

ONTOGEOLOGICAL-GS: IMPLEMENTATION OF AN ONTOLOGY FOR THE GEOLOGIC STRUCTURES FROM THE IUGS CGI AND INSPIRE STANDARDS

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INTRODUCTION TO THE RESEARCH PROBLEM

GeologicStructure is a GeoScienceML concept, adopted as a class in the OntoGeonous ontology. It is subclass of GeologicFeature; it has three sibling classes and has 8 subclasses. During the encoding of its subclasses, the NonDirectionalStructure and FoldSystem class brought us to develop new classes and taxonomy to fit with the axioms of the other classes.

In the BLUE circle, there are the novelties introduced with the encoding of the NonDirectionalStructure class;

In the YELLOW circle, there are the novelties introduced by the encoding of the FoldSystem class; The final taxonomy with the new classes, result of the encoding of both the classes, is resumed in the GREEN circle.



ENCODING OF NONDIRECTIONAL STRUCTURE CLASS

ENCODING OF FOLDSYSTEM CLASS

NonDirectional Structure

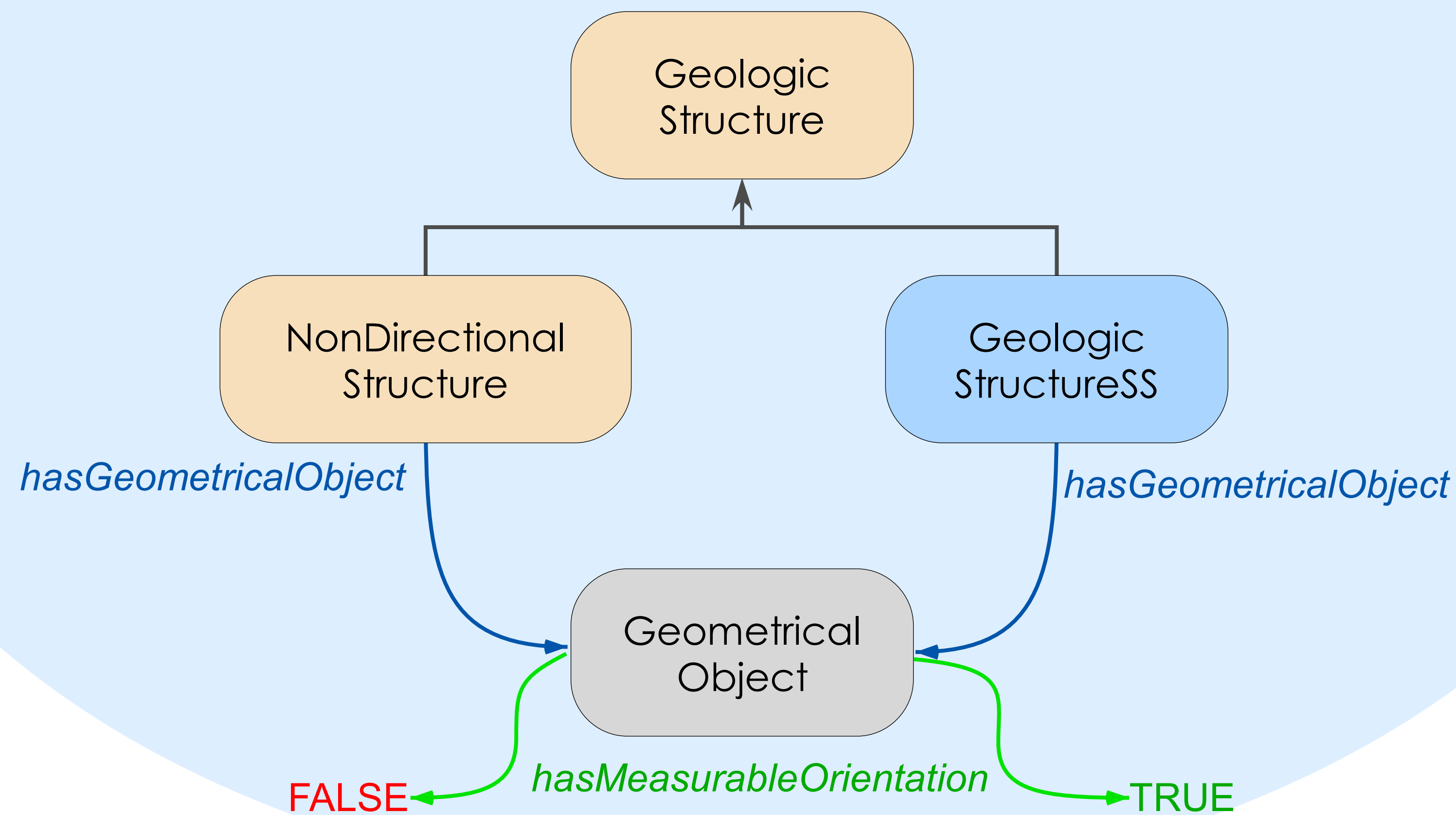
Geologic Association

NEW TAXONOMY

NON DIRECTIONAL STRUCTURE VS GEOLOGIC STRUCTURE SS:

