

Enriching linguistic descriptions of data: A framework for composite protoforms

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Autores A. Ramos-Soto, P. Martín-Rodilla

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Abstract One of the current limitations of fuzzy linguistic descriptions of data is the lack of diversity of protoforms that can be used to linguistically summarize data. Despite an important effort in providing protoforms with improved semantics that are applicable to time series data or specific application domains, type-I and type-II fuzzy quantified sentences are still predominant in the literature. In this context, we propose a different approach for defining new types of protoforms. Instead of understanding protoforms as individual primitives, our proposal draws inspiration from Rhetorical Structure Theory to provide a framework that allows to define new types of complex protoforms based on semantic relations among simpler protoforms. Based on this framework, we propose an initial taxonomy of relations among protoforms and provide an illustrative use case based on real data and evaluated by human users.

Palabras clave Fuzzy sets, Computing with words, Linguistic descriptions of data, Natural language generation, Rhetorical structure theory

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