

# Crossing Media for Improved Information Access

the **Reveal This** example

Stelios Piperidis

ILSP

[spip@ilsp.gr](mailto:spip@ilsp.gr)

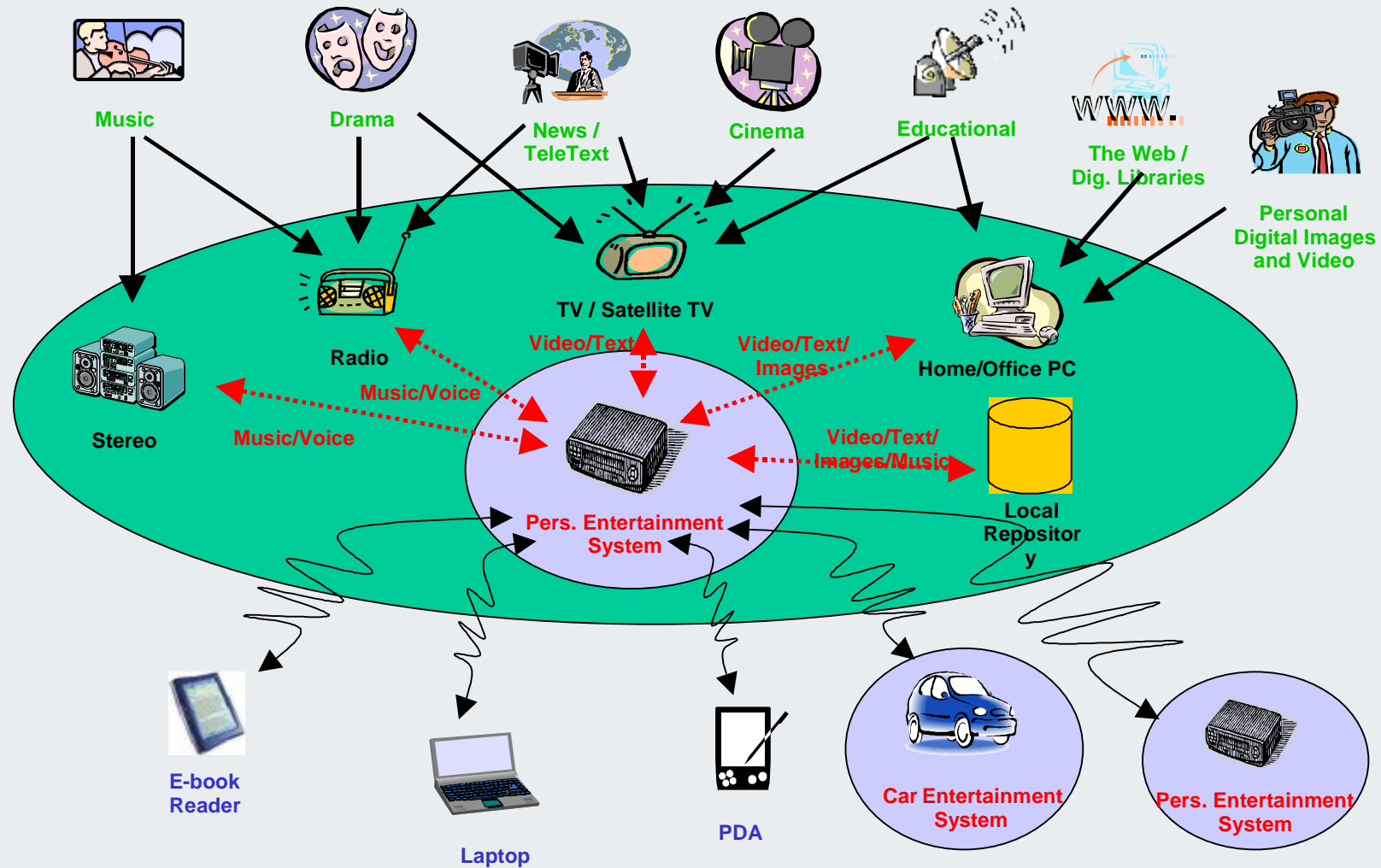
- "The vision I have for the Web is about **anything** being potentially **connected with anything**. It is a vision that provides us with new freedom, and allows us to grow faster than we ever could. . . . it brings the **workings of society** closer to the **workings of our minds**."

*Tim Berners-Lee : Weaving the Web, 2000*

- "European citizens should be able to watch or listen to audiovisual **content anytime, anywhere** and on **all technical platforms** (TVset, computer, mobile phone, personal digital assistant, etc.)"