Geologic Structure SS was born to create an opposite class to the NonDirectionalStructure class.

DISTINCTIVE PROPERTY: has a geometrical object which has or has not a measurable orientation



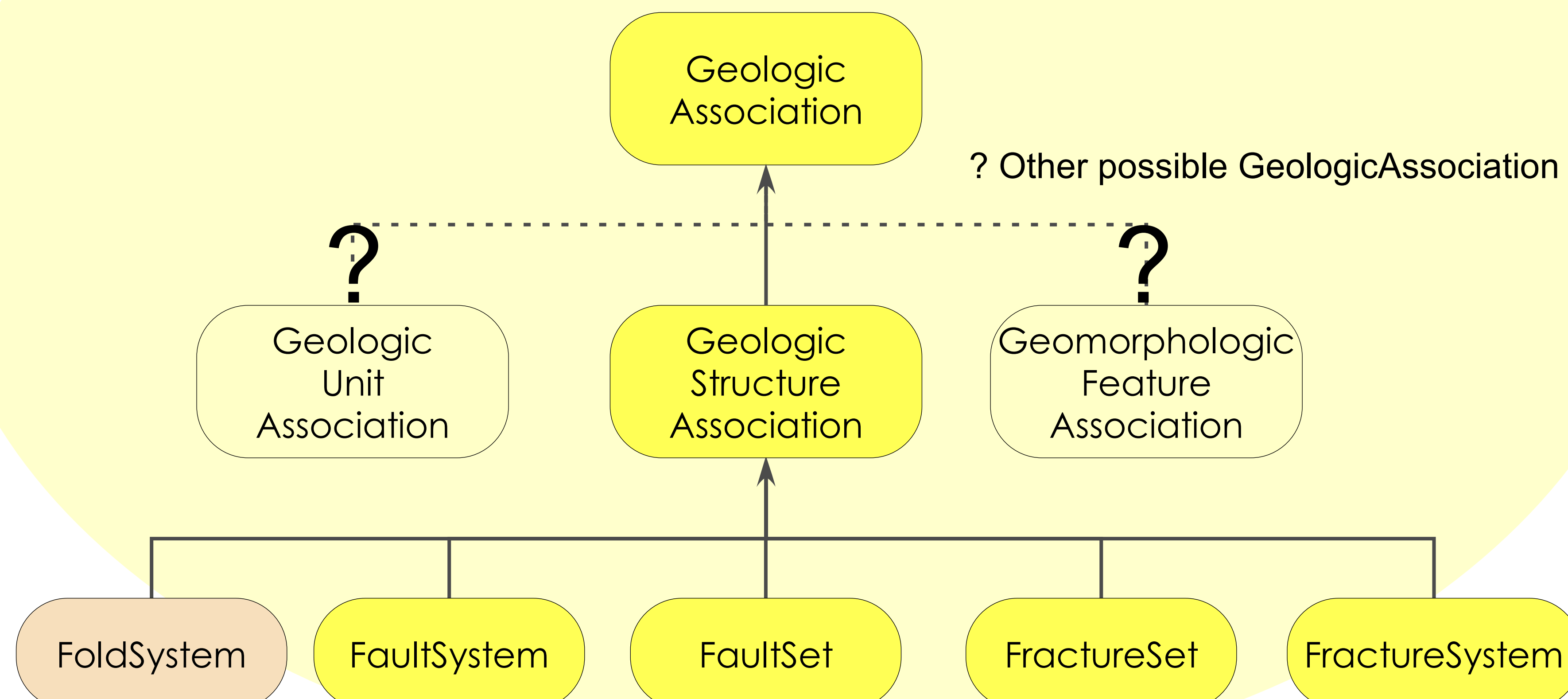
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A new class born from the analysis of the fold system class

