# Inland ENC Harmonization Group

## S-101 Alignment

# Complex attributes

Attributes may be simple type or complex type. Complex (C) attributes are aggregates of other attributes that can be simple type or complex type. Simple attribute types consist of Text (TE), Date (DA), Time (TI), DateTime (DT), Enumeration (EN), Boolean (BO), Integer (IN) and Real (RE).

Example: INFORM and NINFOM are replaced by the complex attribute INFORM with the sub-attributes language (ISO 639-3, optional) and text

The new complex attribute is able to provide more information, conversion of existing attributes is possible ➔ proposal: use it

# Complex attributes, other examples

- All attributes which are indicating clearances are replaced by complex attributes with the sub-attributes clearance and distance uncertainty (optional)
- The encoding of LIGHTS is better structured: lights with different sectors are no longer several objects, but one object with complex attributes; e.g. light characteristic, signal group, signal period and signal sequence are sub-attributes of the new complex attribute rhythm of light
- The new complex attributes are able to provide better information, conversion of existing attributes is possible ➔ proposal: use them

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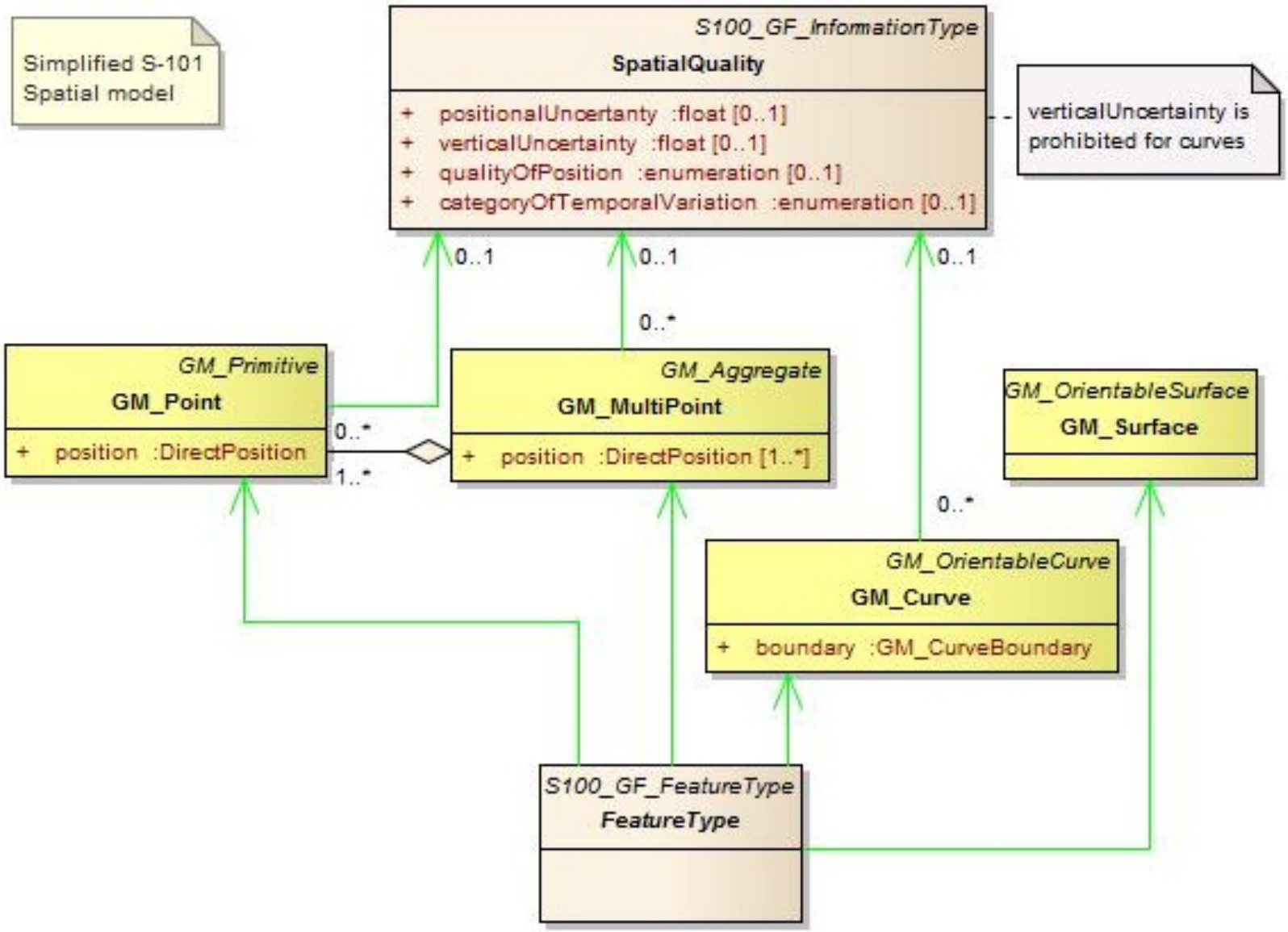
# Complex attributes: Aids to Navigation

- A buoy with a topmark and a light is currently encoded as a e.g. a boylat as master and TOPMAR and LIGHTS as slaves
- Complex attributes would allow to encode the combination as one feature with the complex attributes topmark and light; each complex attribute would have more or less the same attributes as the current object class
- TOPMAR is changed to a complex attribute of the buoys and beacons in S-101, but LIGHTS will be part of a Structure/Equipment Association
- Pros and cons of this approach?
- Do we follow S-101?

# Information type

4.3.4 Information Types

Information types are identifiable pieces of information in a dataset that can be shared between other features. They have attributes but have no relationship to any geometry; information types may reference other information types.

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# Composition type

4.3.3.1 Association

An association is used to describe a relationship between two feature types that involves connections between their instances.

EXAMPLE: An Isolated Danger buoy feature marks a Wreck feature. An association named Marks is used to relate the two features; roles are used to convey the meaning of the relationship.

4.3.3.2 Aggregation

An aggregation is a relationship between two or more feature types where the aggregation feature is made up of component features.

EXAMPLE: Bridge feature of type aggregation may be composed of multiple Span features and may also include Lights and other features which make up the Bridge

4.3.3.3 Composition

A composition is a strong aggregation. In a composition, if a container object is deleted then all of its containee objects are deleted as well.

EXAMPLE: If a feature type of TSS is deleted, then all of its component feature types that make up the TSS are deleted.

# Further proceeding

- Resources for the alignment: several European countries have applied for funding within a project (2014-2015)
- Timeline of IHO (draft):
  - First draft: October 2013
  - Test bed, S-58 and S-64, OEM Review, OEM implementation and On Shore Trials starting 2014/2015
  - Final draft: 2016
  - Sea Trials: 2017
  - Release and full implementation: 2018
- Postponement of inland alignment might reduce the period of parallel maintenance
- Who would have resources in 2016-2017?