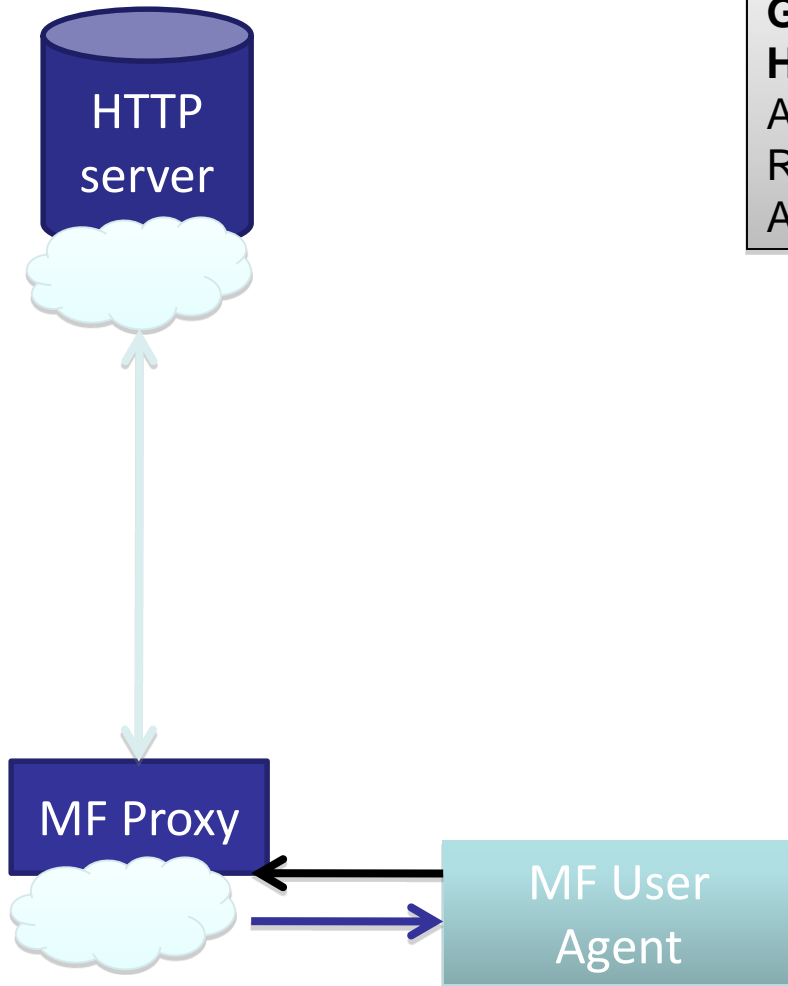
```
GET /?url=http://foo.com/video.ogv HTTP/1.1
Host: MFProxy.com
Accept: video/*
Range: t:npt=11-19
Accept-Range-Redirect: bytes
```

- get (only) the header info
- try to find a fragment-to-byte mapping
- construct the redirect response

<http://ninsuna.elis.ugent.be/MFProxy?url=<mediaURI>>

Media Fragments Proxy

<http://foo.com/video.ogv#t=11,19>



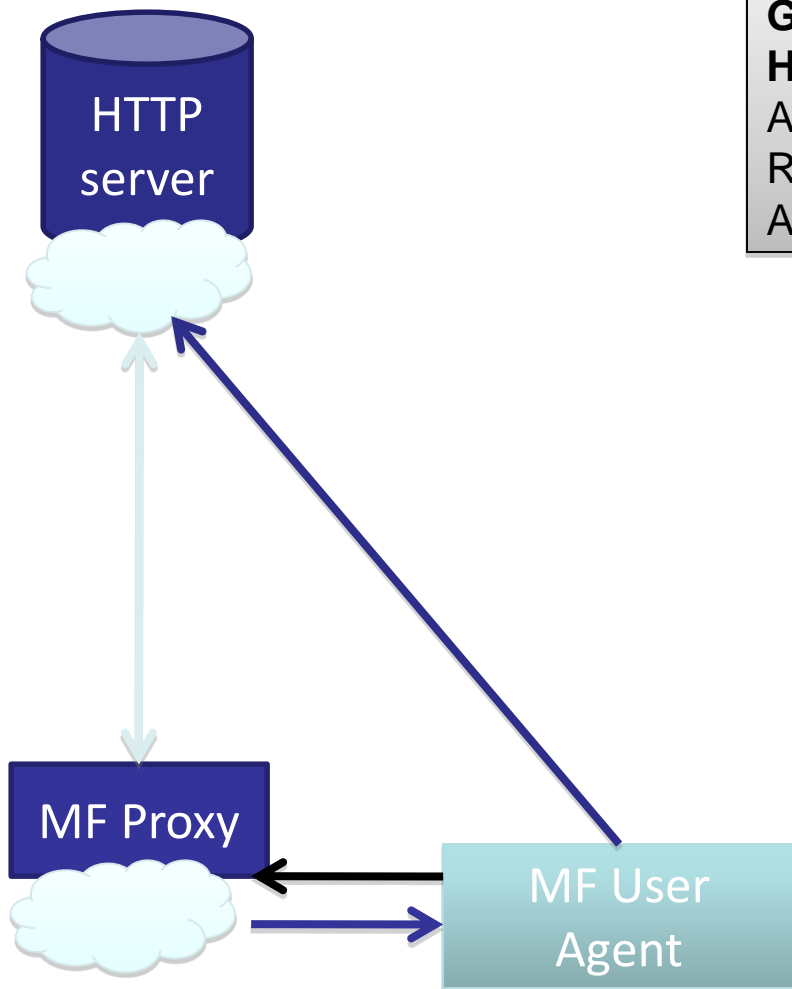
```
GET /?url=http://foo.com/video.ogv HTTP/1.1
Host: MFProxy.com
Accept: video/*
Range: t:npt=11-19
Accept-Range-Redirect: bytes
```

```
HTTP/1.1 307 Temporary Redirect
Location: http://foo.com/video.ogv
Accept-Ranges: bytes, t, track
Content-Length: 0
Content-Type: video/ogg
Content-Range-Mapping: t:npt 10-20/0-50
Range-Redirect: 24000-32000
Vary: Accept-Range-Redirect
```

<http://ninsuna.elis.ugent.be/MFProxy?url=<mediaURI>>

Media Fragments Proxy

<http://foo.com/video.ogv#t=11,19>



```
GET /?url=http://foo.com/video.ogv HTTP/1.1
Host: MFProxy.com
Accept: video/*
Range: t:npt=11-19
Accept-Range-Redirect: bytes
```