*European Commission i2010 initiative*

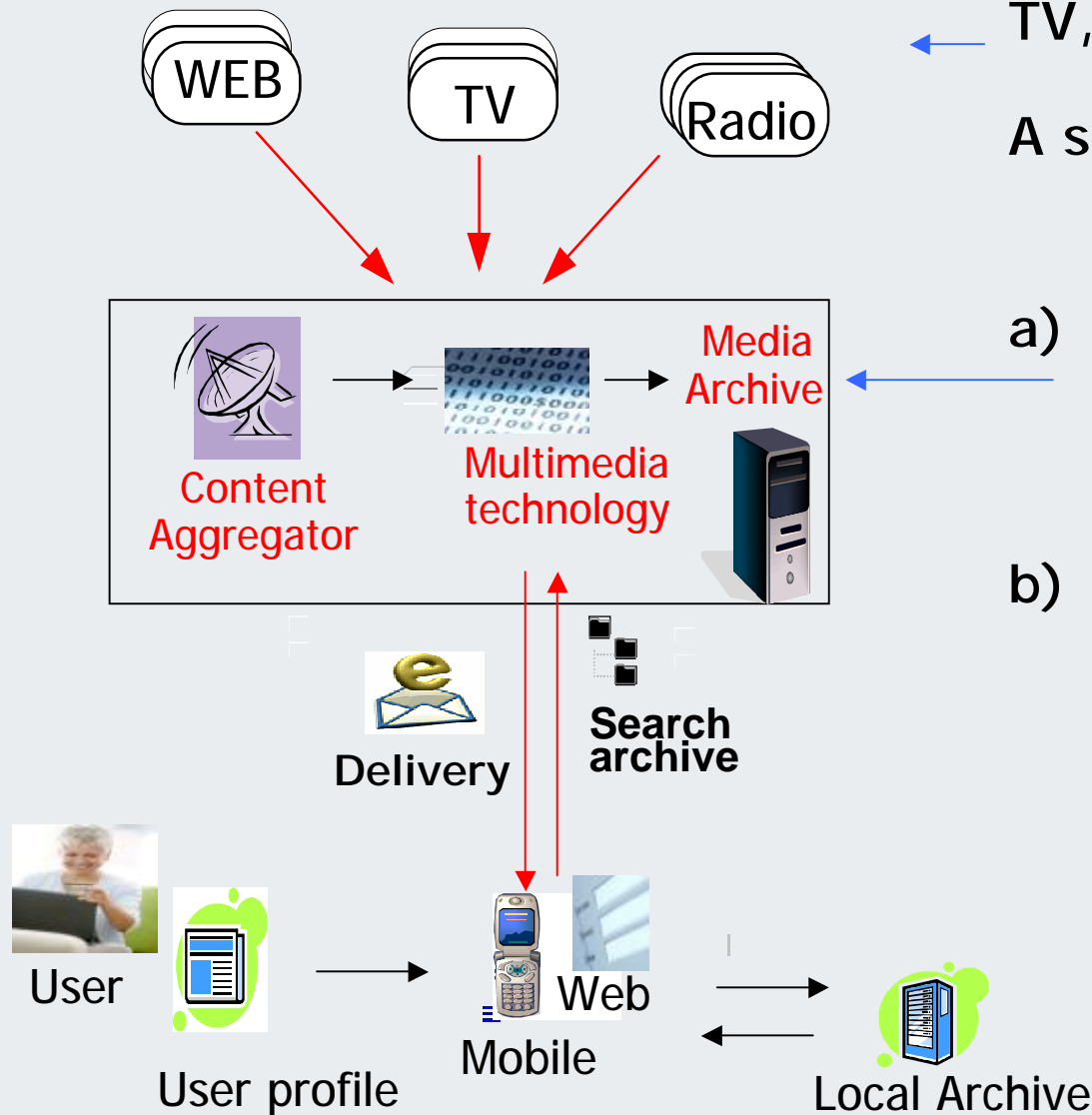
# Vision



# Multimedia Content Analysis Objectives

- develop content processing systems that help people keep up with the explosion of digital content scattered over different platforms (radio, TV, World Wide Web), different media (speech, text, image, video) and different languages
- develop technology able to semantically index, categorise, summarise and cross-link multiplatform, multimedia and multilingual digital content

# Use Scenaria



← TV, Radio, Web data

A system that offers both types of service :

- a) Multimedia and Cross lingual Information Retrieval (pull)
- b) Multimedia and Cross lingual information Filtering (push)

Mobile phone and Web interfaces

# Potential Users

- end users to gather, filter and categorize information collected from a wide variety of sources in accordance with their preferences.
  - professionals (media monitoring experts, journalists and editors with demanding media retrieval needs – pull model)
  - Laymen (novice technology users with information collection/consumption needs – push model)
- content providers to add value to their content, restructure and re-purpose it and offer their clients (subscribers, viewers, etc) individual or corporate users, personalized content

# Medium specific metadata

Ø **text**: terms/keywords, named entities (e.g. names of persons, places, organizations), events and topics

