

ISO/IEC 21838-2:2021-11 (E)

Information technology - Top-level ontologies (TLO) - Part 2: Basic Formal Ontology (BFO)

| Contents | | Page |
|--------------------|---|-------------|
| Foreword | | v |
| Introduction | | vi |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms and definitions | 1 |
| 4 | Conformity of BFO-2020 to ISO/IEC 21838-1 | 3 |
| 4.1 | Overview | 3 |
| 4.2 | Natural language representation of BFO-2020 | 3 |
| 4.3 | OWL 2 formalization of BFO-2020 | 3 |
| 4.4 | Common Logic axiomatization of BFO-2020 | 3 |
| 4.4.1 | General | 3 |
| 4.4.2 | Modularity | 4 |
| 4.5 | Specification of the purpose of BFO (in conformance with ISO/IEC 21838-1:2021, 4.4.2) | 4 |
| 4.5.1 | General | 4 |
| 4.5.2 | Example Open Biomedical Ontologies (OBO) | 4 |
| 4.5.3 | Example Common Core Ontologies (CCO) | 4 |
| 4.6 | Description of how conformance of a domain ontology to BFO is established (in conformance with ISO/IEC 21838-1:2021, 4.4.3) | 5 |
| 4.6.1 | Overview | 5 |
| 4.6.2 | Conformance through direct extension | 5 |
| 4.6.3 | Conformance through indirect extension | 6 |
| 4.6.4 | Conformance through re-engineering | 6 |
| 4.6.5 | Validating conformance to BFO | 6 |
| 4.7 | Specification of how consistency of the CL axiomatization of BFO-2020 is demonstrated (in conformance with ISO/IEC 21838-1:2021, 4.4.4) | 6 |
| 4.7.1 | Overview | 6 |
| 4.7.2 | Documentation | 7 |
| 4.7.3 | Structure of the model | 7 |
| 4.8 | Description of how interpretability of the OWL 2 axiomatization of BFO-2020 in the CL axiomatization is established (in conformance with ISO/IEC 21838-1:2021, 4.4.5) | 7 |
| 4.8.1 | Interpretability proof strategy for BFO-2020-OWL | 7 |
| 4.8.2 | Interpretability for alternative axiomatizations of BFO-2020 | 8 |
| 4.9 | Demonstration of breadth of coverage of BFO (in conformance with with ISO/IEC 21838-1:2021, 4.4.6) | 9 |
| 4.9.1 | General | 9 |
| 4.9.2 | Space and time | 9 |
| 4.9.3 | Actuality and possibility | 9 |
| 4.9.4 | Classes and types | 9 |
| 4.9.5 | Change over time | 9 |
| 4.9.6 | Parts, wholes, unity and boundaries | 10 |
| 4.9.7 | Space and place | 10 |
| 4.9.8 | Scale and granularity | 10 |
| 4.9.9 | Qualities and other attributes | 10 |
| 4.9.10 | Quantities and mathematical entities | 10 |
| 4.9.11 | Processes and events | 11 |
| 4.9.12 | Constitution | 11 |

| | | |
|--------|---|----|
| 4.9.13 | Causality | 11 |
| 4.9.14 | Information and reference | 11 |
| 4.9.15 | Artefacts and socially constructed entities | 11 |
| 4.9.16 | Mental entities; imagined entities; fiction; mythology; religion | 12 |
| 4.10 | Documentation of ontology management principles (in conformance with ISO/ IEC 21838-1:2021, 4.4.8) | 12 |
| | Bibliography | 13 |