



Centrum voor Wiskunde en Informatica

Creation and use of video annotations for presentation generation

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Outline

- Re-use of video
 - Documentary Generation
Vox Populi (Stefano Bocconi, CWI & Uni. Turin)
- Associating video data and metadata
 - Canonical processes of media production
 - IPTC news codes, NewsML2
- Generating news presentations



Generating video documentaries from annotated media repositories

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Talk Outline

- Motivation
 - Example
 - Scenarios
 - Technical details
 - Annotations
 - Editing Process
 - Conclusions
-

Video Documentaries on the Web

- Traditional video authoring: there is only one final version, what is shown is the choice of the author/editor
 - Proposed video authoring:
 - Annotate the video material semantics
 - Show automatically what the user asks to see, using presentation forms a film editor would use
-

Video material

- Focus on video interviews about controversial issues
 - **Interview with America** video footage with interviews and background material about the opinion of American people after 9-11
www.interviewwithamerica.com
-

Example: *What do you think of the war in Afghanistan?*



"I am never a fan of military action, in the big picture I don't think it is ever a good thing, but I think there are circumstances in which I certainly can't think of a more effective way to counter this sort of thing..."

What do you think of the war in Afghanistan?

I am not a fan of military actions



I cannot think of a more effective solution



War has never solved anything



Two billions dollar bombs on tents

Scenarios

- Augmenting one interview with man-on-the-street opinion ("Vox Populi" documentary)
 - Overview of the content of video footage:
 - Example: trailers ("Voices of Iraq")
 - Browse the content by opinion
-

The annotations

- Rhetorical
 - Rhetorical Statement (mostly verbal, but visual also possible)
 - Argumentation model: Toulmin model
 - Descriptive
 - Question asked
 - Interviewee (social)
 - Filmic (e.g. location/time/framing/gaze)
-

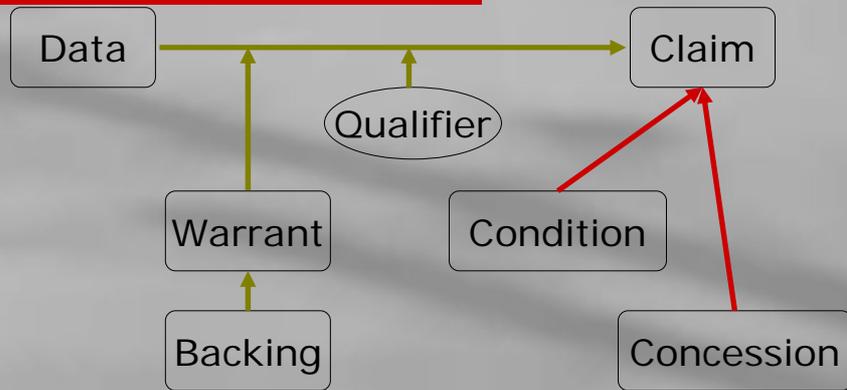
Encode statements

- Statement formally annotated:
 - <subject> <modifier> <predicate>
 - E.g. "**war best solution**"
 - A thesaurus containing:
 - Terms (155)
 - Relations between terms: *similar* (72), *opposite* (108), *generalization* (10), *specialization* (10)
 - E.g. **war** *opposite* **diplomacy**
-

Connect statements

- Using the thesaurus, generate related statements and query the repository
 - "war best solution"*,
 - "diplomacy best solution"*,
 - "war not solution"*
 - Create a **graph** of related statements
 - nodes are the statements (corresponding to video segments)
 - edges are either *support* or *contradict*
-

Toulmin model



*57 Claims, 16 Data, 4 Concessions,
3 Warrants, 1 Condition*

Analysis of the Example

Two billions dollar bombs on tents



Claim

contradict



Claim

I cannot think of a more effective solution

weaken

Concession

I am not a fan of military actions



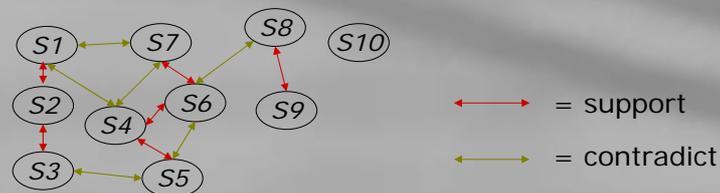
Claim

support

War has never solved anything

Facts and features

- Annotations: 1 hour annotated, 15 interviews, 60 interview segments, 120 statements
- Partially **tunable**: examining the Segment graph gives feedback on the quality of the annotations and the thesaurus



Controlling the Bias

- Video documentaries are not neutral account of reality: the selection and editing of the footage expresses a point of view
- Editing strategy:
 - Balanced
 - Pro opinion X
 - Against opinion X
- We use:
 - Logos (the statements)
 - Ethos (based on user profile)
 - Film editing (e.g. framing, gaze)