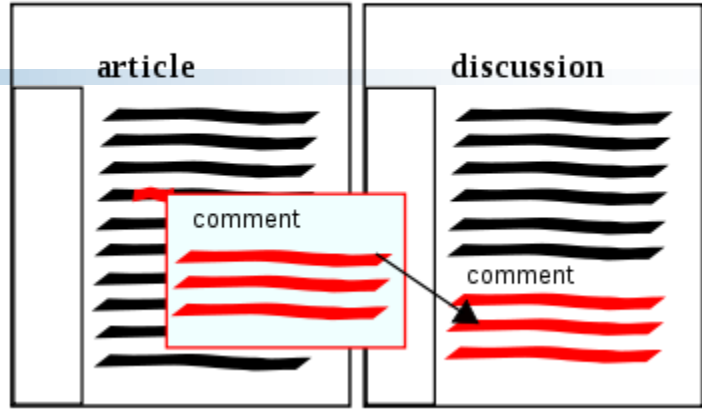
```
HTTP/1.1 307 Temporary Redirect
Location: http://foo.com/video.ogv
Accept-Ranges: bytes, t, track
Content-Length: 0
Content-Type: video/ogg
Content-Range-Mapping: t:npt 10-20/0-50
Range-Redirect: 24000-32000
Vary: Accept-Range-Redirect
```

```
GET /video.ogv HTTP/1.1
Host: foo.com
Accept: video/*
Range: bytes=24000-32000
```

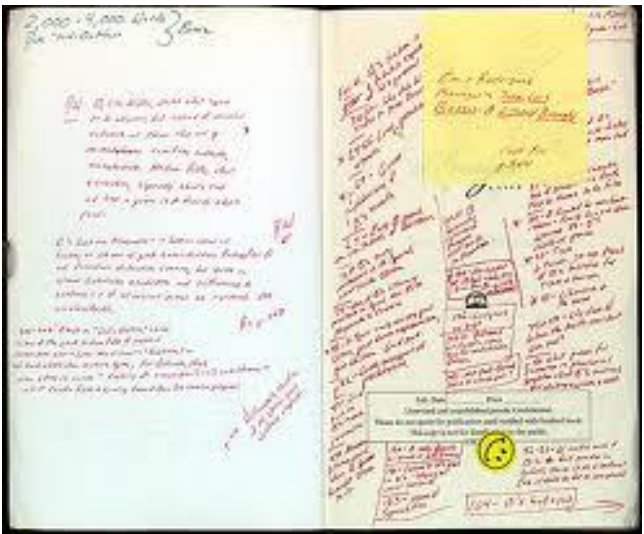
<http://ninsuna.elis.ugent.be/MFProxy?url=<mediaURI>>



article annotation integrated into talk page



Annotation of article pages with annotation text recorded on the talk page. The annotation is anchored to specific text in the article.



Media Fragment Semantic Annotation



The "[Big Three](#)" at the Yalta Conference (Wikipedia)

-
-
-

Media Fragment Semantic Annotation

Reg1



The "[Big Three](#)" at the Yalta Conference (Wikipedia)

- Media Fragment **creation**: localize a region (person)
-
-

Media Fragment Semantic Annotation

Reg1



The "[Big Three](#)" at the Yalta Conference (Wikipedia)

- Media Fragment **creation**: localize a region (person)
- Media Fragment **annotation** (tagging) = interpretation
Winston Churchill, UK Prime Minister, Allied Forces, WWII
-

Media Fragment Semantic Annotation

Reg1



The "[Big Three](#)" at the Yalta Conference (Wikipedia)

- Media Fragment **creation**: localize a region (person)
- Media Fragment **annotation** (tagging) = interpretation
Winston Churchill, UK Prime Minister, Allied Forces, WWII

- Media Fragment **semantic annotation**

```
:Reg1 foaf:depicts dbpedia:WinstonChurchill.  
-----  
dbpedia:Churchill rdfs:label "Winston Churchill";  
                rdf:type foaf:Person  
                dbprop:order dbpedia:Prime_Minister_(UK) .
```

Media Fragment Semantic Annotation

A history of G8 violence ([video](#))
(© Reuters)



Media Fragment Semantic Annotation

A history of G8 violence ([video](#))
(© Reuters)

- Media Fragment **creation**:
localize a temporal sequence
-
-

Seq1



Seq4



Media Fragment Semantic Annotation

A history of G8 violence ([video](#))
(© Reuters)

- Media Fragment **creation**:
localize a temporal sequence

- Media Fragment **annotation** (tagging) = interpretation
G8 Summit, EU Summit, Heiligendamm, 2007, Gothenburg, 2001

Seq1



Seq4



Media Fragment Semantic Annotation

A history of G8 violence ([video](#))
(© Reuters)

- Media Fragment **creation**:
localize a temporal sequence

- Media Fragment **annotation** (tagging) = interpretation
G8 Summit, EU Summit, Heiligendamm, 2007, Gothenburg, 2001

- Media Fragment **semantic annotation**

:Seq1 foaf:depicts dbpedia:33rd_G8_Summit.

:Seq4 foaf:depicts dbpedia:EU_Summit.

dbpedia:33rd_G8_Summit

rdfs:label "33rd G8 summit"@en ;

grs:point "54.143055555555556 11.841666666666667".

Seq1

Seq4



Media Fragment Semantic Annotation

- Things, not strings!

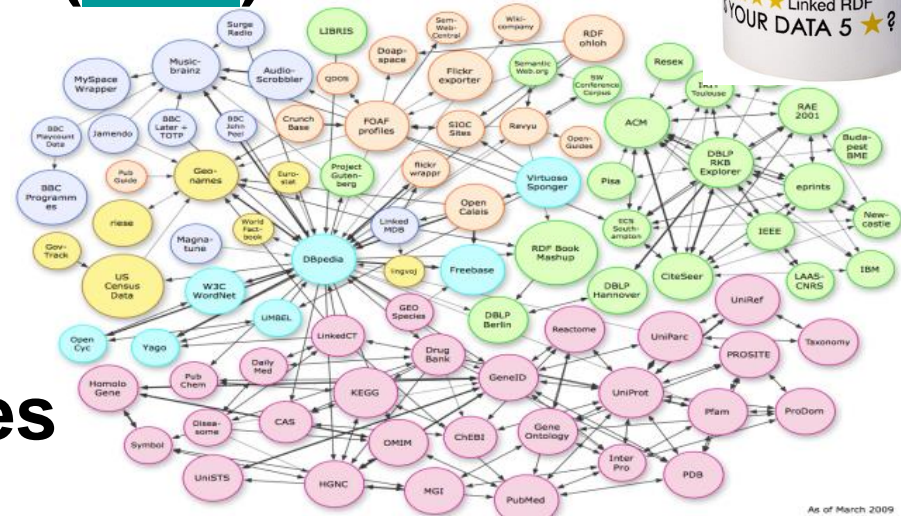
<http://googleblog.blogspot.fr/2012/05/introducing-knowledge-graph-things-not.html>

