

XML / GML Objects in S-100

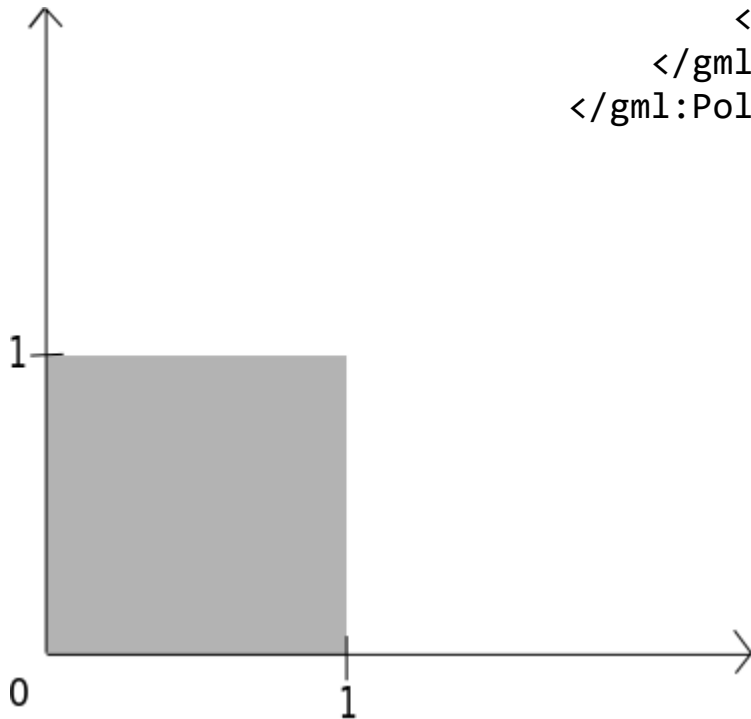
Use of GML within CATALOG.XML

- CATALOG.XML (exchange set catalogue) under Part 17 has its own schema. The schema includes GML Schemas (from ISO) for elements defining dataset coverage. These are fixed.
- GML Schemas (mostly under NIPWG product specifications) also include the same ISO GML Schemas for geometry elements. Also fixed.
- The ISO GML Schemas allow a full range of GML geometries to be used within elements in S-100 schemas.
- The CATALOG.XML is a mixture of S-100 bespoke XML and included GML. NIPWG datasets are GML documents which conform to the S-100 GML profile.

```

<?xml version="1.0"?>
<gml:Polygon xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.opengis.net/gml/3.2
    http://schemas.opengis.net/gml/3.2.1/gml.xsd"
  gml:id="ID1">
  <gml:exterior>
    <gml:LinearRing>
      <gml:posList>0 0 0 1 1 1 1 0 0 0</gml:posList>
    </gml:LinearRing>
  </gml:exterior>
</gml:Polygon>

```



How many ways are there of representing a “polygon” in GML?

- Linear Ring -> PosList
- Exterior ring -> Linear Ring -> PosList
- an exterior containing 5 Linear Rings, each with a point in them
- A GML rectangle
- An exterior composed of a Linear Ring with a single curveMember and LineString..
- ... [ad infinitum]

Representation of Coverage Polygons

- There is an almost infinite number of ways of representing a Polygon using GML. In order to simplify implementation for OEMs and others it may be advantageous to “profile” which methods of polygon representation we allow within (at this stage) CATALOG.XML.
- This could be extended to coverage descriptions in S-128 as well
- Options are:
 - IHO makes its own profile of GML Polygon, e.g. S100_BoundingPolygonType (simplifies schemas but may impact interoperability with other GML tools)
 - Restrict the GML types available (still using ISO GML schemas)
 - Others?
- Need to make sure we preserve the ability to reference geometries to preserve the ability to share common geometry. Also need to ensure we do not extend or modify Part 10b within S-100 5.1.0. Clarifications are possible though.
- We should focus this on what Coverage polygons look like. Do they have holes? Do we need MultiPolygons?

```
<gml:Polygon xmlns:gml="http://www.opengis.net/gml/3.2" gml:id="p6"
srsName="urn:ogc:def:crs:EPSG::4326">
  <gml:exterior>
    <gml:LinearRing>
      <gml:posList>-32.56666664 60.98333333 -32.55234272 60.98333333 -32.55233065
60.98431367 -32.54976294 60.98774950 -32.54323478 60.99250749 -32.54097946 60.99543612 -
32.53844008 60.99727453 -32.53833329 60.99740772 -32.53833329 61.00833336 -32.56666664
61.00833336 -32.56666664 60.98333333</gml:posList>
    </gml:LinearRing>
  </gml:exterior>
</gml:Polygon>
```