GeoSciML 4.1: A FoldSystem is a collection of congruent folds (axis and axial surface are parallel) produced by the same tectonic event. It is sometimes referred to as a "fold train"

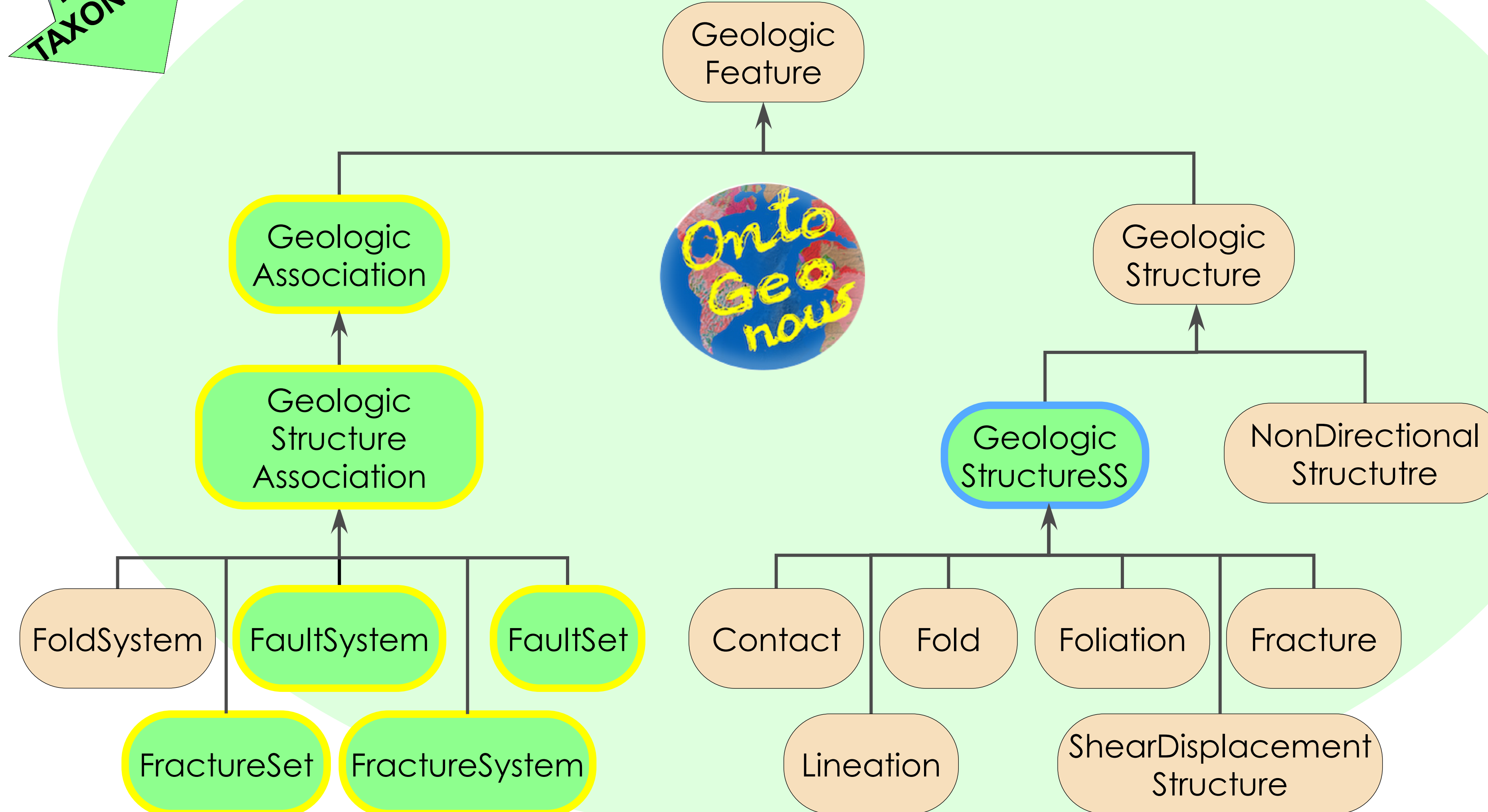
ALSO APPLICABLE TO FAULT AND FRACTURE!

We mean "congruent" as geometrically coherent



SOLUTION: NEW CLASSES AND NEW TAXONOMY

This is the new taxonomy of the classes; the new classes are in green, while the "old" classes are in pink. Some of the classes held the previous order in the taxonomy, some others changed position.



SEE https://www.di.unito.it/wikigeo/index.php?title=Pagina_principale FOR THE AXIOMS