- Use knowledge bases (LOD)

- Use common vocabularies (LOV)

- Follow the 4 Linked Data principles

- Refine the 4 Linked Media principles



As of March 2009

Open Annotation Data Model

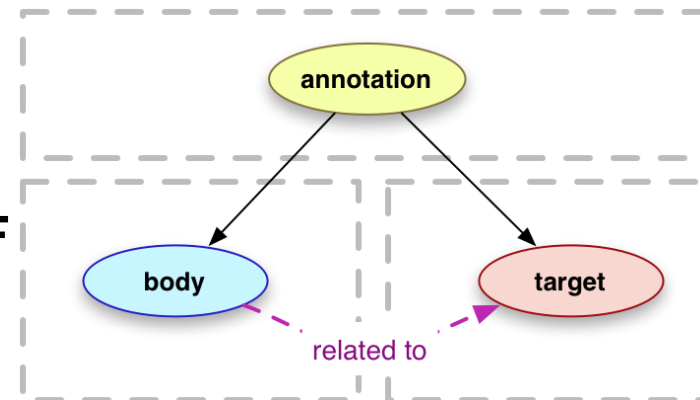
- Specification developed in the W3C Open Annotation Community Group

<http://www.openannotation.org/spec/core/>



- **Core model**

- **OWL** vocabulary for representing and sharing annotation of digital resources (and their fragment) ... in **RDF**
- A body is *related to* a target
- Nature of the annotation changes according to intention (motivation)



Open Annotation Data Model

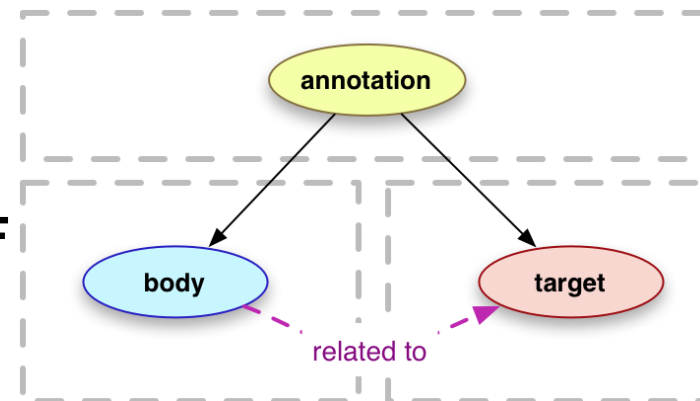
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<http://www.openannotation.org/spec/core/>



- Core model

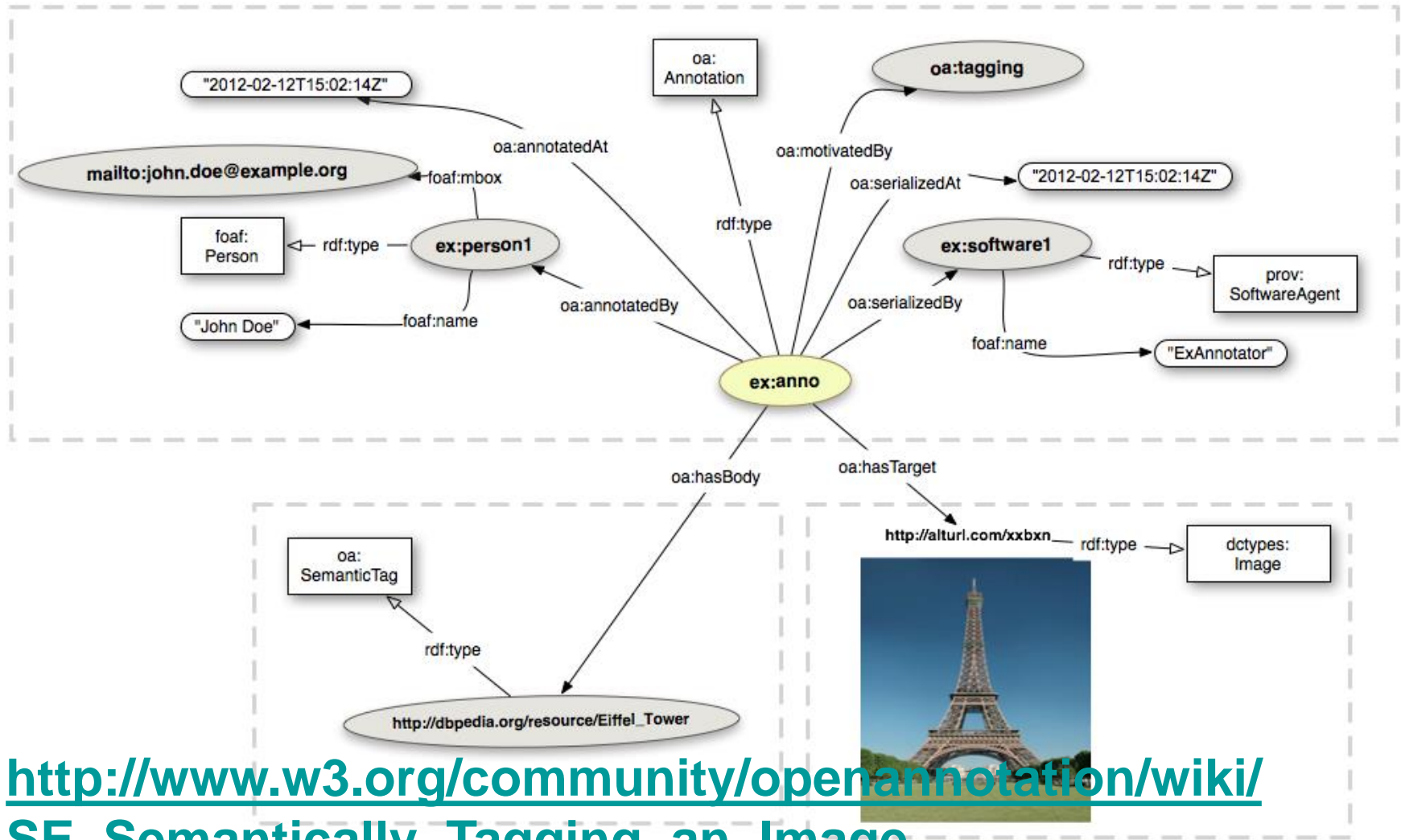
- OWL vocabulary for representing and sharing annotation of digital resources (and their fragment) ... in **RDF**
- A body is *related to* a target
- Nature of the annotation changes according to intention (motivation)



- How to annotate this image?



