Data Models WG

- Session 1
  - XML Schema Guidelines
  - Converging the Models
  - Observation and Characterization
- Session 2
  - Catalogs
  - Spacetime Coordinates
  - Interoperability Experiments

XML Schema Guidelines

- How do we go from UML to XML?
  - UML to XML automatic tools vs hand-crafting
  - Choice groups? Substitution groups?
  - Extension vs restriction
  - Validation tools
  - Splitting into multiple xsd files
  - The importance of instance examples

Converging the Models

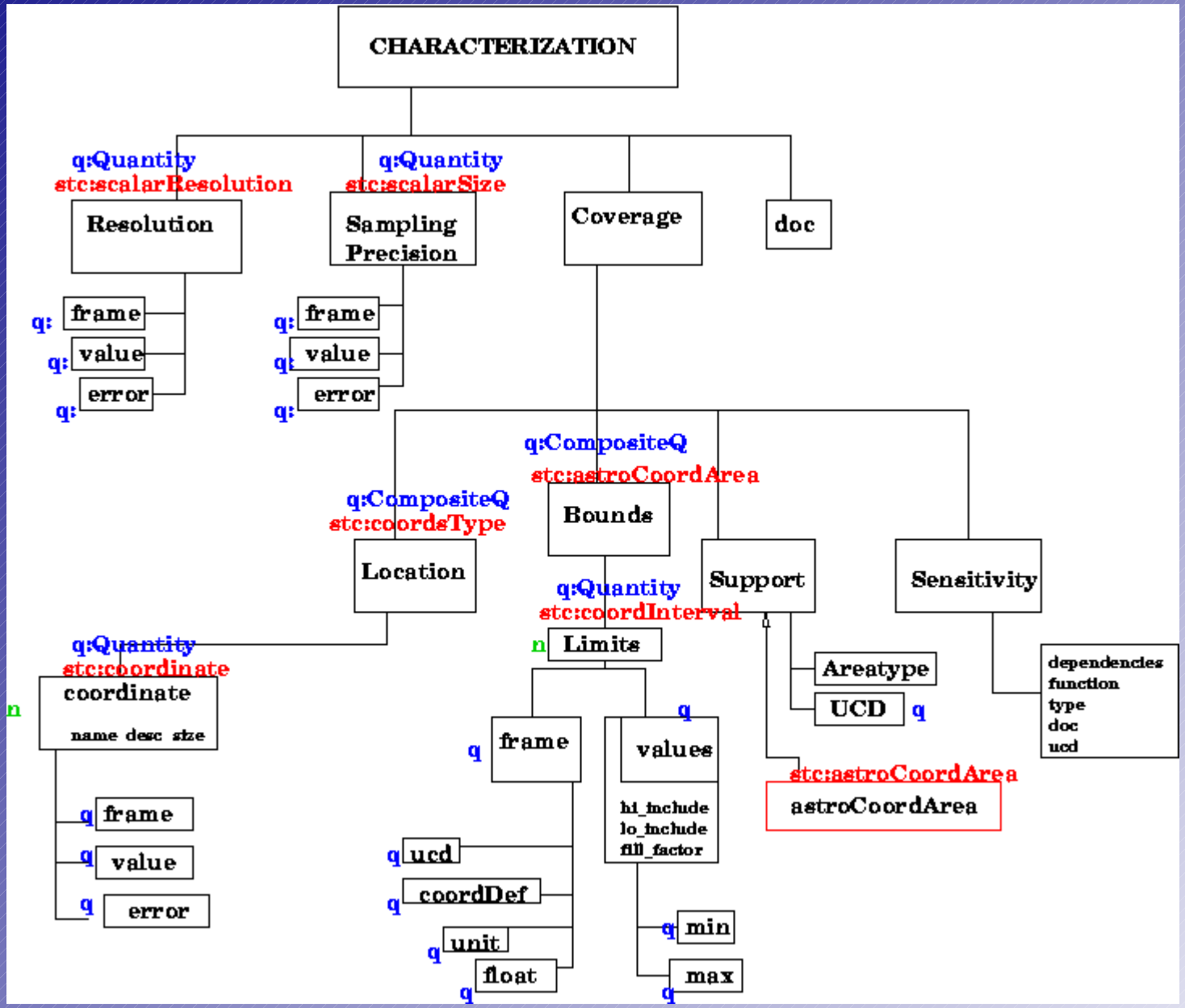
- Advanced DM efforts:
  - Quantity (Thomas, Berry, Dowler)
  - Observation (Micol, Giaretta, Louys, Bonnarel)
  - Characteri(z/s)ation (Bonnarel, Louys)
  - Space-Time Coords (STC) (Rots)
- How much should these models make use of each other?

