

# Creating stories with media

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# Video collection: What do you think of war as a solution?







# Interactive Media Access

- Users need support for
  - finding desired content
  - in one or more media types
  - for their specific task
- We need to be aware that there is more than the information “expressed” by the media asset itself, e.g.
  - when/where the media was captured
  - the intended purpose of the creator
  - the context in which the media asset was created





# We don't care about the media!

## We need to enable

- the processing of information-bearing content
- of one or more media types
- that can be interpreted by end users

## End-users are primarily interested in

- the meaning conveyed by a combination of media assets
- interacting further with the media
  - as part of complex “search” task
  - passing it on to someone else in media “chain”



# How can we get this to work?

## We need mechanisms

- for identifying (part of) an individual media asset
- for associating metadata with an identified fragment
- for agreeing on the meaning of metadata
- that enable larger meaningful structures to be *composed, identified and annotated*





# Outline of talk

- Information processes in which media and metadata play a role
  - “canonical processes of media production”
- Vox Populi system, demonstrating high level user interaction enabled by media and metadata
- Study of information needs for videos that are able to support processes of opinion-forming and decision-making



# Workflow for Multimedia Applications

- Identify and define a number of canonical processes of media production
- Community effort
  - 2005: Dagstuhl seminar
  - 2005: ACM MM Workshop on Multimedia for Human Communication
  - 2008: Multimedia Systems Journal Special Issue  
(core model and companion system papers)  
editors: *Frank Nack, Zeljko Obrenovic and Lynda Hardman*





**Canonical** Reduced to the simplest  
and most significant form possible,  
without loss of generality



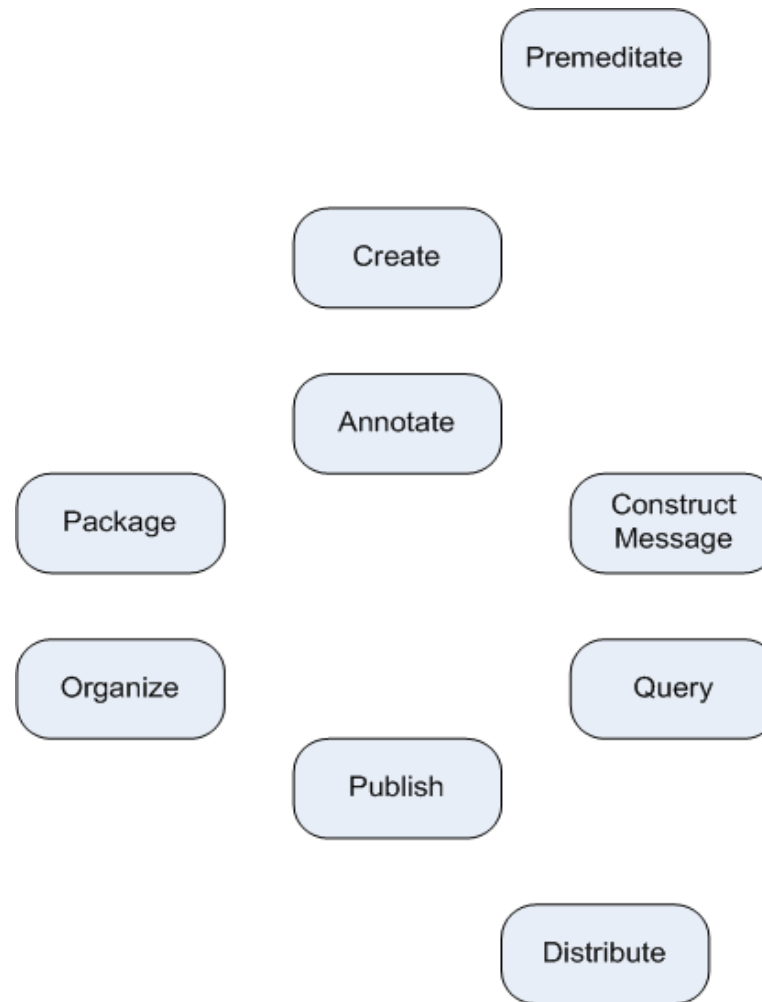
# Example application areas

- multimedia feature extraction systems
- professional news production systems (VRT)
- new media art
- hyper-video production
- photo book production (CeWe)
- ambient multimedia systems with complex sensory networks





# Overview of Canonical Processes



# Example: CeWe Color PhotoBook

- Application for authoring digital photo books
- Automatic selection, sorting and ordering of photos
  - **Context** analysis methods:  
e.g., timestamp, annotation
  - **Content** analysis methods:  
e.g., color histograms, edge detection
- Customized layout and background