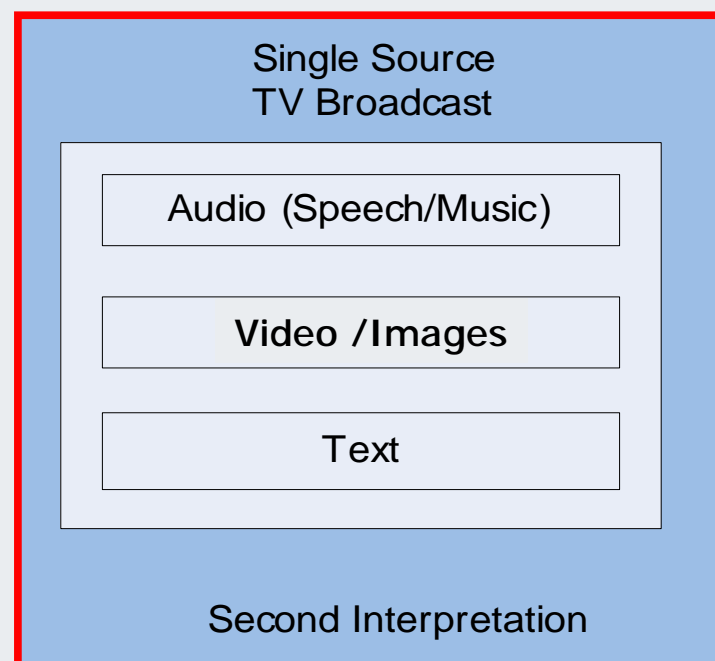
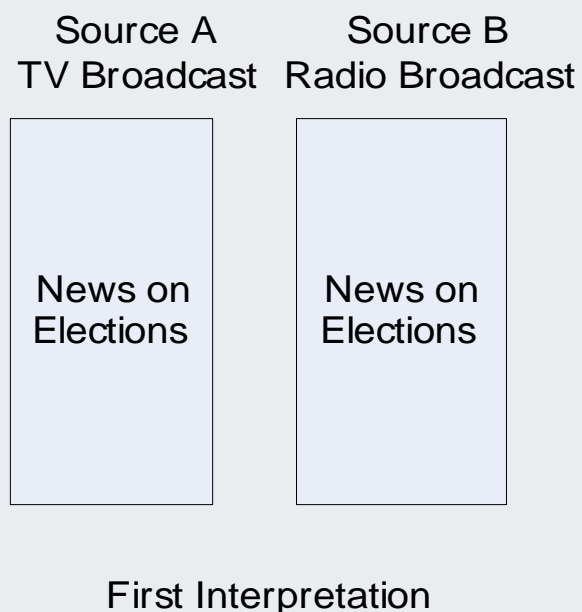
Ø **speech**: speech/nonspeech, speakers (e.g. speaker identity), transcriptions and stories

Ø **video and images**: keyframes and thematic categories, faces and persons

# Cross-mediality in multimedia analysis

referring to different sources of information (radio and web text on same topic) → **across documents**

referring to medium used to convey information within one source (audio, text, image of video segment) → **within document**





# Cross-mediality in multimedia analysis

referring to medium used to convey information within one source (audio, text, image or video segment) → **within document**

## Cross-media indexing

- treat imprecisions & inconsistencies
- process metadata of speech-image-text

## Cross-media categorisation

- add to metadata set
- process text and images

## Cross-media summarisation

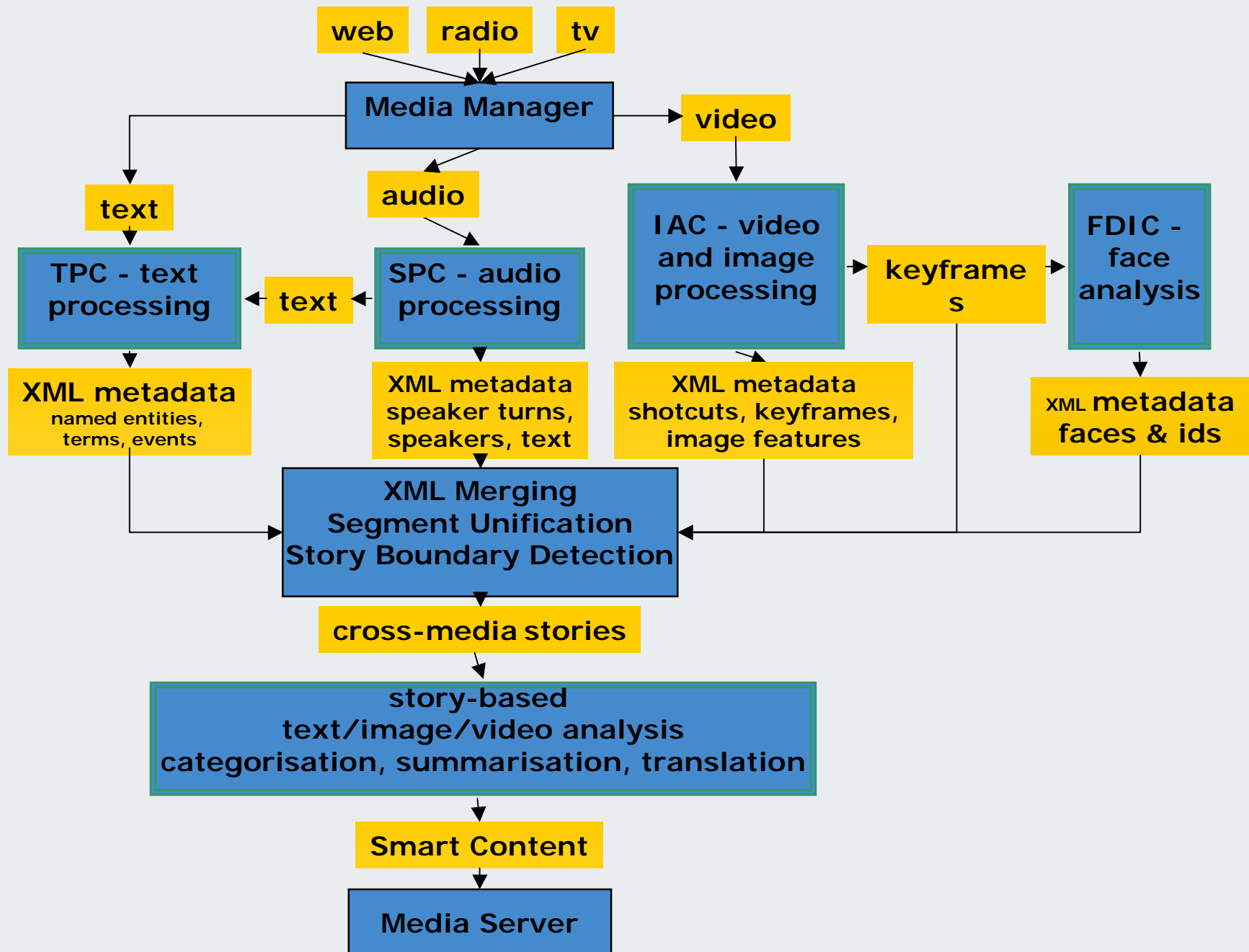
- add to metadata set
- process video and text
- present video+text+audio salient parts using a content/domain specific multimedia discourse grammar

