1.3 Ontology Analysis Project

Fatima Jangda
Student ID: 1006293761
utorID: jangdafa
MIE457

February 16, 2024

1. Axioms

The two ontologies in my project are:

1. https://github.com/gruninger/colore/blob/master/ontologies/tripartite_incidence/nonisolated_plane.clif
2. https://github.com/gruninger/colore/blob/master/ontologies/tripartite_incidence/strong_nonisolated_line.clif

which are expanded in the nonisolated_plane.clif and strong_nonisolated_line.clif files respectively. The Prover9 translations of the ontologies are in the files nonisolated_plane.in and strong_nonisolated_line.in.

2. Consistency

Each of the ontologies is consistent, since we are able to construct models for them using Mace4.

A model for nonisolated_plane.in can be found in nonisolated_plane.model:

$$M = \{0, 1, 2\}$$
$$\text{point} = \{\langle 0\rangle\}$$
$$\text{line} = \{\langle 1\rangle\}$$
$$\text{plane} = \{\langle 2\rangle\}$$
$$\text{in} = \{\langle 0,0\rangle, \langle 0,1\rangle, \langle 1,0\rangle, \langle 1,1\rangle, \langle 2,2\rangle\}$$

and a model for strong_nonisolated_line.in can be found in strong_nonisolated_line.model:

$$M = \{0, 1, 2\}$$
$$\text{point} = \{\langle 0\rangle\}$$
$$\text{line} = \{\langle 1\rangle\}$$
$$\text{plane} = \{\langle 2\rangle\}$$
$$\text{in} = \{\langle 0,0\rangle, \langle 0,1\rangle, \langle 0,2\rangle, \langle 1,0\rangle, \langle 1,1\rangle, \langle 1,2\rangle, \langle 2,0\rangle, \langle 2,1\rangle, \langle 2,2\rangle\}$$

3. Complete Listing of Files

1. nonisolated_plane.clif
2. nonisolated_plane.in
3. nonisolated_plane.model
4. strong_nonisolated_line.clif
5. strong_nonisolated_line.in
6. strong_nonisolated_line.model