<http://www.cewe-photobook.com>

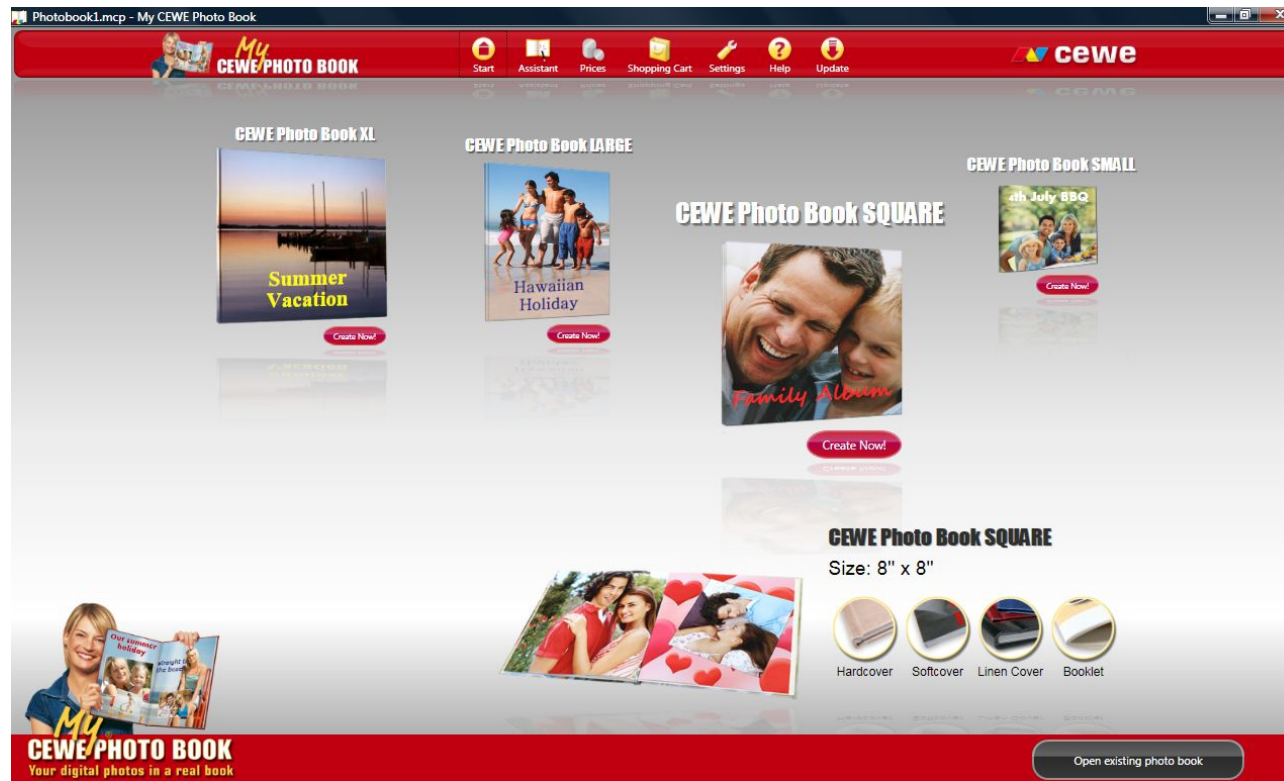




# CeWe Color PhotoBook Processes

My winter ski holidays with my friends

Premeditate



Construct  
Message



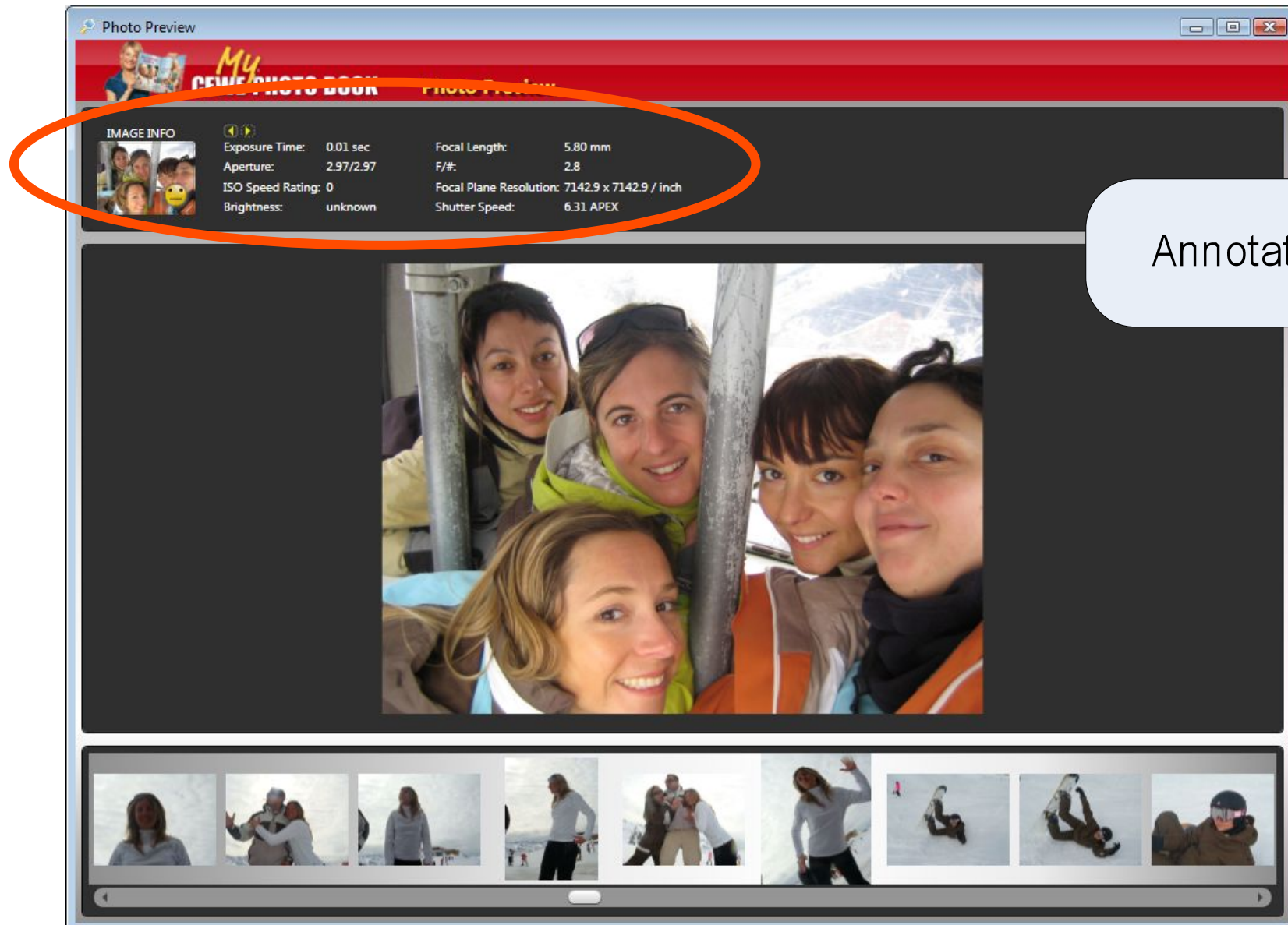
# CeWe Color PhotoBook Processes

- Media assets are captured, generated or transformed

Create

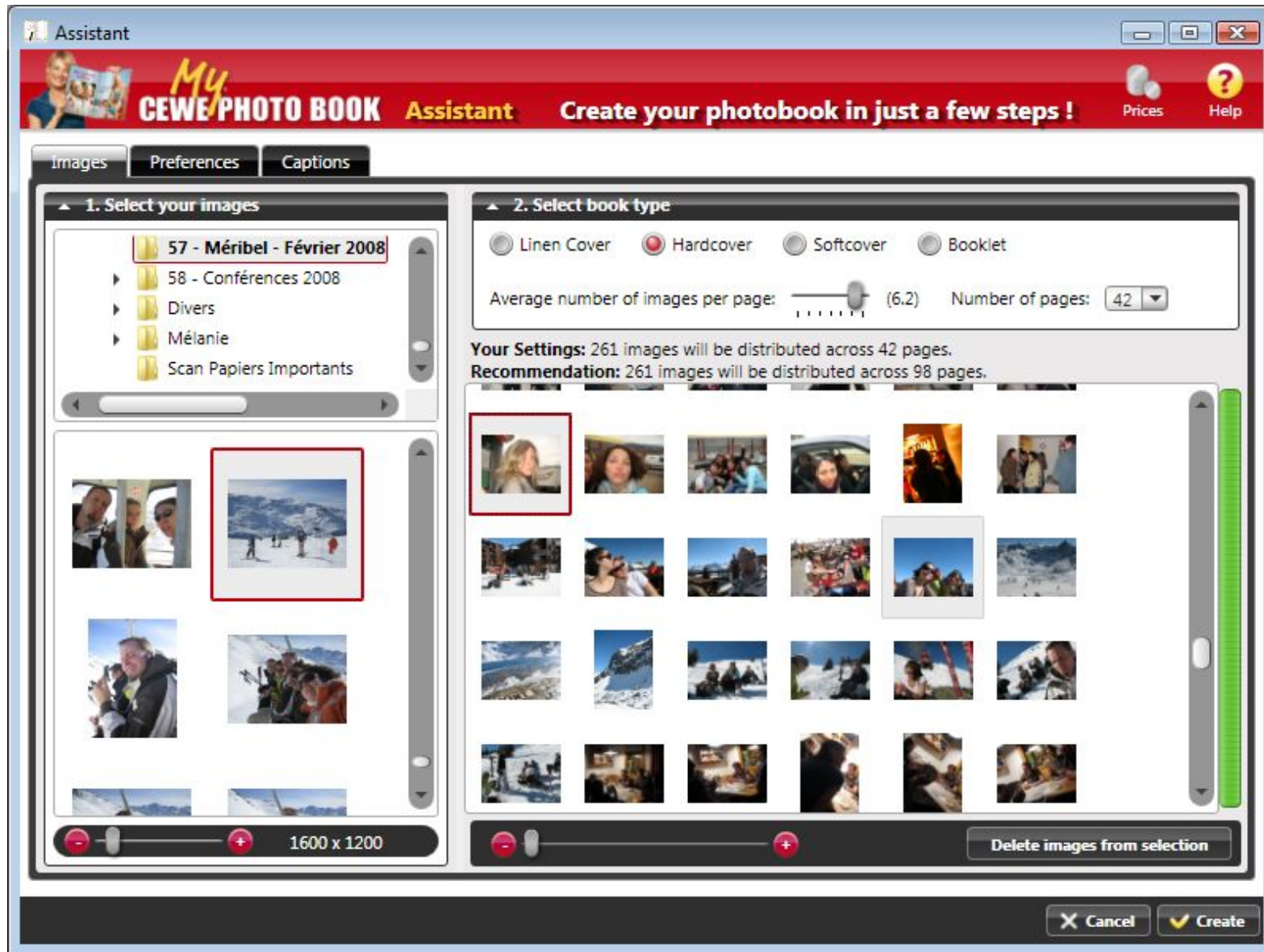


# CeWe Color PhotoBook Processes

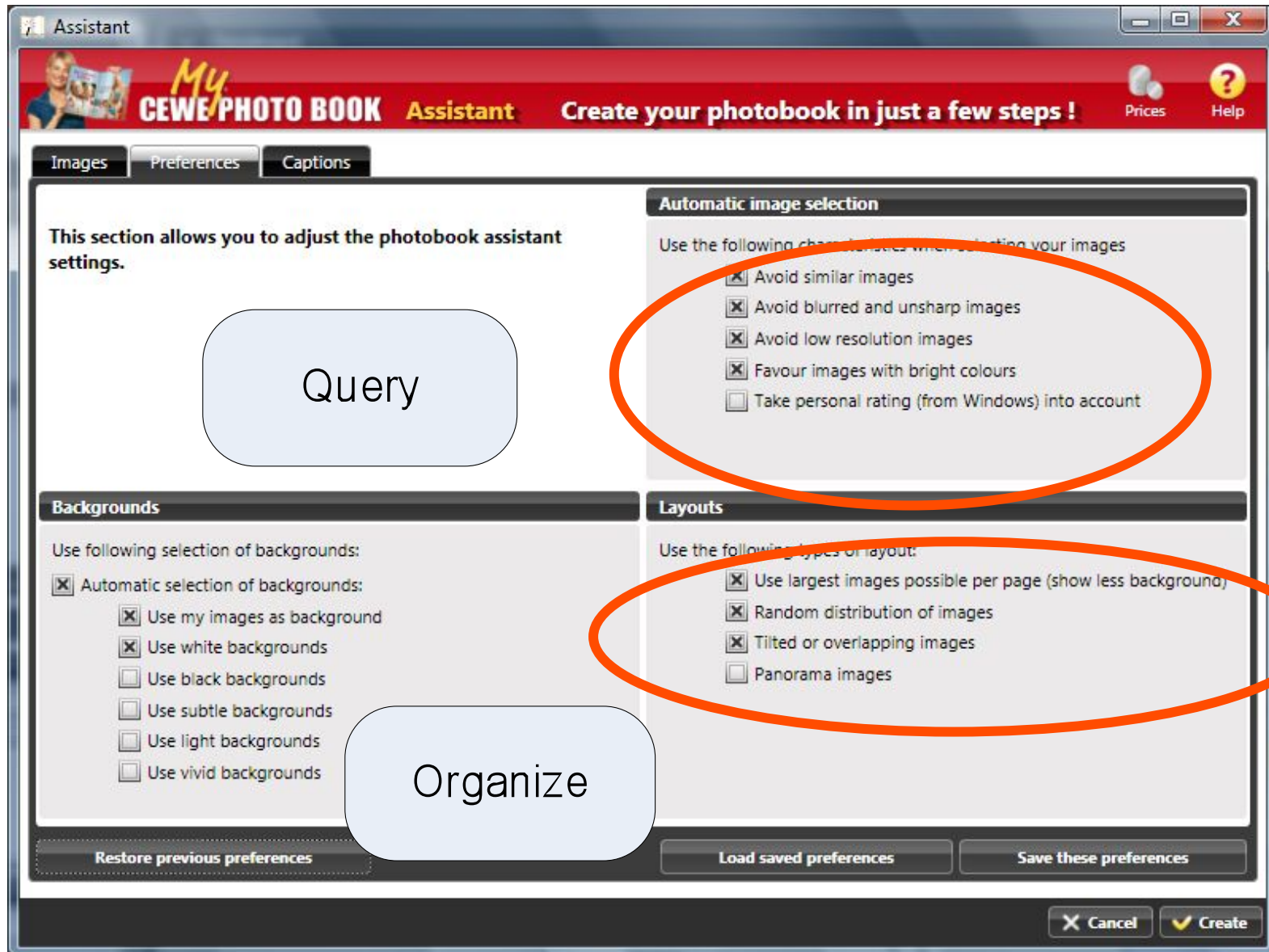




# CeWe Color PhotoBook Processes



# CeWe Color PhotoBook Processes



# Organise using domain annotations

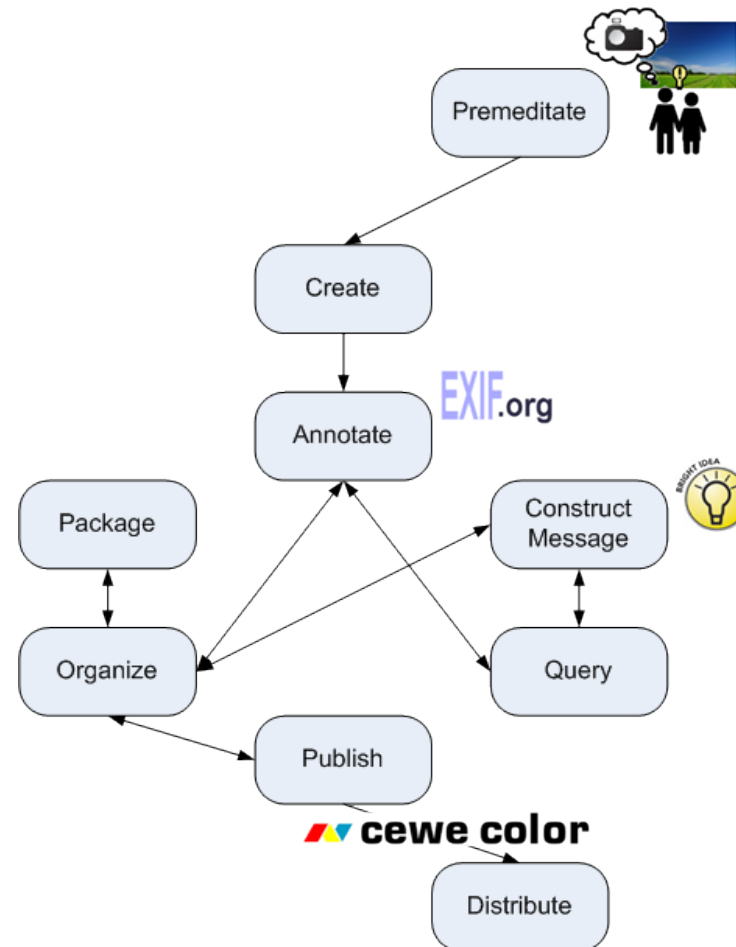




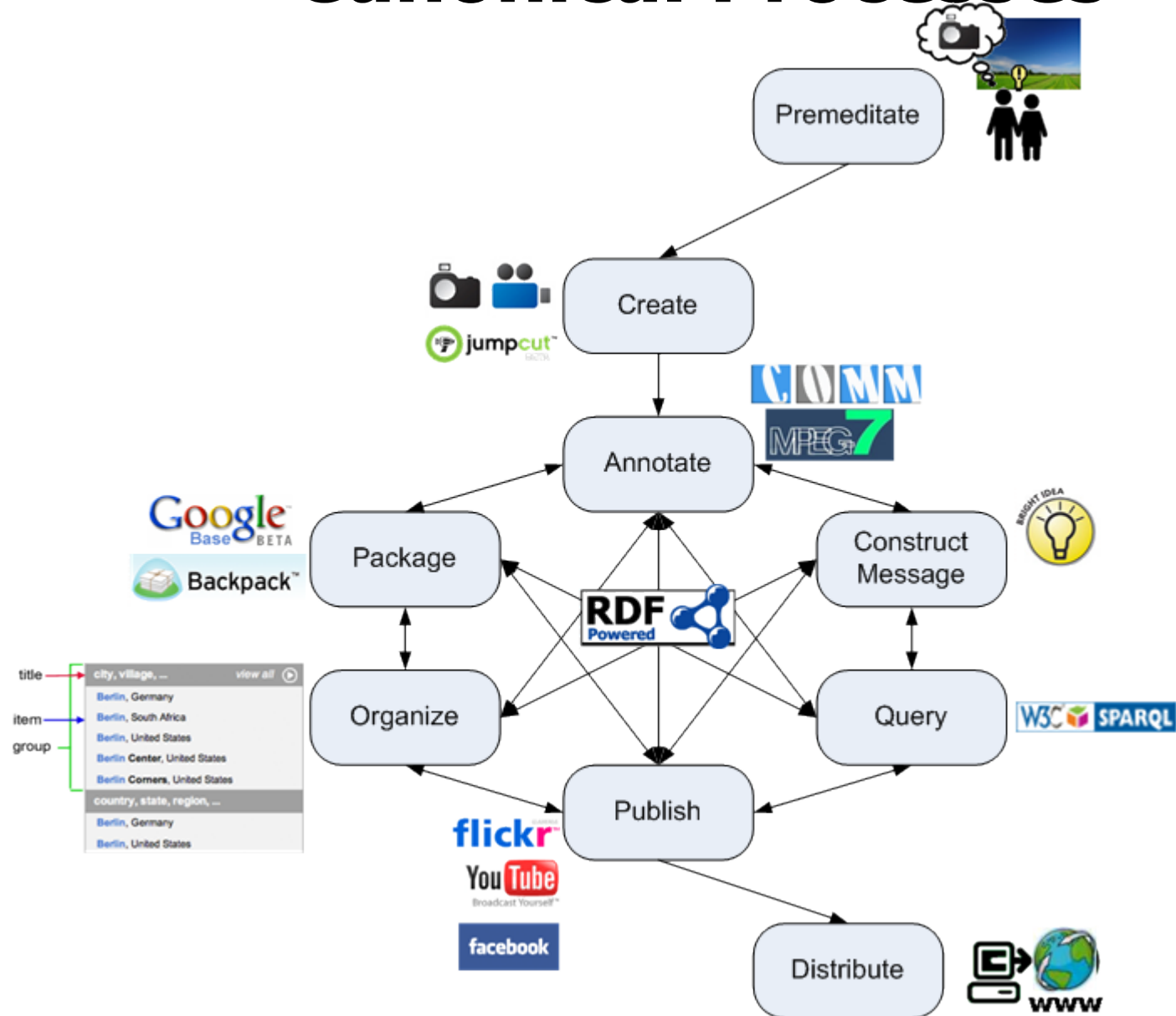