Semantic Annotation of an Image

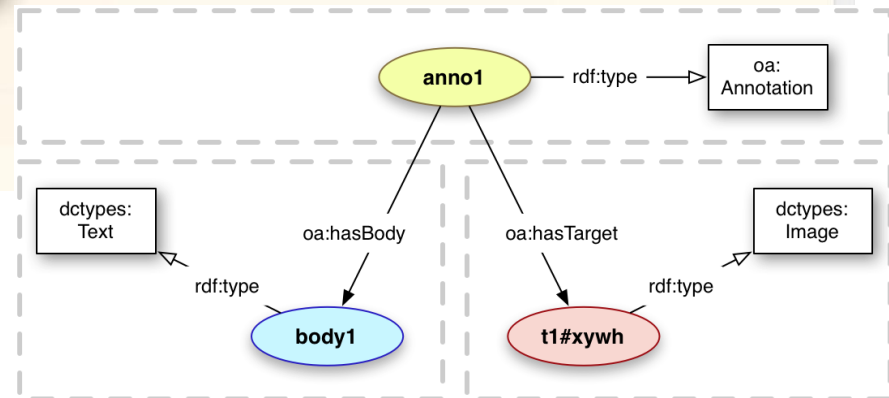
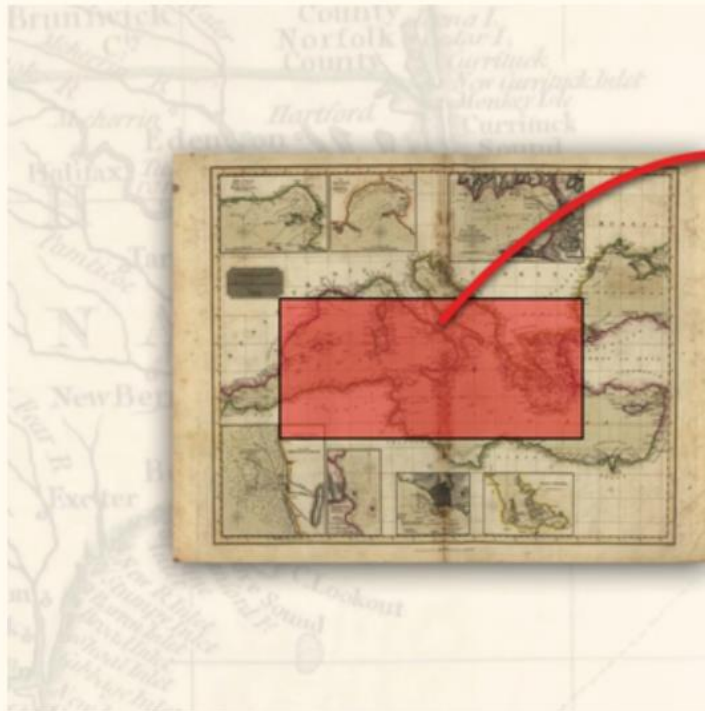


http://www.w3.org/community/openannotation/wiki/SE_Semantically_Tagging_an_Image

Maphub: <http://maphub.github.io/>

maphub

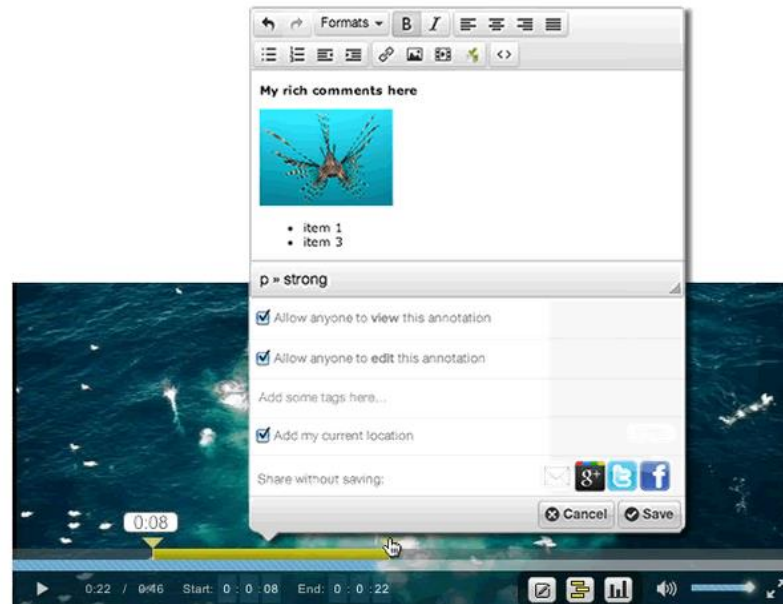
Code Demo API Issues



Open Video: Annotation Project

Open Video Annotation Project

Media-rich Video Annotation for the Web



To support teaching, learning and research with web video.

<http://openvideoannotation.org/>

YouTube Annotations

The screenshot displays the YouTube Creator Hub interface. At the top, there's a navigation bar with links for 'Playbook', 'Getting Started', 'Programming', 'Optimization', 'Community', 'Resources', and 'Creator Hub'. Below this, a sidebar on the left lists various optimization topics, with 'Annotations' highlighted in red. The main content area is titled 'Annotations' and shows a video player with three red speech bubble annotations overlaid on it. Each bubble contains the text 'eelellle'. Above the player, there's a 'Share' button with a Google+ icon and a '+111' count. Navigation arrows for 'Previous' and 'Next' are also present.

- Annotations are clickable text overlays on YouTube videos
- Annotations are used to boost engagement, give more information, and aid in navigation

YouTube Annotations: How To

How To Create YouTube Video Annotations

Speech Bubble

Note

Title

add a speech bubble, you can add a note, a title, a spotlight, or just even pause the

0:25 / 4:48

Subscribe

CC HD

The image shows a YouTube video player interface. At the top, the video title is "How To Create YouTube Video Annotations". The video content features a man in a black shirt with his hands raised. Three annotations are overlaid on the video: a blue speech bubble in the top right corner containing the text "Speech Bubble", a red rectangular note on the left side containing the text "Note", and a large white title "Title" centered at the bottom. Below the title, there is a subtitle: "add a speech bubble, you can add a note, a title, a spotlight, or just even pause the". The video player controls at the bottom show a progress bar at 0:25 / 4:48, a play button, a volume icon, and a settings icon. In the top right corner of the video frame, there is a red "Subscribe" button. In the bottom right corner of the video frame, there are icons for Creative Commons (CC) and HD video quality.

