#### S20 Rigid Physical Feature

Subclass of: E26 Physical Feature

E53 Place

Superclass of: E25 Man-Made Feature

E27 Site

S22 Segment of Matter

Equivalent to: E26Physical Feature (CIDOC-CRM) (CB: it should not be equivalent see the notes from the minutes before)

Scope Note: This class comprises physical features with the following characteristics. Any instance of this class is physically attached in an integral way to particular physical object, and has a stability of form in itself and with respect to the physical object bearing it, in such a way that it is sufficient to associate a permanent reference space within which its form is invariant and at rest.

Due to this stability of form, the maximal real volume in space that an instance of S20 Rigid Physical Feature occupies at some time within its existence with respect to the default reference space relative to which the feature is at rest defines uniquely a place for the feature with respect to its surrounding matter.

Therefore we model S20 Rigid Physical Feature as a subclass of E26 Physical Feature and of E53 Place. The latter is intended as a phenomenal place as defined in CRMgeo (Doerr and Hiebel 2013). By virtue of this multiple inheritance we can discuss positions relative to the extent of an instance of S20 Rigid Physical Feature without representing each instance of it together with an instance of its associated place. This model combines two quite different kinds of substance: an instance of E26 Physical Feature and of E53 Place. It is an aggregation of points in a geometric space. However, since the identity and existence of this place depends uniquely on the identity of the instance of S20 Rigid Physical Feature as matter, this multiple inheritance is unambiguous and effective and furthermore corresponds to the intuitions of natural language. It shortcuts an implicit self-referential path from E26 Physical Feature through *P156 occupies,* E53 Place, *P157 is at rest relative to* E26 Physical Feature.

In cases of instances of S20 Rigid Physical Feature on or in the surface of earth, the default reference is typically fixed to the closer environment of the tectonic plate or sea floor. In cases of features on mobile objects, the reference space is typically fixed to the geometry of the bearing object. Note that the reference space associated with the instance of S20 Rigid Physical Feature may quite well be deformed over time, as long the continuity of its topology does not become unclear, such as the compression of dinosaur bones in geological layers, or the distortions of the hull of a ship by the waves of the sea. Defined in this way, the reference space can be used as a means to infer from current topological relationships past topological relationships of interest.

Examples:

  the temple in Abu Simbel before its removal, which was carved out of solid rock

  Albrecht Duerer's signature on his painting of Charles the Great

  the damaged nose of the Great Sphinx in Giza

  The bones of the Ichtyosaur in Holzmaden, Germany.

  The “Schliemann cut” in Troy

Decision: homework assigned to SS and MD for reworking