# CeWe Color PhotoBook Processes



# CeWe Color PhotoBook Processes



# Canonical Processes





# Creating Stories with Media

- Long term goal to find and present information to end-users
  - In a way that is useful to them
- We understand how to design information interfaces by hand.
  - How can metadata help us in giving more flexible access to media collections?
- We can link media assets to existing linked data, and use this to improve presentation, e.g. by
  - Selecting a sub-set
  - Grouping, ordering and linking media assets
  - Influencing the (visual) presentation



# How can annotations help?

What can be expressed explicitly?

- the message to be conveyed
- objects that are depicted in a media asset
- domain information (e.g., art, painter)
- human communication roles (discourse)

What can they be used for?

- disambiguating query terms
- grouping similar items for conveying topic breadth
- visualizing items for presentation, e.g. timeline, map
- finding similar items
- ...





# **Vox Populi: Generating video documentaries from annotated media repositories**

**Stefano Bocconi, Frank Nack (CWI, Amsterdam)**



# 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 sequence creation:
  - Annotate the video material
  - Show automatically what the user asks to see, using presentation forms a film editor would use



# Video material

- **Interview with America**

video footage with interviews and background material about the opinion of American people after 9-11

[www.interviewwithamerica.com](http://www.interviewwithamerica.com)

- Filming 27-10-2001 to 01-11-2001 in Stamford (CT), New York (NY), Boston (MA) and Cleveland (OH)

Premeditate



# 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..."*

# The annotations

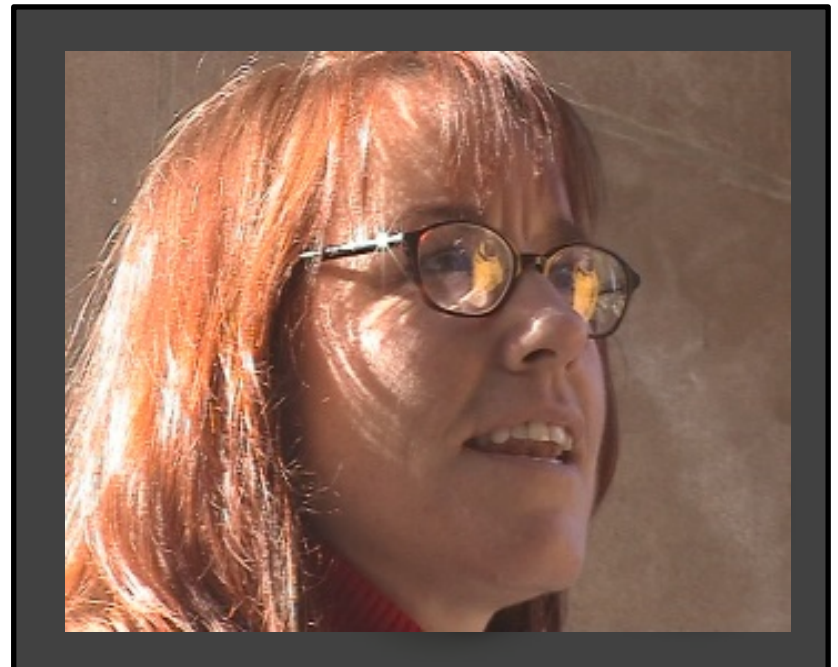
## Rhetorical

- Rhetorical Statement  
(mostly verbal, but visual also possible)
- Argumentation model: Toulmin model