LinkedTV: automatic annotations ...



Pre-processed image from repository.

Concept detection

Concepts semantically related to the considered events Additional concepts

show top 10 show top 20 show all



... and enrichment for hypervideos



CONCEPT IN
PLAYER

Cubism

Expressionism

Fauvism

FACETS / PROPERTIES OF CONCEPT

CONTENT ENRICHMENT

LinkedTV Second Screen Scenarios

Web



- **Universal Identifiers: URI's**
- **Common description formats**
- **Easy interlinking between content**

Media Fragments and Annotations



Media Fragments and Annotations



nerd:Location
Casablanca

nerd:Location
Cafe Rick

Nerd:Person
H. Bogart

Nerd:Person
I. Bergman

<http://data.linkedtv.eu/media/e2899e7f#t=14,15>

Media Fragment URI 1.0

- Chapters
- Scenes
- Shots
- etc...

Enrichment and Hypervideos



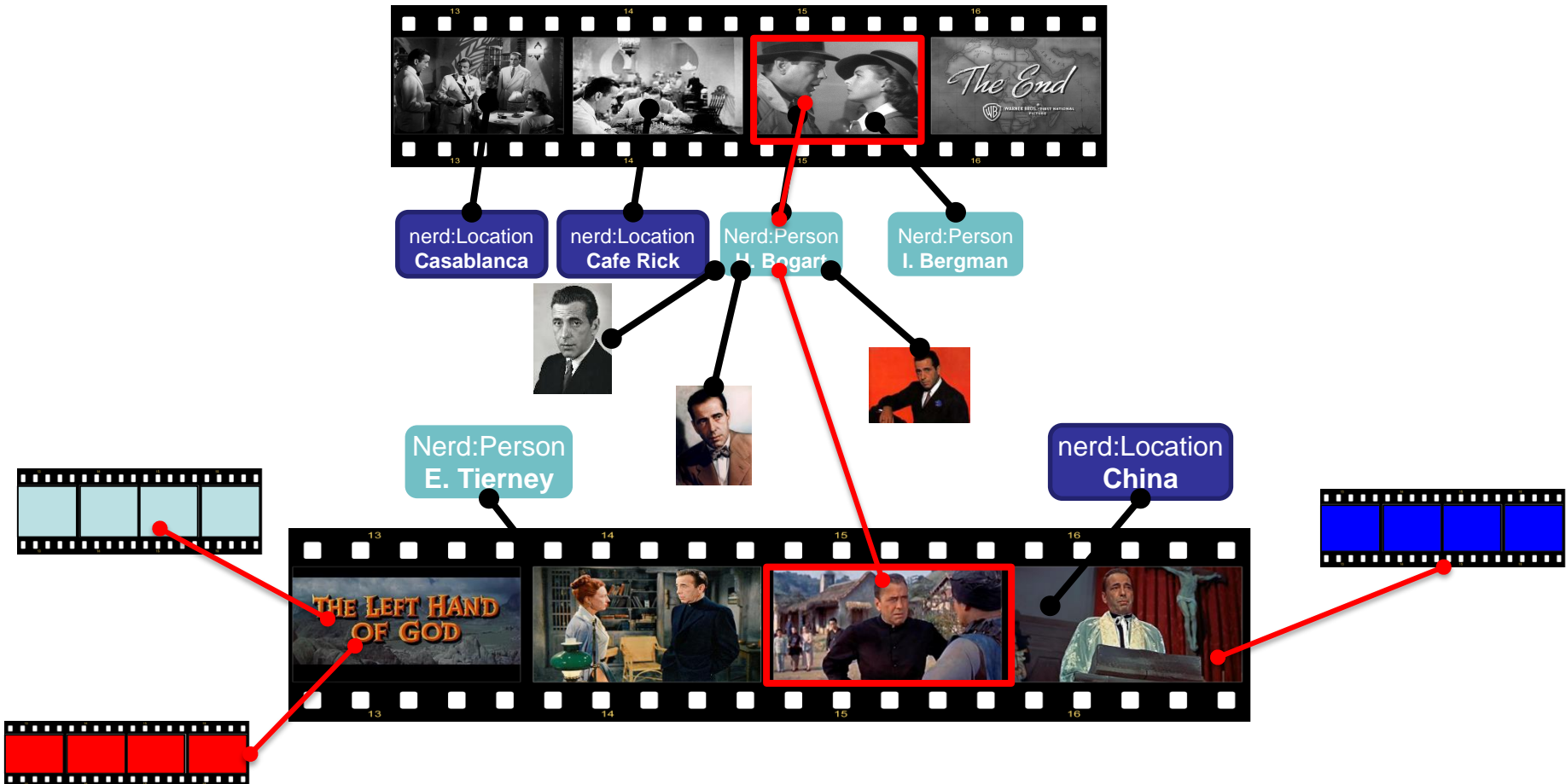
nerd:Location
Casablanca

nerd:Location
Cafe Rick

Nerd:Person
H. Bogart

Nerd:Person
I. Bergman

Enrichment and Hypervideos





What is a Named Entity recognition task?

- A task that aims to locate and classify the name of a person or an organization, a location, a brand, a product, a numeric expression including time, date, money and percent in a textual document



NER Tools and Web APIs

- **Standalone software**

- GATE
- Stanford CoreNLP
- Temis

-

NER Tools and Web APIs

- **Standalone software**

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- **Web APIs**



NER Tools and Web APIs

- **Standalone software**

- GATE

- **Stanford CoreNLP**

- Temis



<http://nerd.eurecom.fr/>

- **Web APIs**



NERD: Named Entity Recognition and Disambiguation



- **Compare performances of NER and NEL tools**
 - Understand strengths and weaknesses of different Web APIs
 - Adapt NER processing to different context
- **(Learn how to) Combine NER (/ NEL) tools**

What is NERD?

