Semantical interoperability with IMAGINATION content using standardized ontologies

Ontology-Driven Interoperability for Cultural Heritage Objects
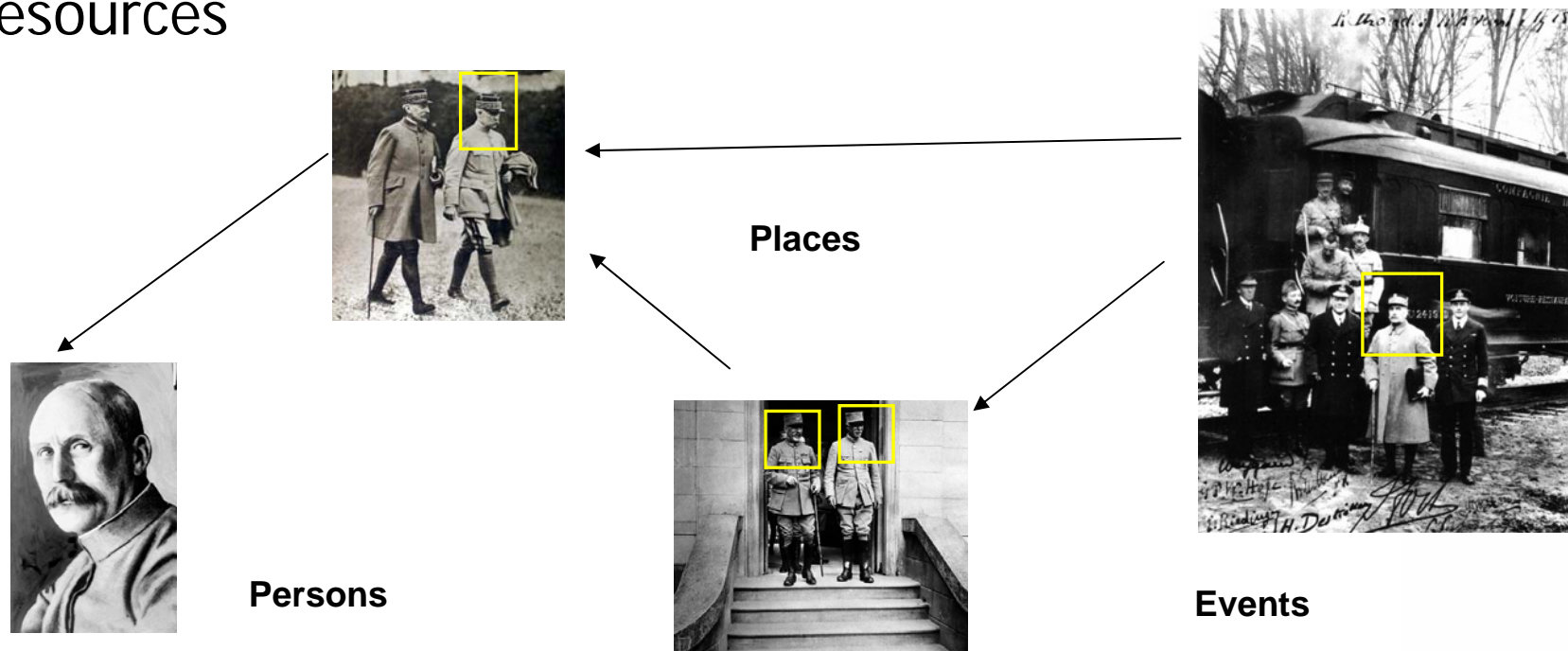
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IMAGINATION: Short Project Description

- ontologies describing the application domains, e.g. *Ferdinand Foch*; Profession: *Marshall*; "participates At" Event: *Sign of armistice at Compiegne* in domain *first world war*
- image-based navigation for digital cultural and scientific resources

Places

Persons

Events

Our requirements for semantical interoperability

Exchange of

- Technical information
  - Locations and names of images
  - Coordinates of interesting image regions

- Textual and semantic metadata (scoring)
  - Textual: descriptions, creation date, owner information
  - **Very uncommon:** Semantic metadata for image regions

- Concepts and Instances of the domain specific ontologies
  - Used in semantic metadata
  - Domains: first world war and Eu politics

Usage of FRBR for IMAGINATION

- Exchange of technical information
  - Locations and names of images: possible
    (but focus of FRBR is for physical existing books not on URLs)
  - Image regions: not possible
- Textual and semantic metadata
  - Textual metadata: possible (also required in bibliographic content)
  - Semantic metadata: not possible
- Concepts and Instances of the domain specific ontologies
  - Exchange of our domain ontologies: not possible
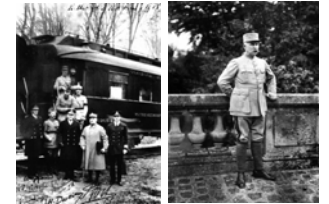
Usage of MPEG-7 for IMAGINATION

- Exchange of technical information
  - Locations and names of images: possible
  - Image regions: possible

- Textual and semantic metadata
  - Textual metadata: possible
  - Semantic metadata: not possible

- Concepts and Instances of the domain specific ontologies
  - Exchange of our domain ontologies: MPEG-7 seemed very restrictive

CIDOC-CRM

- CIDOC-CRM: conceptual ontology
  - Concepts for Persons, Events, Places, Man made things
  - Relations between Persons, Events and Places

Usage of CIDOC-CRM in IMAGINATION

- Usage of needed and available concepts and relations
- Extension of them where necessary
- ⇒ **Allows semantical interoperability of our domain ontologies**

Problems:

Exchange of technical information, especially image regions

Conclusions

- For all three ontologies for semantic interoperability:
  - Each alone cannot fulfil all requirements for IMAGINATIOn

- But:
  - Combination of CIDOC-CRM (concepts) and MPEG-7 (technical information, image regions) could fulfil all requirements

End of presentation