# 1.4 Ontology Analysis Project

Fatima Jangda

Student ID: 1006293761 utorID: jangdafa MIE457

March 5, 2024

# Axioms

The two ontologies in my project are:

* 1. [https://github.com/gruninger/colore/blob/master/ontologies/tripartite\_incidence/nonisolat](https://github.com/gruninger/colore/blob/master/ontologies/tripartite_incidence/nonisolated_plane.clif) [ed\_plane.clif](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\_n](https://github.com/gruninger/colore/blob/master/ontologies/tripartite_incidence/strong_nonisolated_line.clif) [onisolated\_line.clif](https://github.com/gruninger/colore/blob/master/ontologies/tripartite_incidence/strong_nonisolated_line.clif)

The combined ontologies are found in *combined\_ontologies.in*. All redundant axioms were eliminated (8 similar axioms) for a total of 9 distinct axioms in the new file.

# Mutual Consistency

These two ontologies are mutually consistent, since Prover9 cannot generate a proof for an empty goal of the combined ontology, and Mace4 can generate a model of the combined ontology:

A model for the combined ontology can be found in *combined\_ontologies.model*:

𝑀 = {0, 1, 2}

point = {〈0〉} line = {〈1〉} plane = {〈2〉}

in = {〈0, 0〉, 〈0, 1〉, 〈0, 2〉, 〈1, 0〉, 〈1, 1〉, 〈1, 2〉, 〈2, 0〉, 〈2, 1〉, 〈2, 2〉}

# Complete Listing of Files

* 1. nonisolated\_plane.in
  2. strong\_nonisolated\_line.in
  3. combined\_ontologies.in
  4. combined\_ontologies.model