ontology¹ REST API²

UI³



¹ <http://nerd.eurecom.fr/ontology>

² <http://nerd.eurecom.fr/api/application.wadl>

³ <http://nerd.eurecom.fr>

Factual comparison of 10 Web NER tools

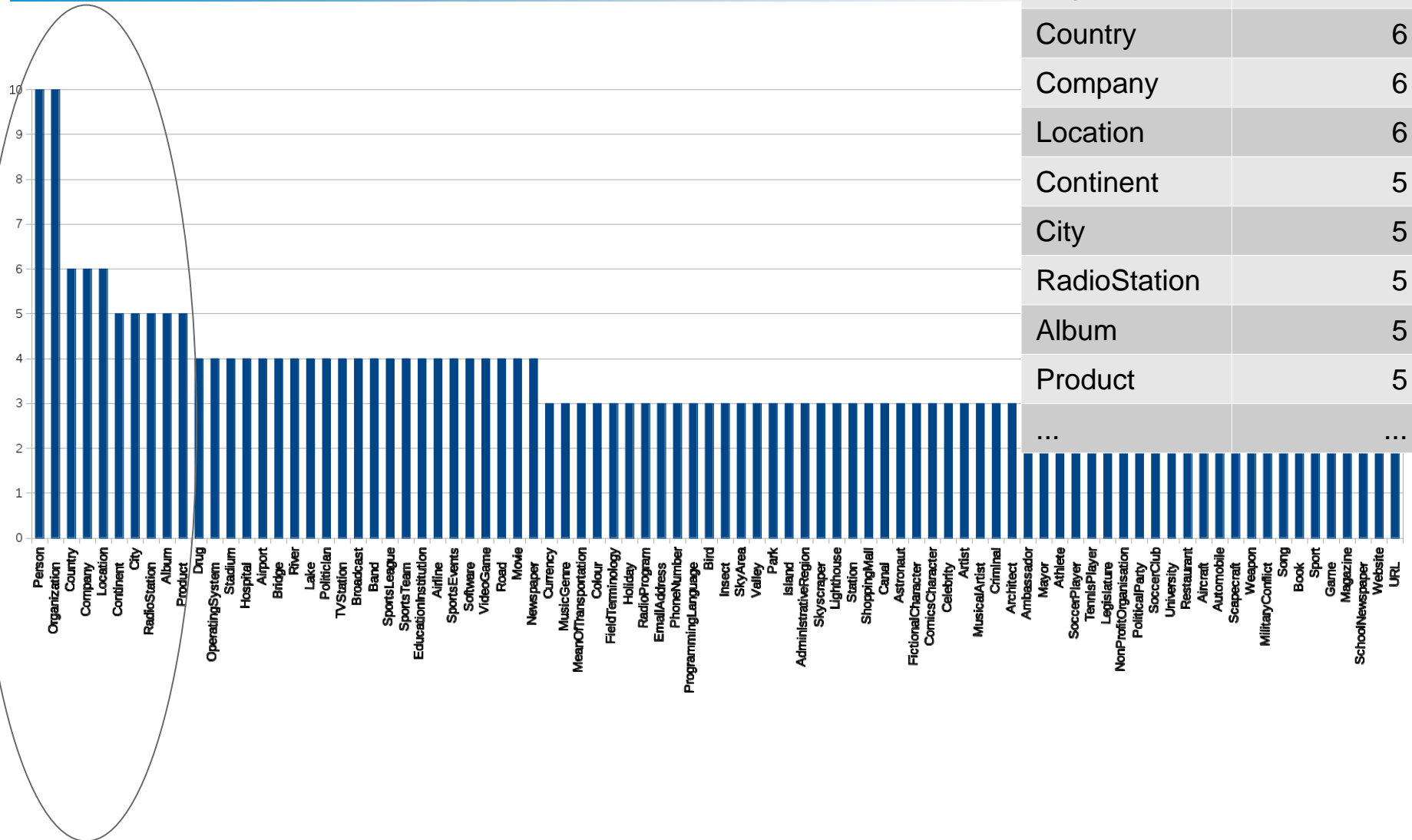
	Alchemy API	DBpedia Spotlight	Evri	Extractiv	Lupedia	Open Calais	Saplo	Wikimeta	Yahoo!	Zemanta
Language	EN,FR,GR,IT,PT,RU,SP,SW	EN GR* PT* SP*	EN,I T	EN	EN,FR,IT	EN,FR SP	EN, SW	EN,FR SP	EN	EN
Granularity	OEN	OEN	OED	OEN	OEN	OEN	OED	OEN	OEN	OED
Entity position	N/A	char offset	N/A	word offset	range of chars	char offset	N/A	POS offset	range of chars	N/A
Classification schema	Alchemy	DBpedia FreeBase Scema.org	Evri	DBpedia	DBpedia LinkedM DB	Open Calais	N/A	ESTER	Yahoo	FreeBase
Number of classes	324	320	5	34	319	95	5	7	13	81
Response Format	JSON MicroF XML RDF	HTML JSON RDF XML	HTM L JSO N RDF	HTML JSON RDF XML	HTML JSON RDFa XML	JSON MicroF ormat	JSON	JSON XML	JSON XML	XML JSON RDF
Quota (calls/day)	30000	unl	300 0	3000	unl	50000	1333	unl	5000	10000

