

**Television Linked To The Web** 



# **Building the future of television**

Lynda Hardman Centrum Wiskunde & Informatica University of Utrecht

www.linkedtv.eu

### **Scenarios and content**



#### **Enriched News**

- Professional news content produced by RBB for general audience
- Iocal news show rbb Aktuell
- People, locations and events can be linked to previous events.

### **Antiques Edutainment**

- Program watched predominantly by 50+ers
- AVRO: Tussen Kunst en Kitsch
- Presenters, locations and objects provide hooks to related materials.







Video object and word detection



"....schilderij van Jan Sluijters...."

## **Concept Detection**



Video object and word detection



....schilderij van Jan Sluijters...."

- Object detection in video
- Face detection
- Text analysis, keyword extraction
- Multilingual automatic speech recognition
- Combining results from different modality analyses
- Speaker identification
- Object re-detection
- Output in XML using OpenSource tool: EXMARaLDA http://www.exmaralda.org/





Video object and word detection

Connection to concepts



"....schilderij van Jan Sluijters...."

dbpedia.org/resource/Jan\_Sluyters

linkedtv.eu

### **Concept connections**







Instructions	>
Select Video Resource	>
Choose Metadata Files	>
RDF Generation	>
Upload Results to Triplestore	>
Queries over the RDF Data	>

### 1. Introduction

Here we present the tool "TV Metadata Generator", developed by Eurecom under the scope of the European Proyect LinkedTV FP7. In a nutshell, this application takes a video and its corresponding metadata files, available in different formats, and produces a RDF representation of the whole information. The knowledge graph obtained as result is suitable to be interlinked with other data in the Web, and allow the execution of complex queries that can bring the viewers a new way of enjoy Television.

### How does it work?





dbpedia.org/resource/Jan\_Sluyters

linkedtv.eu

### **Concept selection**





### How does it work?





dbpedia.org/resource/Jan\_Sluyters

linkedtv.eu

**Example user information needs for news** 



MORE IN DEPTH SPECIFIC INFORMATION

I was wondering just how expensive it is to make all those vaccines, you know? I was just wondering if it is a good idea to even make a lot of it or how hard it is to make.

LOCAL EFFECT OF GLOBAL NEWS – What is the impact in my life?

Yes then I would look it up, what is the effect in the Netherlands... (of the bird flu virus)

• OVERVIEW OF PAST RELATED EVENTS

My search would be something like "South Korea state of war ramp up" (...) I would like to know, what happened two years ago and how they solved it...

### **Content selection**



 Selection based on context of scene, e.g. system knows which topics appear next



Selection of related content

- User preferences, e.g. closely related information to uninteresting topic is less useful
- We need to understand user information needs (per genre), e.g. don't miss important news because of personalisation
- Broadcasters don't want users to drift away from program

### How does it work?







In the show people take art objects with them to be assessed by an expert. The

avrotros