# Cross-mediality in multimedia analysis

referring to different sources of information (radio and web text on same topic) → **across documents**

## Semantic retrieval

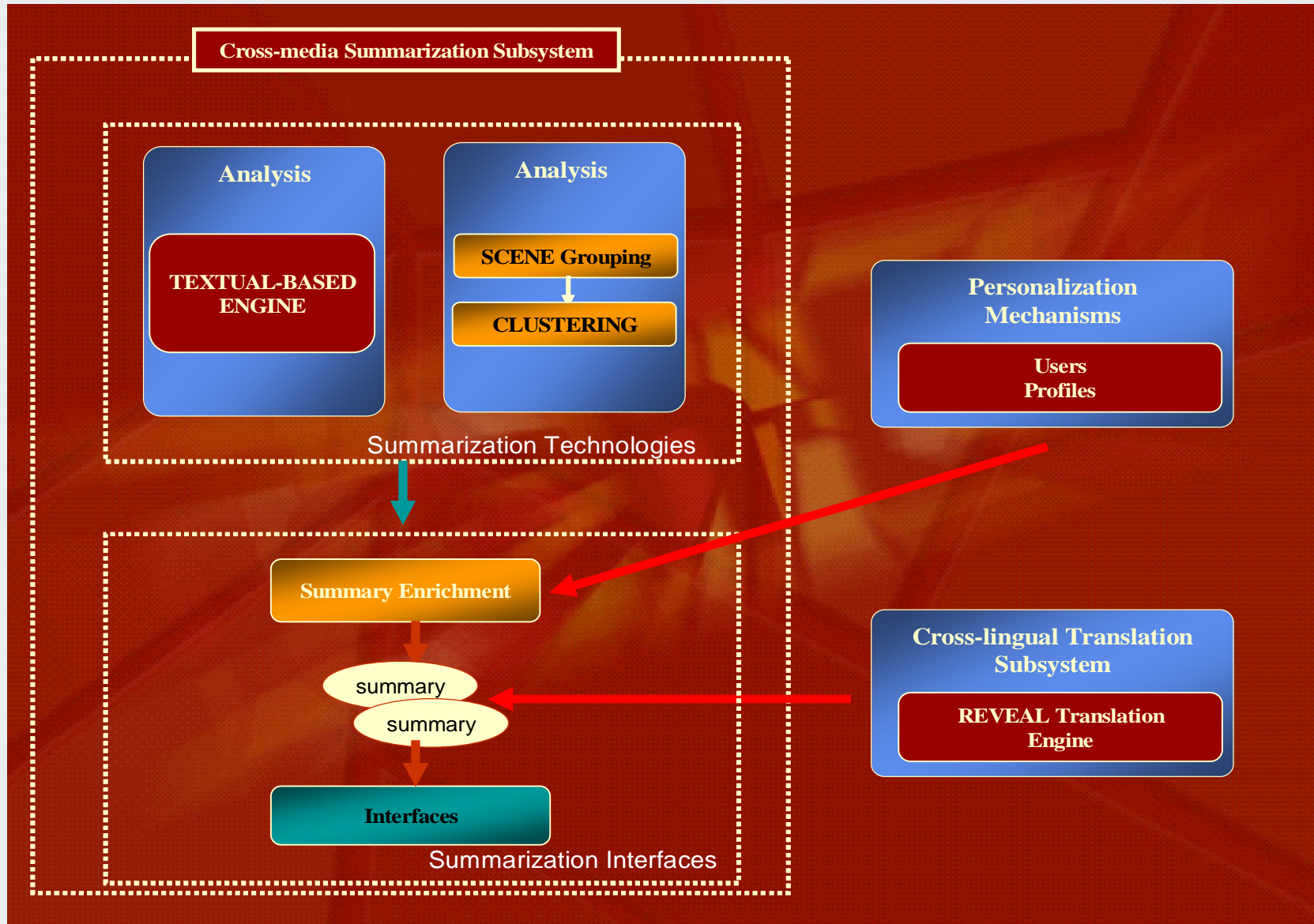
- retrieval of different multimedia documents for a specific query
- multidocument summarisation