NERD Ontology

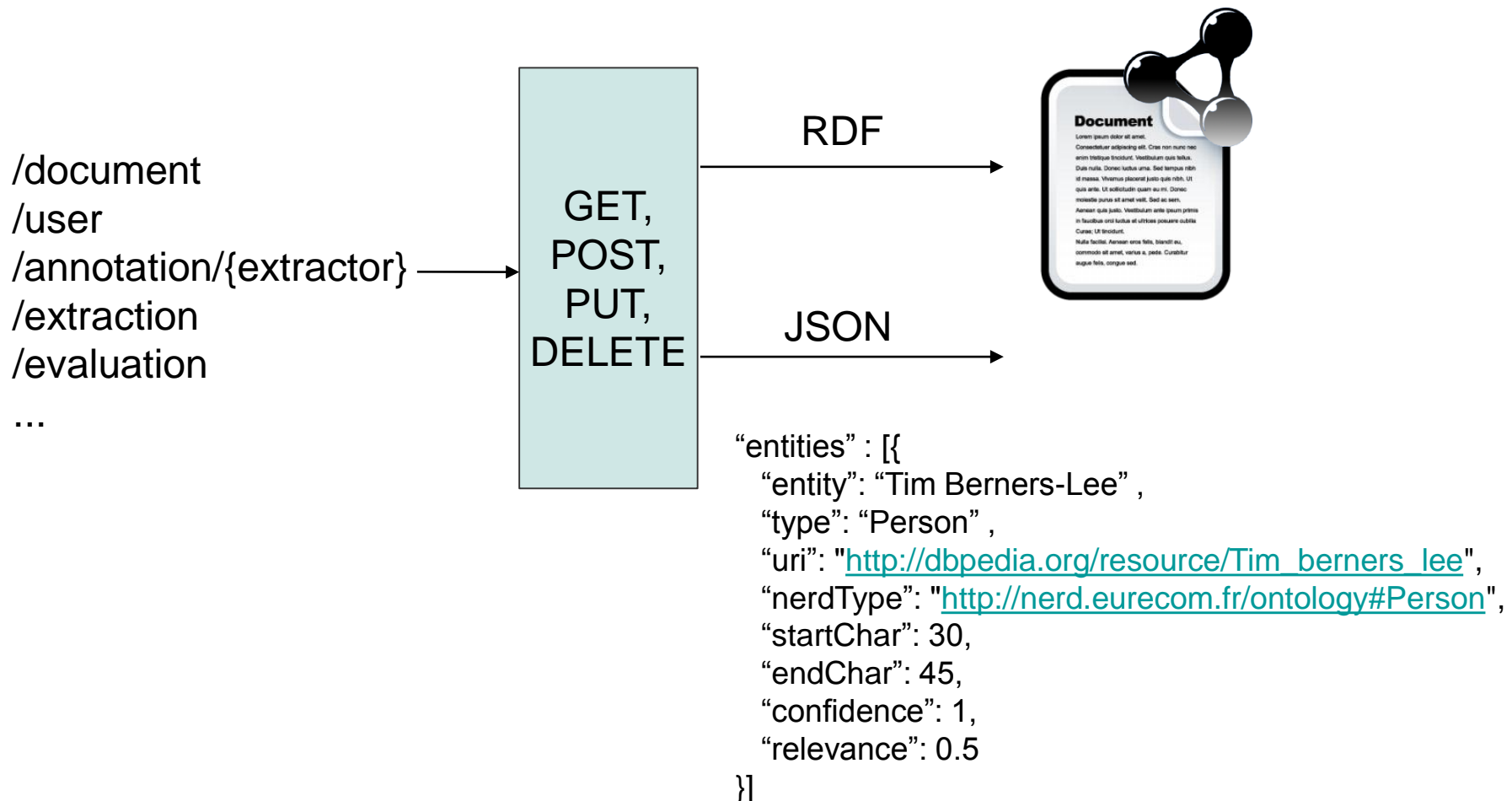


Aligned the taxonomies used by
the extractors

Building the NERD Ontology



NERD REST API



Rizzo G., Troncy R. (2012), NERD: A Framework for Unifying Named Entity Recognition and Disambiguation Web Extraction Tools. In: European chapter of the Association for Computational Linguistics (EACL'12), Avignon, France.

NERD User Dashboard



Raphael Troncy

raphael.troncy@eurecom.fr



daily external service calls

number of daily queries using the NERD default account: 500



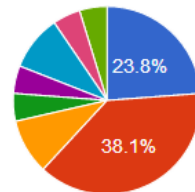
- available queries
- number of daily queries

action

- analyze
- export
- evaluate
- compare
- search

statistics of the performed extractions

amount of extractions per tool



- alchemyapi
- combined
- dbspotlight
- extractiv
- opencais
- 1/2

amount of extractions performed in the last month

NERD User Interface

Analysis



Insert a URI or plain text

URI article

Analyze web resource

Plain text

Analyze plain text

action

-  analyze
-  export
-  evaluate
-  compare
-  search

Media Fragment Enricher: <http://mfe.synote.org/mfe/>

Media Fragment Enricher

Home Documentation

Video Preview



*URL

Preview

Please enter the URL of a YouTube or DailyMotion Video e.g. <http://www.dailymotion.com/video/36300382> or <http://www.dailymotion.com/video/28764736>

How simple ideas lead to scientific discoveries - Adam Savage



Description

View full lesson: <http://ed.ted.com/lessons/how-simple-ideas-lead-to-scientific-discoveries>
Adam Savage walks through two spectacular examples of profound scientific discoveries that

Tags

No tags for this video

Duration

00:07:32

Statistics

- 🔥 1104926 Views
- 💬 12389 Comments
- ★ 0 Favorites
- 📊 12312 Ratings

Category

Education

Language

Creation Date

2012-03-13T18:18:58.000Z

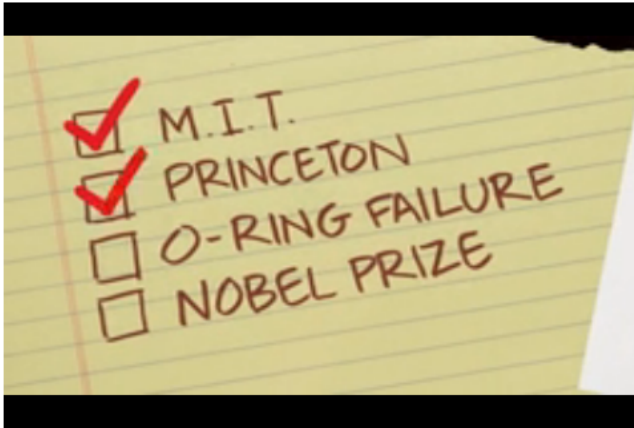
Publication Date

2012-03-13T18:18:58.000Z

Subtitles Available

Linking pieces of knowledge

How simple ideas lead to scientific discoveries - Adam Savage



Subtitle

00:00:52 to 00:00:55
to the **phenomenon** of the **ball** going to the back of the **wagon**.
00:00:55 to 00:00:59
But in truth, nobody really knows."
00:00:59 to 00:01:01
Feynman went on to earn degrees
00:01:01 to 00:01:04
at **MIT**, **Princeton**, **he** solved the **Challenger disaster**.
00:01:04 to 00:01:07
he ended up winning the **Nobel Prize** in Physics
00:01:07 to 00:01:10
for **his** **Feynman diagrams** describing the movement of **subatomic particles**.
00:01:10 to 00:01:14
And **he** credits that **conversation** with **his** **father**
00:01:14 to 00:01:16
as giving **him** a **sense**
00:01:16 to 00:01:20

NERD

Thing (123 entities)

- [Music](#)
- [wagon](#)
- [wagon](#)
- [wagon](#)
- [ball](#)
- [inertia](#)
- [Inertia](#)
- [phenomenon](#)
- [ball](#)
- [Feynman diagrams](#)
- [father](#)
- [sense](#)
- [contributions](#)
- [letter](#)
- [letter](#)
- [deep well](#)
- [bull](#)
- [the Earth](#)
- [circular](#)
- [sphere](#)
- [head](#)
- [brain](#)
- [walk](#)
- [ball](#)
- [ball](#)
- [wagon](#)
- [inertia](#)
- [scientists](#)
- [wagon](#)
- [Challenger disaster](#)
- [subatomic particles](#)
- [conversation](#)
- [knowledge](#)
- [librarian](#)
- [mind](#)
- [writer](#)
- [solstice](#)
- [shadow](#)
- [circular](#)
- [Earth](#)
- [straight line](#)
- [guy](#)