Vox Populi interface

Question	Interviewee	Opinion					
Why did they do what they did? What do you think of the casualties among civilians? What do you think of the Afghanistan war? What are the consequences of the war? What are the roots of the problem? What do you think about the Anthrax?	Cameron Parking Guard at Stamford Lawyer in Harvard	War in Afghanistan - Pro	Position				
Age	Education	Employment	GeoLocation	Race	Religion	Sex	
Middleage Old Teenager Young	HighEducated LowEducated MediumEducated	HighIncomeJob LowIncomeJob MiddleIncomeJob Retired Student	NotUSA USA	AmericanIndian Asian Black Hispanic White	Atheist Christian Muslim	Female Male	First Character
Age	Education	Employment	GeoLocation	Race	Religion	Sex	
Middleage Old Teenager Young	HighEducated LowEducated MediumEducated	HighIncomeJob LowIncomeJob MiddleIncomeJob Retired Student	NotUSA USA	AmericanIndian Asian Black Hispanic White	Atheist Christian Muslim	Female Male	Second Character
Strategy	Bandwidth	Intercut	Caption				
<input type="radio"/> None <input checked="" type="radio"/> Create Clash <input type="radio"/> Create Support <input type="radio"/> Vox Populi	<input type="radio"/> Low Bandwidth <input checked="" type="radio"/> Medium Bandwidth <input type="radio"/> High Bandwidth	<input checked="" type="radio"/> True <input type="radio"/> False	<input type="radio"/> On (can cause problems) <input checked="" type="radio"/> Off				
Done	Reset						

Conclusions

- ❑ Automatic generation of video interviews augmented with supporting and/or contradicting material
 - ❑ The **user** can determine the subject and the bias of the presentation
 - ❑ The **documentarist** can add material and let the system generate new documentaries
-

Pointers & Acknowledgments

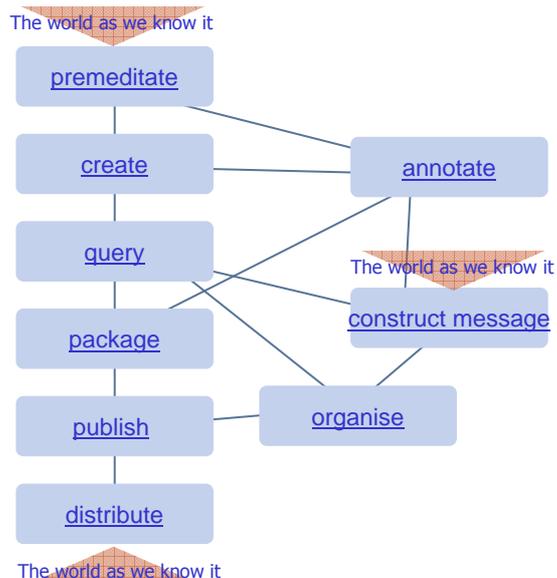
- This presentation and a Demo available at:

<http://www.cwi.nl/~media/demo/IWA/>

- This research was funded by the Dutch national ToKeN I²RP and CHIME projects.

Canonical processes of media production

<http://www.cwi.nl/~media/projects/canonical/>



Video data + metadata

- High quality *semantic* multimedia metadata enables:
 - Easy exchange of news items
 - Semantic search of particular news items
 - Delivery of personalized news content to customers
 - ▶ Interactive browsing in a news archive
 - ▶ Cross-modality: packaging the news stories, photos, graphics, audio, videos
 - ▶ For different end-user platforms (mobiles, PC, handhelds, etc.)

IPTC Metadata Standards

- IPTC has defined 28 sets of multilingual News Codes (de en-GB es fr it ja-JP)
 - ▶ NewsCodes use numeric strings = language agnostic
 - ▶ Subject ≈ 1300 terms, 3 levels hierarchy
 - ▶ NewsCodes Viewer application [View](#)
- XML Wrapper
 - Metadata embedded in a photo: XMP
 - Metadata stored in a separate file: NewsML

Role of the Semantic Web

- "Oh no! Not yet another metadata standard!"
Like we don't have enough of them already:
 - MPEG-7, EXIF, Dublin Core, VRA Core, IPTC Core, XMP, Creative Commons, ... ?
- But again: No single standard can cover all metadata needs
- SW is a framework that could make existing metadata standards and tools interoperable ... and make them interoperable with the rest of the Web!

NewsML2 and the SW

- Common basis
 - Distributed resources (news item) globally and uniquely identified => URI
 - Use of shared and controlled vocabularies
- Natural switch and numerous benefits
 - Better control of NewsML2 descriptions (logical consistency check)
 - Enhanced search of News topic (logical inferences)
 - Intelligent presentation – Semantic interfaces
 - Unified news management – Semantic CMS

What we have done so far?