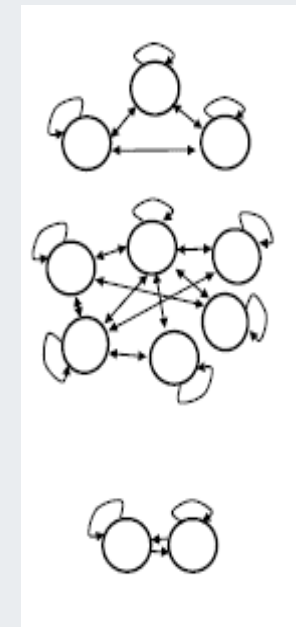
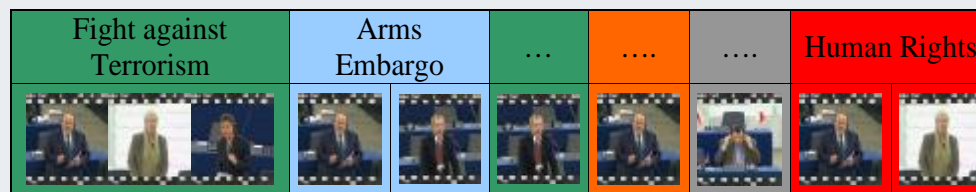
## Examples of multimedia analysis modules in a nutshell

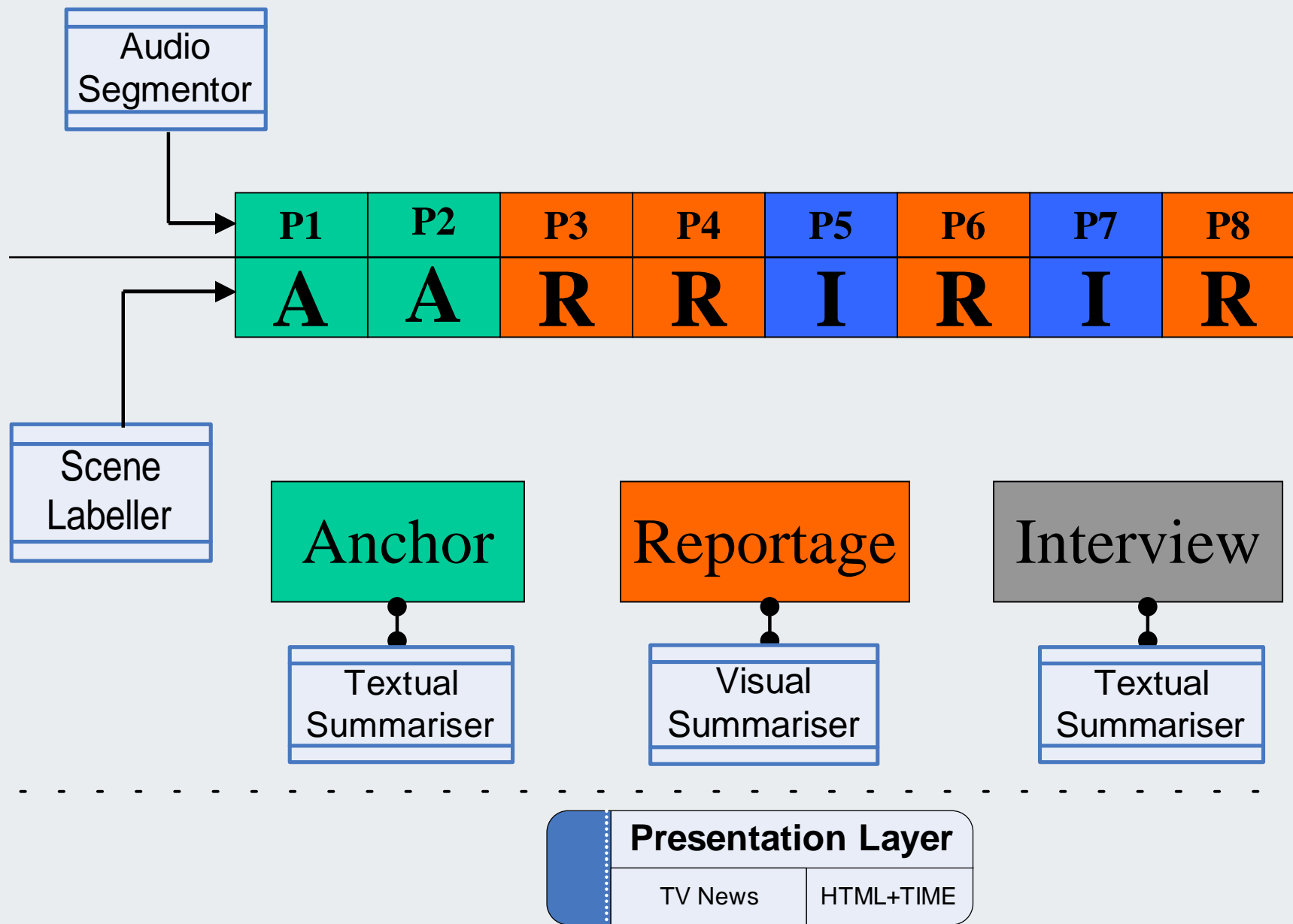
<a href="#"><u>Speech recognition in EN</u></a>	<a href="#"><u>Speech Recognition in EL</u></a>	<a href="#"><u>Image Categorisation</u></a>	<a href="#"><u>Face detection &amp; identification</u></a>
<a href="#"><u>Fact extraction in EN</u></a>	<a href="#"><u>Fact extraction in EL</u></a>	<a href="#"><u>Cross-media indexer</u></a>	<a href="#"><u>Cross-media Categorisation</u></a>
<a href="#"><u>Text summarisation in EN</u></a>	<a href="#"><u>Textual summarisation in EL</u></a>	<a href="#"><u>Scenes and visual summaries</u></a>	<a href="#"><u>Cross-media summaries</u></a>
<a href="#"><u>Query Translation</u></a>	<a href="#"><u>Cross-lingual document translation</u></a>	<a href="#"><u>Retrieving stories</u></a>	www.reveal-this.org

# Cross-media summarisation architecture



# Different domains: different models





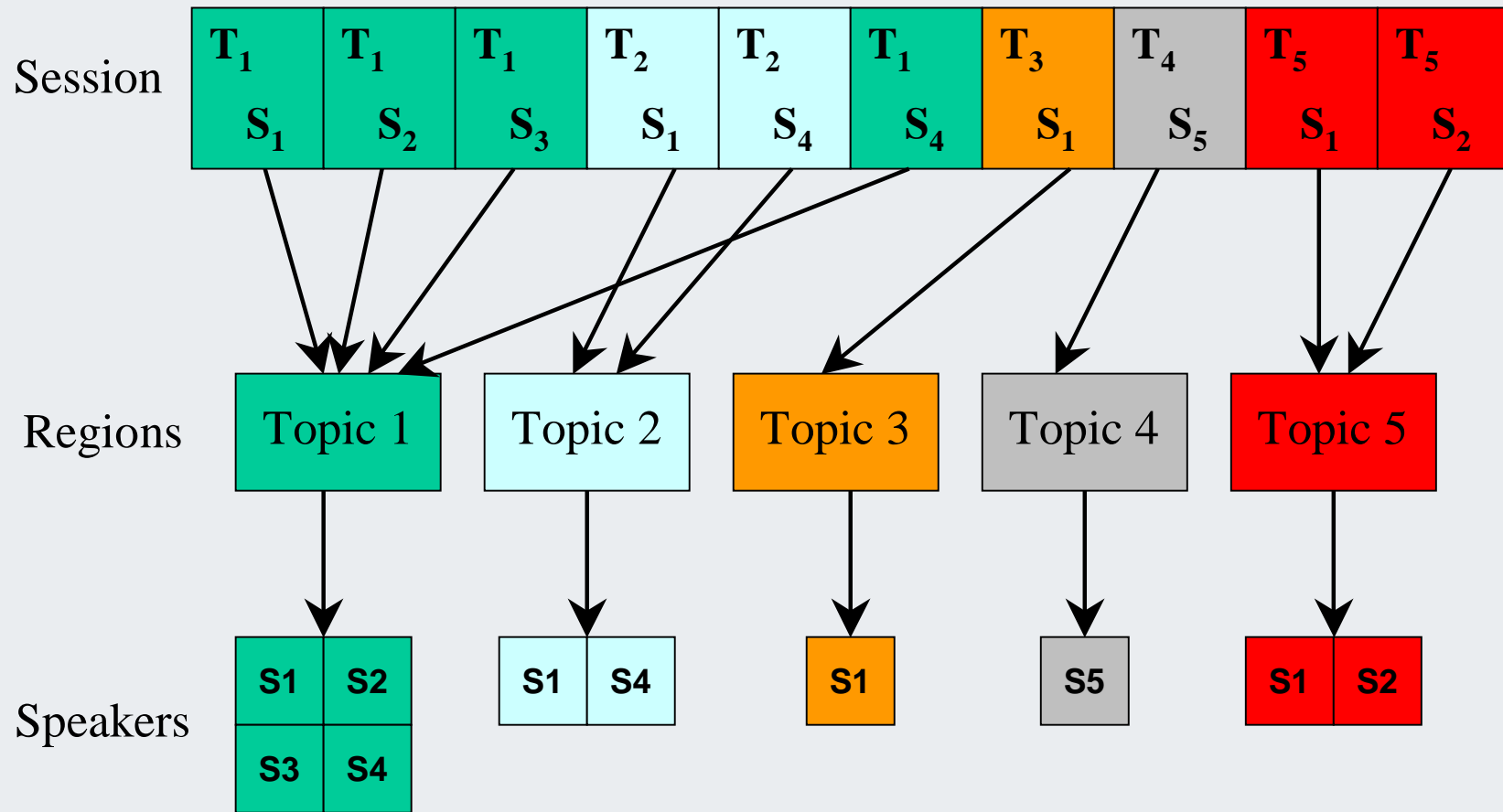
# Euro-Parliament Sessions : media analysis