Annotate

## Descriptive

- Question asked
- Interviewee (social)
- Filmic *next slide*



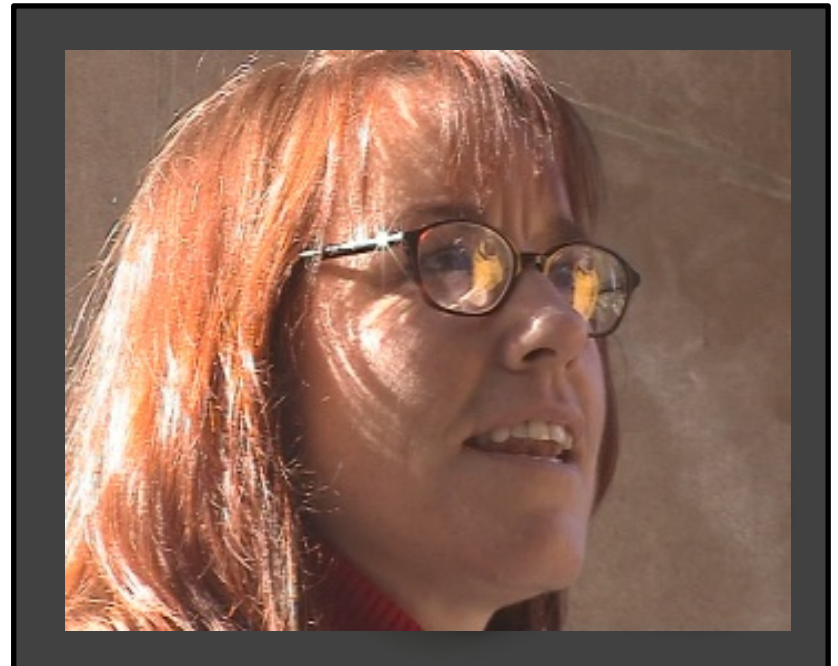


# Filmic annotations

Continuity, e.g.

Annotate

- camera movement  
**none**, pan left/right, shaking, tilt up/down, zoom in/out
- framing continuity  
**close-up**, medium shot, long shot
- gaze direction of speaker  
left, centre, **right**
- lighting conditions
- background sound



# Statement encoding

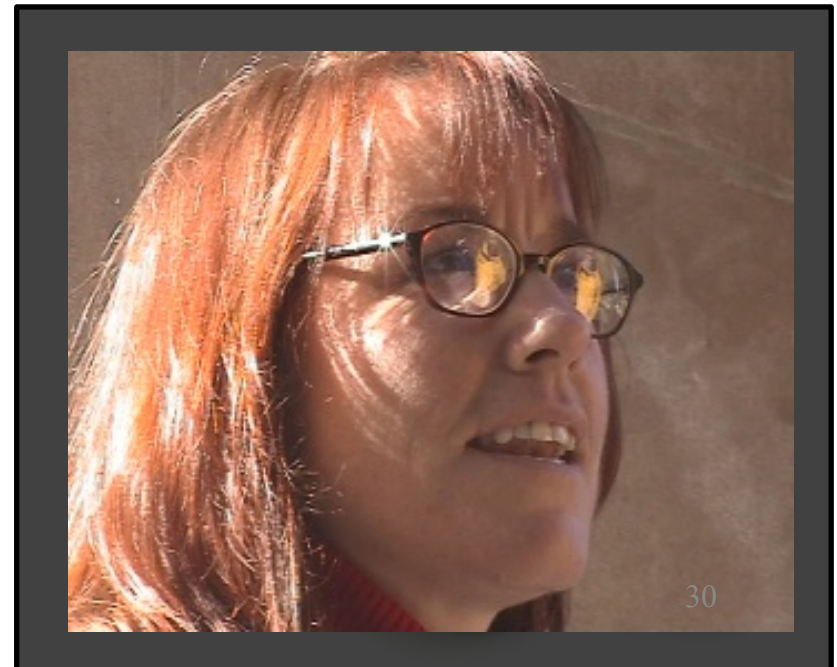
Annotate

3-part statement:

- <subject> <*modifier*> <predicate>
- E.g. “**war** *best* **solution**”

Thesaurus (pre Wordnet) containing:

- Terms (155)
  - Relations between terms:
    - similar (72),
    - opposite (108),
    - generalization (10),
    - specialization (10)
- e.g. **war** opposite **diplomacy**