- Creation of a News domain ontology in OWL
 - Based on the UML model specifications of NewsML2
- Online conversion service
 - Mapping of the IPTC NewsCodes into various SKOS thesaurus
 - Transforming dynamically the NewsML2 (XML) descriptions in its equivalent RDF counterpart
 - ▶ Using to the NewsML ontology
 - ▶ Linking to the SKOS IPTC NewsCodes

<http://newsml.cwi.nl/>

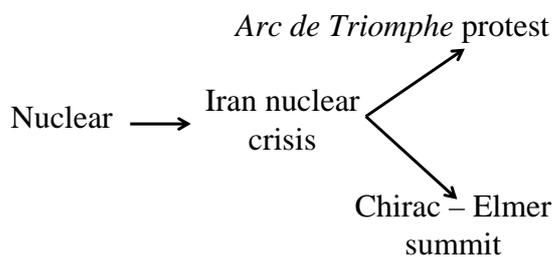
What is the added value?

- Example: A "normal" day in AFP
- Dataset
 - 200 NewsML2 stories,
35 photos (original size + thumbnails) +
35 NewsML2 descriptions
 - Covering various subjects e.g.:
 - ▶ A [military drill for dealing with contaminations](#) (toxic, nuclear or biological) - [Photo](#)
 - ▶ A [protest made on the Arch of Triumph in Paris](#), related to the Iran nuclear crisis - [Photo](#)
 - ▶ A [meeting between the French president and Israeli prime minister](#) - [Photo](#)

Example 1: reasoning on the content

- Find all related news about "Nuclear"

Nucléaire → Military drill (NBC)



W3C Multimedia Semantics Incubator Group

W3C Multimedia Semantics Incubator Group - Mozilla Firefox

http://www.w3.org/2005/incubator/mmsem/

W3C Incubator Activity

W3C Activities

- Incubator Activity
- **Multimedia Semantics XG**
- Participants
- Public Mailing List
- Member Mailing List (administrative)
- Member-only
- Multimedia Semantics XG Home Page
- Charter

Search Incubator Activity

Incubator Activity > W3C Multimedia Semantics Incubator Group

- [News](#)
- [Deliverables](#)
- [Meetings](#)
- [Minutes](#)
- [About the Multimedia Semantics XG](#)

W3C Advisory Committee Representatives may [join this XG](#) on behalf of their organizations by completing this [online form](#). Non-Members may [join W3C](#) or ask the Chair of an Incubator Group to participate as an [Invited Expert](#), subject to W3C's [policy for approval of Invited Experts](#).

Participants are automatically subscribed to the [Member list](#) when they join the group. All participants should also subscribe to the [public list](#). Non-Participants may also subscribe. Please read more about W3C [mailing list and archive usage](#).

News

- 2006-05-22: The XG will have a face-to-face kick-off meeting, Monday 22nd of May, in Edinburgh during the [WWW Conference](#). More precisely, we invite all interested participants to join the round table discussion at the end of the [SWAMM Workshop day](#), from 16:00 to 17:30 and to join the dinner afterwards.
- 2006-05-02: The [SWBPD WG's Multimedia Task Force](#) is finishing work on [their editor's draft on Image Annotation](#). This is work done in another group, but all members of this XG are invited to provide comments.

W3C Multimedia Semantics Incubator Group

- Light-weight, one year (May 2007) group looking at image and other multimedia metadata on the Web
- Focus on interoperability with existing standards
- You can help and shape the future of multimedia metadata on the Web!
- Need input from real media users:
 - Provide use cases & examples
 - State which standards are most important to you
 - Review the notes written by the group

MM Sem XG



Athens face2face December 2006

Conclusions

- Re-using video for end users
 - Vox Populi
 - News quiz (Masanori Sano, NHK/NII)
- Look at use cases in MM Sem XG
 - http://www.w3.org/2005/Incubator/mmsem/wiki/News_Use_Case
 - <http://www.w3.org/2005/Incubator/mmsem/wiki/>
- Discussion on scenarios for international news in Japanese, French, (maybe also English, Dutch and Irish) repositories

NewsCodeViewer [back](#)

PTC NewsCodeViewer/Editor - Version 2005.9.1

File Overview Translations Settings Help

arts, culture and entertainment
crime, law and justice
disaster and accident
economy, business and finance
education
environmental issue
renewable energy
conservation
energy saving
environmental politics
environmental pollution
natural resources
nature
population
waste
water
global warming
hazardous materials
environmental cleanup
health
human interest
labour
lifestyle and leisure
politics
religion and belief
science and technology
social issue
sport
unrest, conflicts and war
weather

FormalName: 06001000 Copy to clipboard

Name: renewable energy

Explanation: Stories about the environmental impact of renewable energy, including solar, wind, hydro, biomass and geothermal

First version	Change version	Deprecated in version
1	0	0

Change comment: none

Save the above changes Deprecate this Topic

Translations (right click for language specific menu):

Name:

Explanation:

First version	Change version	Deprecated in version
0	0	0

Change comment: