Creating and Visualising Semantic Story Maps

Valentina Bartalesi

ISTI-CNR, Pisa, Italy

Abstract

A narrative is a conceptual basis of collective human understanding. Humans use stories to represent characters' intentions, feelings and the attributes of objects, and events. A widely-held thesis in psychology to justify the centrality of narrative in human life is that humans make sense of reality by structuring events into narratives. Therefore, narratives are central to human activity in cultural, scientific, and social areas. Story maps are computer science realizations of narratives based on maps. They are online interactive maps enriched with text, pictures, videos, and other multimedia information, whose aim is to tell a story over a territory. This talk presents a semi-automatic workflow that, using a CRM-based ontology and the Semantic Web technologies, produces semantic narratives in the form of story maps (and timelines as an alternative representation) from textual documents. An expert user first assembles one territory-contextual document containing text and images. Then, automatic processes use natural language processing and Wikidata services to (i) extract entities and geospatial points of interest associated with the territory, (ii) assemble a logically-ordered sequence of events that constitute the narrative, enriched with entities and images, and (iii) openly publish online semantic story maps and an interoperable Linked Open Data-compliant knowledge base for event exploration and inter-story correlation analyses. Once the story maps are published, the users can review them through a user-friendly web tool. Overall, our workflow complies with Open Science directives of open publication and multi-discipline support and is appropriate to convey "information going beyond the map" to scientists and the large public. As demonstrations, the talk will show workflow-produced story maps to represent (i) 23 European rural areas across 16 countries, their value chains and territories, (ii) a Medieval journey, (iii) the history of the legends, biological investigations, and AI-based modelling for habitat discovery of the giant squid Architeuthis dux.

Short Bio

Valentina Bartalesi Lenzi is a researcher at the CNR-ISTI and external professor of Semantic Web in the Computer Science master's degree course at the University of Pisa. She earned her PhD in Information Engineering from the University of Pisa and graduated in Digital Humanities from the University of Pisa. Her research fields mainly concern Knowledge Representation, Semantic Web technologies, and the development of formal ontologies for representing textual content and narratives. She has participated in several European and National research projects, including MINGEI, PARTHENOS, E-RIHS PP, IMAGO. She is the author of over 50 peer-reviewed articles in national and international conferences and scientific journals.