Qualifying and Quantifying Uncertainty in Digital Humanities: A Fuzzy-Logic Approach

Título Qualifying and Quantifying Uncertainty in Digital Humanities: A Fuzzy-Logic Approach

Autores Patricia Martin-Rodilla, Martin Pereira-Fariña, Cesar Gonzalez-Perez

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Abstract Research in digital humanities involves the need for conscious and explicit handling of data uncertainty. Recently, some initiatives have highlighted the importance of considering this uncertainty from the conceptual model to the final phases of implementation of software tools. Although the conceptual proposals for handling data uncertainty in the humanities have proliferated successfully, there is still a gap in bringing these proposals to actual implementations of software systems, especially due to the need to quantify this uncertainty and adopt more analytical paradigms based on margins of error, away from the conceptualization of data in the humanities. Trying to close this gap and avoid these paradigms, this paper presents a framework based on fuzzy logic that implements aspects of epistemic uncertainty (uncertainty related to our knowledge about the object of study) in digital humanities, providing algebraic and computational support to implementation. The framework proposes a solution to implement software systems that manage epistemic uncertainty, allowing comparisons, aggregations or reasoning with various levels of uncertainty in humanistic data. The solution is implemented in a real digital humanities project, illustrating its possibilities.

Palabras chave Uncertainty, Fuzziness, Imprecision, Digital Humanities, Fuzzy Logic, Knowledge representation, Conceptual modelling, ConML.

DESCARGAS

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