Challenger disaster

label

Space Shuttle Challenger disaster

abstract

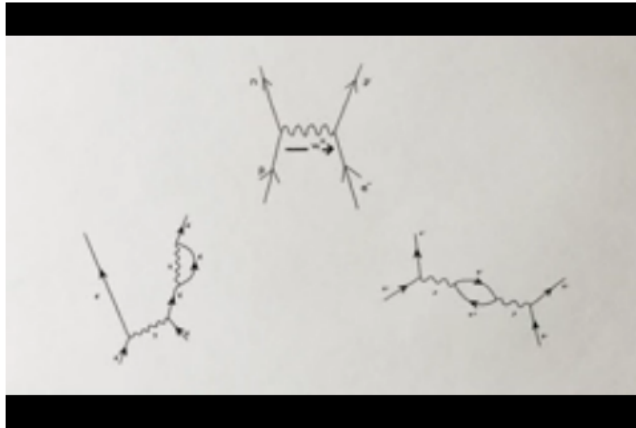
The Space Shuttle Challenger disaster occurred on January 28, 1986, when Space Shuttle Challenger broke apart 73 seconds into i...

depiction



Linking pieces of knowledge

How simple ideas lead to scientific discoveries - Adam Savage



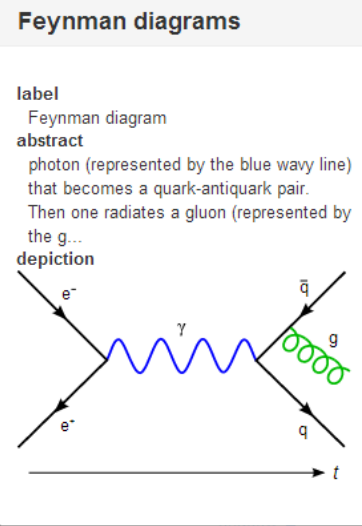
Subtitle

00:00:59 to 00:01:01
Feynman went on to earn degrees
00:01:01 to 00:01:04
at MIT, Princeton, he solved the Challenger disaster.
00:01:04 to 00:01:07
he ended up winning the Nobel Prize in Physics
00:01:07 to 00:01:10
for his Feynman diagrams describing the movement of subatomic particles.
00:01:10 to 00:01:14
And he credits that conversation with his father
00:01:14 to 00:01:16
as giving him a sense
00:01:16 to 00:01:20
that the simplest questions could carry you out to the edge of human
knowledge.
00:01:20 to 00:01:22
and that that's where he wanted to play.

NERD

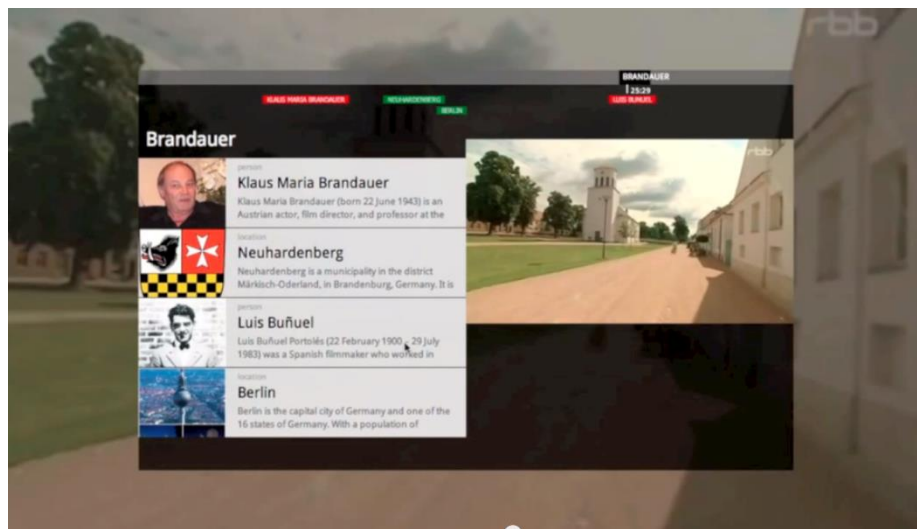
Thing (123 entities)

- Music
- wagon
- wagon
- wagon
- ball
- inertia
- inertia
- phenomenon
- ball
- Feynman diagrams
- father
- sense
- contributions
- letter
- letter
- deep well
- bull
- the Earth
- circular
- sphere
- head
- brain
- walk



Web + TV experience

<http://www.youtube.com/watch?v=4mSC685AG7k>



Take Away Summary

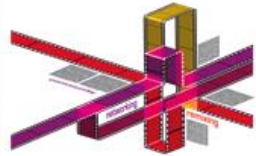
- **Video is a first class citizen on the Web**
 - Annotations: [Ontology](#) and [API](#) for Media Resources, [Open Annotation Data Model](#)
 - Access: [Media Fragments URI](#)
 - [NERD platform](#) for extracting key information from textual resources including video subtitles and microposts
-
-
-

Take Away Summary

- **Video is a first class citizen on the Web**
 - Annotations: [Ontology](#) and [API](#) for Media Resources, [Open Annotation Data Model](#)
 - Access: [Media Fragments URI](#)
 - [NERD platform](#) for extracting key information from textual resources including video subtitles and microposts
- **Embrace the Linked Media vision**
 - Publish, re-use, re-purpose and remix media descriptions
 - Develop links between (part of) media items via their descriptions

Winter School:

<http://winterschool.mediamixer.eu/>



1ST WINTER SCHOOL ON MULTIMEDIA PROCESSING AND APPLICATIONS (WMPA 2014)

Video analysis, video annotation, semantic multimedia, social media, digital rights and multimedia applications



Student track for PhD/MSc media students

Credits

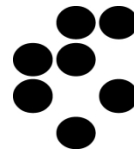
- Giuseppe Rizzo, Vuk Milicic, José Luis Redondo Garcia (EURECOM)
- Thomas Steiner (Google Inc.), Yunjia Li (University of Southampton)
- Marieke van Erp (Free University of Amsterdam)
- Erik Mannens, Davy ven Deursen (iMinds, Uni. Ghent)
- Paolo Ciccarese, Robert Sanderson, Herbert Van de Sompel and all the members of the W3C Open Annotation Community Group
- ... and many other students



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Institut "Jožef Stefan", Ljubljana, Slovenija



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