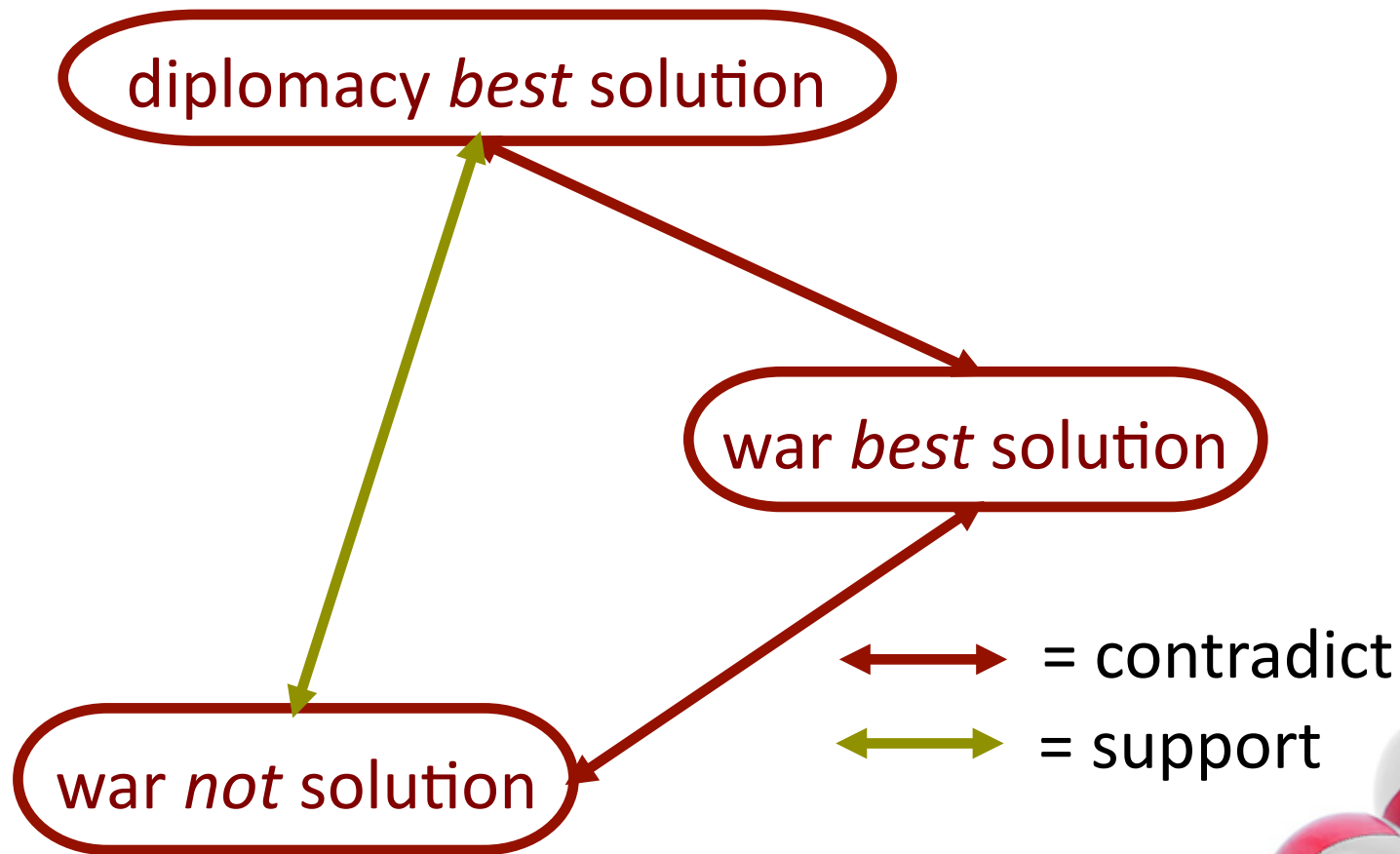


# Connect statements

- 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*

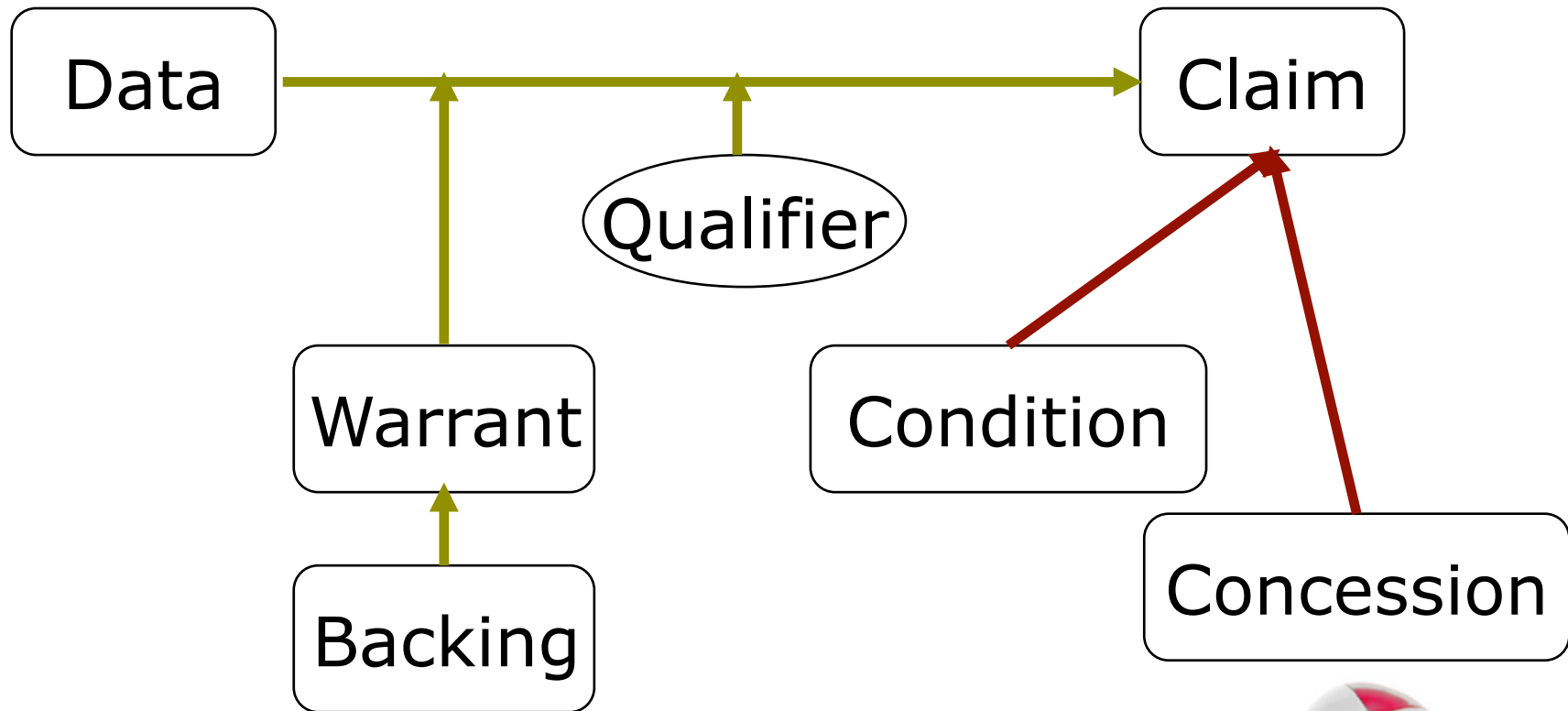


# Statement Graph





# Toulmin model



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



# Toulmin in example

Annotate

**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 action**

Claim

*support*



**War has never solved anything**



# What do you think of the war in Afghanistan?

**War has  
never solved  
anything**

**Two billions  
dollar bombs  
on tents**



**I am not a  
fan of  
military  
actions**

**I cannot think  
of a more  
effective  
solution**



# Vox Populi interface

The interface is divided into several sections for configuring a survey query.

