

Temporal hints in the cultural heritage discourse: what can an ontology of time *as it is worded* reveal?

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Abstract. Time is an indispensable component of CH information: implementing appropriate knowledge models carry crucial importance in order to provide deeper understanding of heritage elements' evolution, to uncover concurrences, and to weigh *quality* factors. It is a challenging task though due to the uncertain characteristics of temporal data, and to the *wording of time* in the CH discourse. Existing KR models are either not designed for these distinctive characteristics, or spatial aspects tend to upstage the temporal dimension. This research aims at deciphering and proposing a formal representation of the way temporal hints are formalized in historical narratives. An OWL ontology is introduced that provides a core support mechanism allowing for a semantic representation of temporal statements, and for structural analysis. The objective is to facilitate the cross-examination of temporal hints in and across CH collections so that specialists can have extensive *reading* possibilities of heritage information.

1 Introduction

As pointed out by Jurisica et al. (2004), with more and more computer-readable pieces of information, analysts today need to rethink their knowledge extraction strategies. Ontologies offer significant capabilities for knowledge management, especially in large volumes of information (Davies et al., 2003) by providing controlled and consistent vocabularies defined as a set of representational primitives (information types, their properties and relationships) coherent with the meanings and constraints in a domain of knowledge (Gruber, 1993).

On the other hand, *time* is a feature that appears in many pieces of information (Faucher et al., 2010), and ontologies of time can be of concern for various disciplines. In this research, we focus on the concept of time in the *cultural heritage* (CH) discourse: temporal aspects are there an inseparable and central role-player for historical analysis, and in any reasoning task performed on the evolution, transformation, reuse, status of heritage assets. But in the CH discourse past events or facts anchored in time in a large variety of forms (e.g., [...] it goes back to the second half of the 13th or 14th Century, [...] after the Revolution, etc.). These wordings do not fit into "classical" quantification systems such as date formats in DB management systems (e.g., "1942-03-19").