EbS PLENARY 2005/04/27 15:00





# Euro-Parliament Sessions structure & content

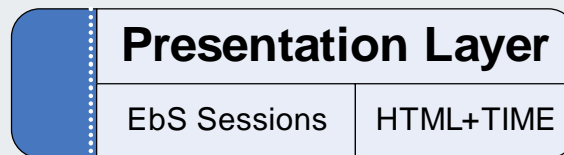
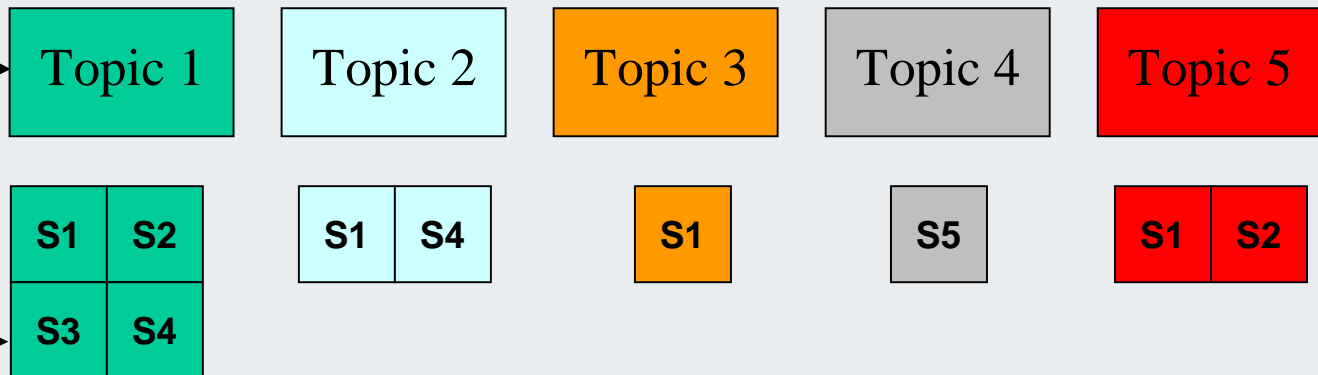


Term  
Extractor

T <sub>1</sub>	T <sub>1</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>5</sub>
S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>1</sub>	S <sub>4</sub>	S <sub>4</sub>	S <sub>1</sub>	S <sub>5</sub>	S <sub>1</sub>	S <sub>2</sub>