**Question:** A list of questions to choose from. The selected question is "What do you think of the Afghanistan war?".

**Interviewee:** A list of interviewee roles. The selected role is "Lawyer in Harvard".

**Opinion:** A list of opinions to choose from. The selected opinion is "War in Afghanistan - Pro".

**Position:** A label indicating the role of the interviewee.

**Character Selection:** Two identical sets of demographic filters are provided for "First Character" and "Second Character". Each set includes dropdown menus for Age, Education, Employment, GeoLocation, Race, Religion, and Sex.

**Strategy:** A section for selecting the survey strategy. The selected strategy is "Create Clash".

**Bandwidth:** A section for selecting the bandwidth. The selected bandwidth is "Medium Bandwidth".

**Intercut:** A section for selecting the intercut. The selected intercut is "True".

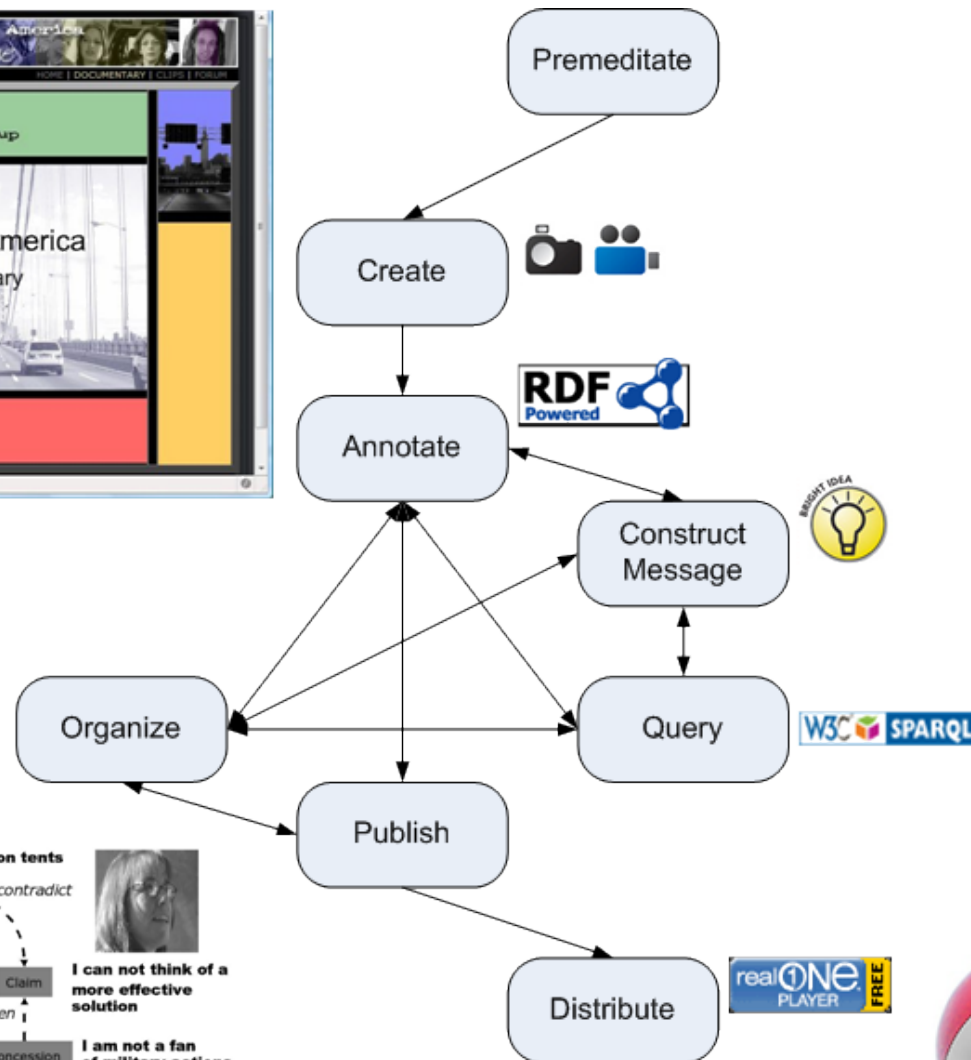
**Caption:** A section for selecting the caption. The selected caption is "On (can cause problems)".

**Buttons:** "Done", "Reset", and "Query".

**Construct Message:** A button to generate the survey message.



# Vox Populi Processes



# Vox Populi 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



# Pointer & Acknowledgments

- More on VoxPopuli at:  
<http://www.cwi.nl/~media/demo/VoxPopuli/>
- VoxPopuli was funded by the Dutch national ToKeN I<sup>2</sup>RP and CHIME projects



# User information needs for environmental opinion-forming and decision-making in linked-enriched video

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# The message

- Inform citizens about environmental issues
- Scenario: users form opinions while watching videos (from TV or internet)
- Goal: specify information that should be captured in annotations



# Method

- Expert interviews
  - environmental governance
  - video production and broadcasting
- User survey
  - information users say they need
  - 215 participants
- User experiment
  - information users really select
  - 6 participants



# High-level overview of results



# Environmental video conclusions

- We know what to annotate in environmental videos to support opinion-forming
- Some annotations can be done automatically (e.g. subjects and concepts, location)
- Others need to be manually annotated
- Challenges:
  - level of objectivity and subjectivity
  - trustworthiness of sources.

EuroITV '13





# What are my messages?

- Annotations associated with media assets can be used for different stages of interactive access, not just searching
- Annotations can be added by hand, linked automatically or automatically extracted
- The intended message can be made explicit (more annotations)
- Media content and associated annotations can be passed among systems
- We need community agreement on how to do this (e.g. canonical processes)
- Users can be given much richer and more flexible access to (annotated) media content, but...
- we need to store annotations & media in a reusable way

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# Literature

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- Ana Carina Palumbo and Lynda Hardman: *User information needs for environmental opinion-forming and decision-making in link-enriched video*  
In [EuroITV '13](#), pp 85-88