Converging the Models (2)

- I believe there is a natural hierarchy:
  - STC Coordinate and Frame objects should be built on Quantity and Quantity Frame objects
  - STC Areas should be special cases of a more general Interval quantity
  - Characterization involves simplified use of ideas that are present in STC

Converging the Models (3)

- CDS proposal: to reduce buy-in, make Characterization largely independent of STC and Quantity, reusing parts of them where possible.
- My proposal: Include in Characterization definition self-contained toy versions of STC and Quantity, as simple as possible to give what is needed.
- These would be instance-compatible with full models


CHARACTERIZATION
q:Quantity
stc:scalarResolution
Resolution
q: frame
q: value
q: error
q:Quantity
stc:scalarSize
Sampling Precision
q: frame
q: value
q: error
Coverage
doc
q:CompositeQ
stc:coordsType
Location
q:Quantity
stc:coordinate
n coordinate
name desc size
q frame
q value
q error
q:CompositeQ
stc:astroCoordArea
Bounds
q:Quantity
stc:coordInterval
n Limits
q frame
q ucd
q coordDef
q unit
q float
q values
hi_include
lo_include
fill_factor
q min
q max
Support
Areatype
UCD q
stc:astroCoordArea
astroCoordArea
Sensitivity
dependencies
function
type
doc
ucd

Instance Example (char2.xml)

File Edit View Help

```
<?xml version="1.0" encoding="UTF-8"?>

<characterisation>
 <resolution><frame idref="eq" xsi:type="FrameRef"/><value>5.2</value> </resolution>
 <resolution><frame idref="wl" xsi:type="FrameRef"/><value>0.5</value> </resolution>
 <sampling_precision><frame xsi:type="Frame"><ucd>pos.eq</ucd><unit>pixel</unit></frame><value>0.02</value><float/></sampling_precision>
 <sampling_precision><frame idref="wl" xsi:type="FrameRef"/><value>0.25</value></sampling_precision>
 <coverage>
  <location>                                    QUANTITY   = STC COORDINATE
   <coordinate size="2">
        <frame id="eq" xsi:type="Frame"><ucd>pos.eq</ucd><unit>deg</unit><float/></frame>
        <values><value>28.4</value><value>-20.0</value></values>
   </coordinate>
   <coordinate>
         <frame id="wl" xsi:type="Frame"><ucd>em.wl</ucd><unit>Angstrom</unit><float/></frame>
         <value>4500.2</value><error>0.28</error>
   </coordinate>
   <coordSys ref="CS"/>
  </location>
  <bounds>
   <limits size="2"><frame idref="eq" xsi:type="FrameRef"/><values><min>28.342 -20.2</min><max>28.481 -19.8</max>
    </values></limits>
   <limits hi_include="false"><frame idref="wl" xsi:type="FrameRef"/>
         <values><min>4402.1</min><max>7200.8</max></values></limits>
  </bounds>
  <support/>
  <sensitivity/>                          STC COORDSYS
 </coverage>
 <coordSys id="CS">
  <timeFrame><TT/><GEOCENTER/></timeFrame>
  <spaceFrame><ICRS/><BARYCENTER/><SPHERICAL naxes="2"/></spaceFrame>
  <spectralFrame><HELIOCENTER/></spectralFrame>
 </coordSys>
</characterisation>
```