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NFDIcore: A BFO Compliant Ontology for Cross-Domain Research Data and its Related Modular Domain Ontologies for NFDI4Culture and NFDI-MatWerk

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Each NFDI consortium works on establishing research data infrastructures tailored to its specific domain. To facilitate interoperability across different domains and consortia, the NFDIcore ontology was developed and serves as a mid level ontology for representing metadata about NFDI resources such as individuals, organizations, projects, and data portals [1]. The NFDIcore ontology has been created to provide a structured framework that enables efficient management, organization, and interconnection of research data across various disciplines. By adhering to established data standards, the ontology facilitates the accessibility, sharing, and reuse of research data in a consistent and sustainable manner. NFDIcore is built upon the Basic Formal Ontology (BFO) and contains mappings to further standards, e.g. schema.org. To address domain-specific research questions, NFDIcore serves as the basis for various application and domain ontologies, which extend its core structure in a modular fashion. Examples include the NFDI4Culture Ontology (CTO)[2], NFDI MatWerk Ontology (MWO)[3], NFDI4Memory Ontology (MEMO), and NFDI4DataScience Ontology (DSO)[4], each tailored to specific research fields while ensuring semantic interoperability. CTO is designed to represent and categorize resources within the NFDI4Culture domain, which encompasses five academic disciplines: Architecture, Musicology, Art History, Media Science, and the Performing Arts. CTO defines classes and properties that address domain-specific research questions, connect diverse cultural entities, and facilitate the efficient organization, retrieval, and analysis of cultural data. Also with regard to research data in the domain of Materials Science and Engineering (MSE), the MWO addresses several key aspects. It focuses on the NFDI MatWek community structure, encompassing task areas, infrastructure use cases, participating projects, researchers, and organizations. Additionally, it describes various NFDI resources, including software, workflows, ontologies, publications, datasets, metadata schemas, instruments, facilities, and educational resources. Furthermore, the MWO represents NFDI MatWerk services and highlights related academic events, courses, and international collaborations.
[1] https://ise-fizkarlsruhe.github.io/nfdicore/docs/
[2] https://gitlab.rlp.net/adwmainz/nfdi4culture/knowledge-graph/culture-ontology
[3] https://nfdi-matwerk.pages.rwth-aachen.de/ta-oms/mwo/docs/index.html
[4] https://arxiv.org/abs/2408.08698

I want to participate in the youngRSE prize

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