

Conceptualization and Non-Relational Implementation of Ontological and Epistemic Vagueness of Information in Digital Humanities

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Tipo Artículo de revista

Fonte  [Informatics](#), mdpi, Vol. 6, No. 2, pp. 20 , 2019.

ISSN 2227-9709

DOI <https://doi.org/10.3390/informatics6020020>

Abstract Research in the digital humanities often involves vague information, either because our objects of study lack clearly defined boundaries, or because our knowledge about them is incomplete or hypothetical, which is especially true in disciplines about our past (such as history, archaeology, and classical studies). Most techniques used to represent data vagueness emerged from natural sciences, and lack the expressiveness that would be ideal for humanistic contexts. Building on previous work, we present here a conceptual framework based on the ConML modelling language for the expression of information vagueness in digital humanities. In addition, we propose an implementation on non-relational data stores, which are becoming popular within the digital humanities. Having clear implementation guidelines allow us to employ search engines or big data systems (commonly implemented using non-relational approaches) to handle the vague aspects of information. The proposed implementation guidelines have been validated in practice, and show how we can query a vagueness-aware system without a large penalty in analytical and processing power.

Palabras chave vagueness; non-relational databases; conceptual modelling; imprecision; uncertainty; knowledge representation; digital humanities; ConML

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