Speaker  
Identifier

Textual  
Summariser

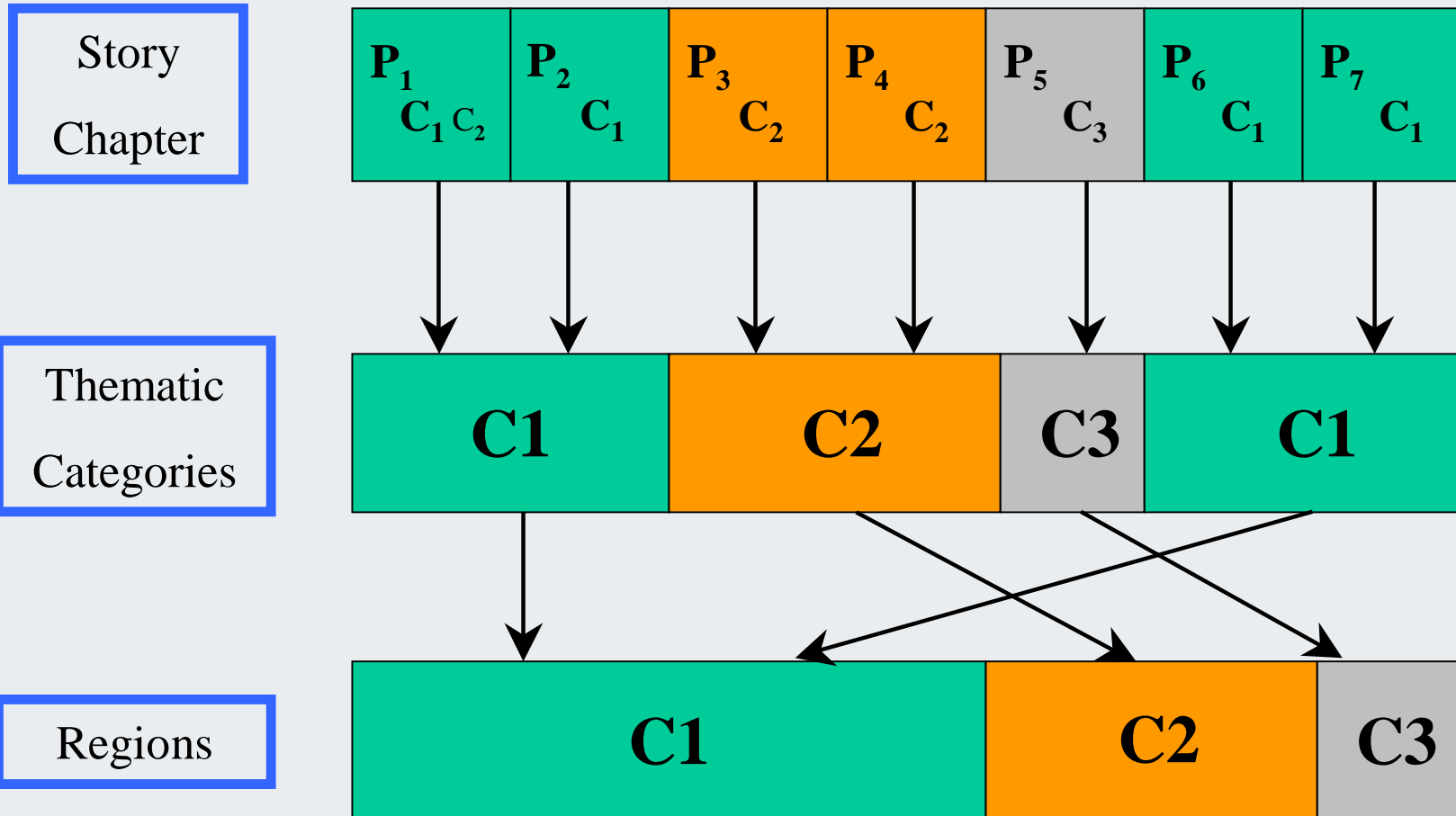


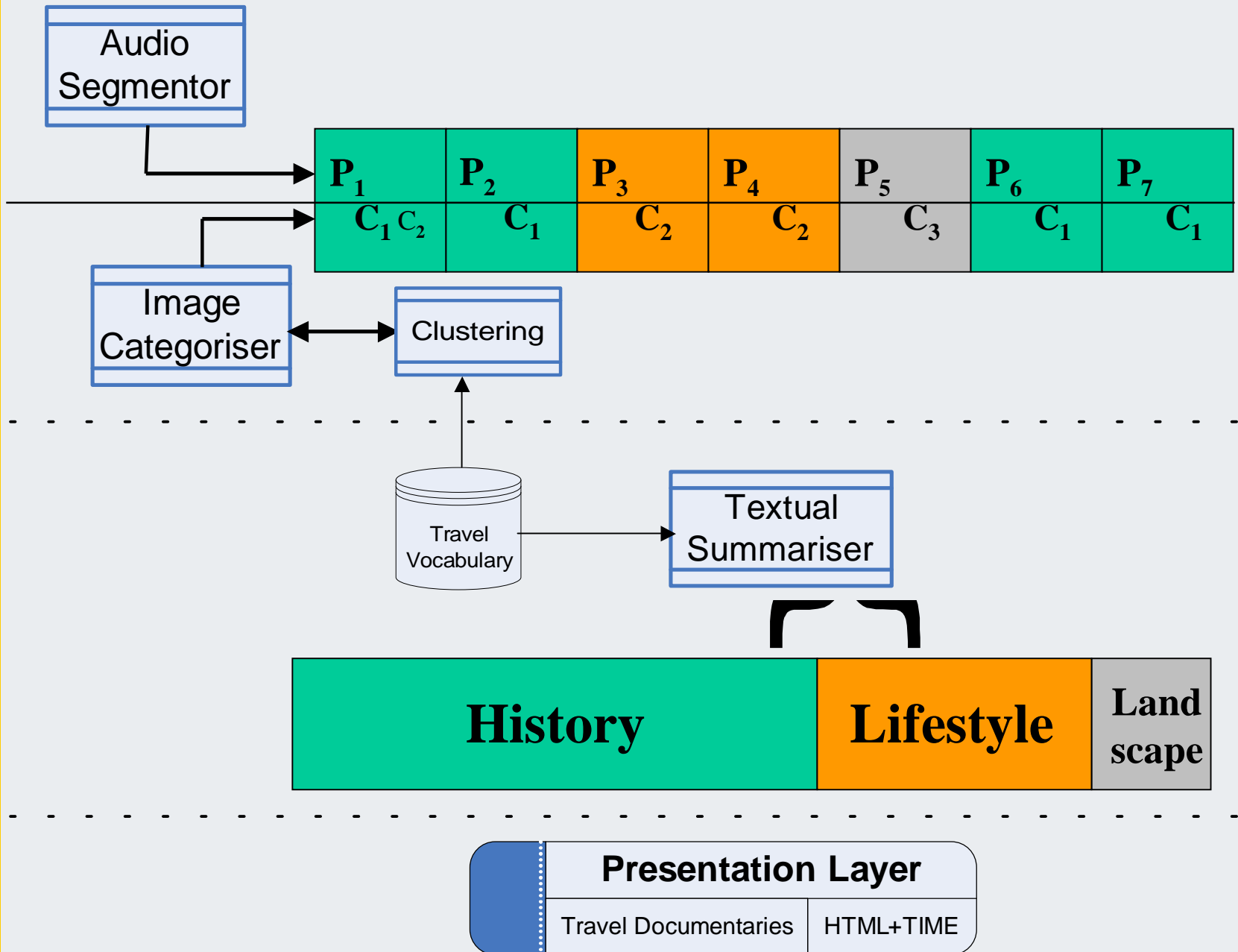
# Travel documentaries: media analysis

BestOfGreece-DG-EN - Chapter: Athens



# Travel documentaries bits and bolts





# Crossing media in the future

- Elaborate crossing media techniques for multimedia authoring and presentation
- Cross-media based indexing and retrieval of multimedia content
- Cross-media analysis for better understanding of communicated messages
- Cross-media methods in robotic and cognitive systems
- Cross-media techniques for better simulation of knowledge and/or language acquisition processes