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ABSTRACT

Part-whole relation (PWR), as a fundamental element to model the real world, has long been concerned by researchers and practitioners. Theoretical work has been undertaken to develop the classifications of distinct types of part-whole relations (PWRs) and their properties in an attempt to clarify their semantics. There is no empirical evaluation, however, that supports whether it is necessary to specify distinct types of PWRs and their properties in conceptual modeling. In this light, this study first designs a specific representation of PWRs through a systematic review of the literature, and then by employing the theory of ontological clarity and the theory of cognitive fit, empirically compares its performance with that of conventional representation of PWRs. The findings are expected to enrich the growing body of knowledge that supports the usefulness of ontological and cognitive theories, and provide empirical evidence regarding how to model the PWRs for practitioners.

Keywords

Conceptual modeling, PWRs, construct deficit, ontology.