Mapping of ImageDM in SIAV2 metadata resource response: the case of WCS information

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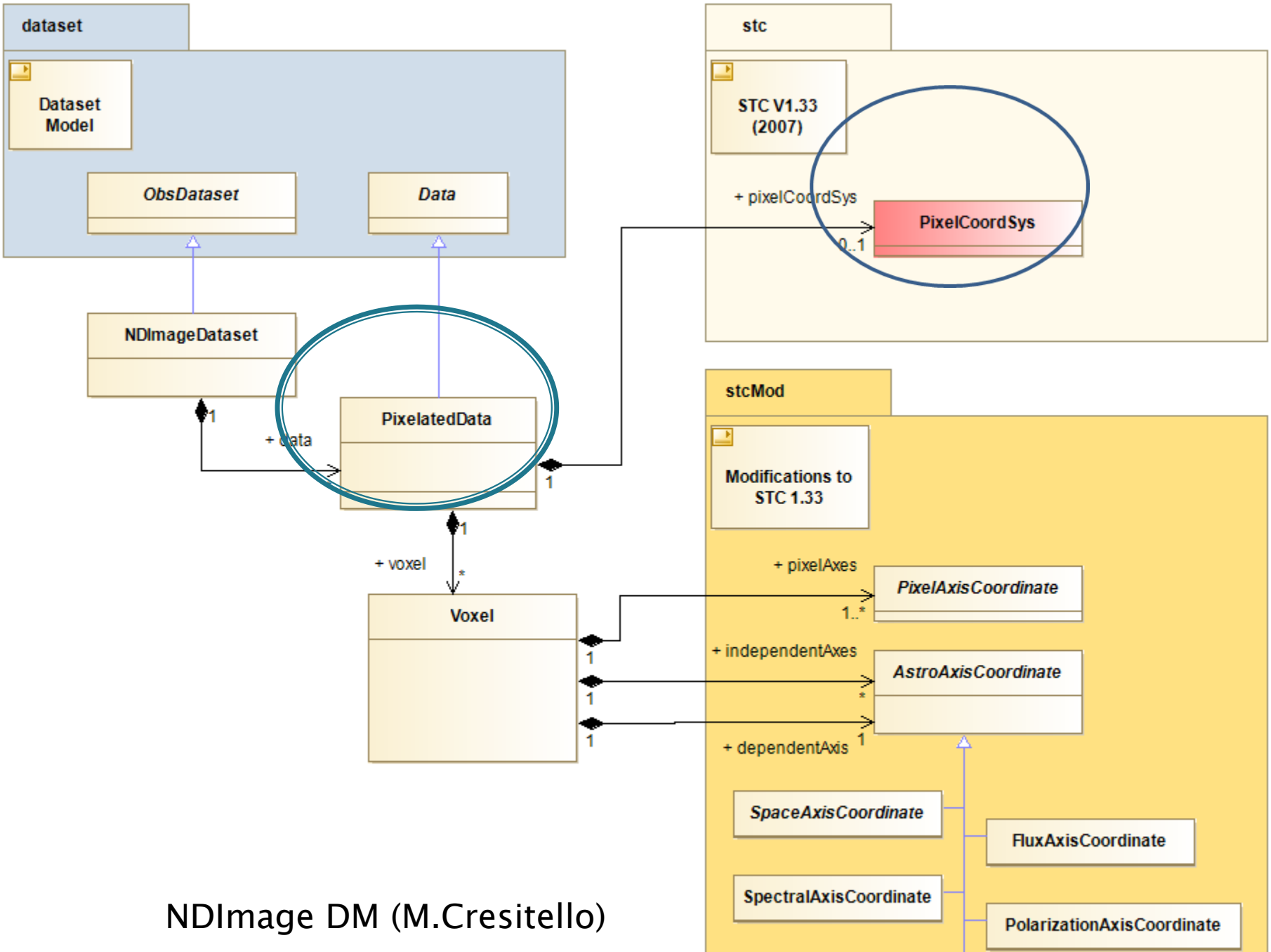
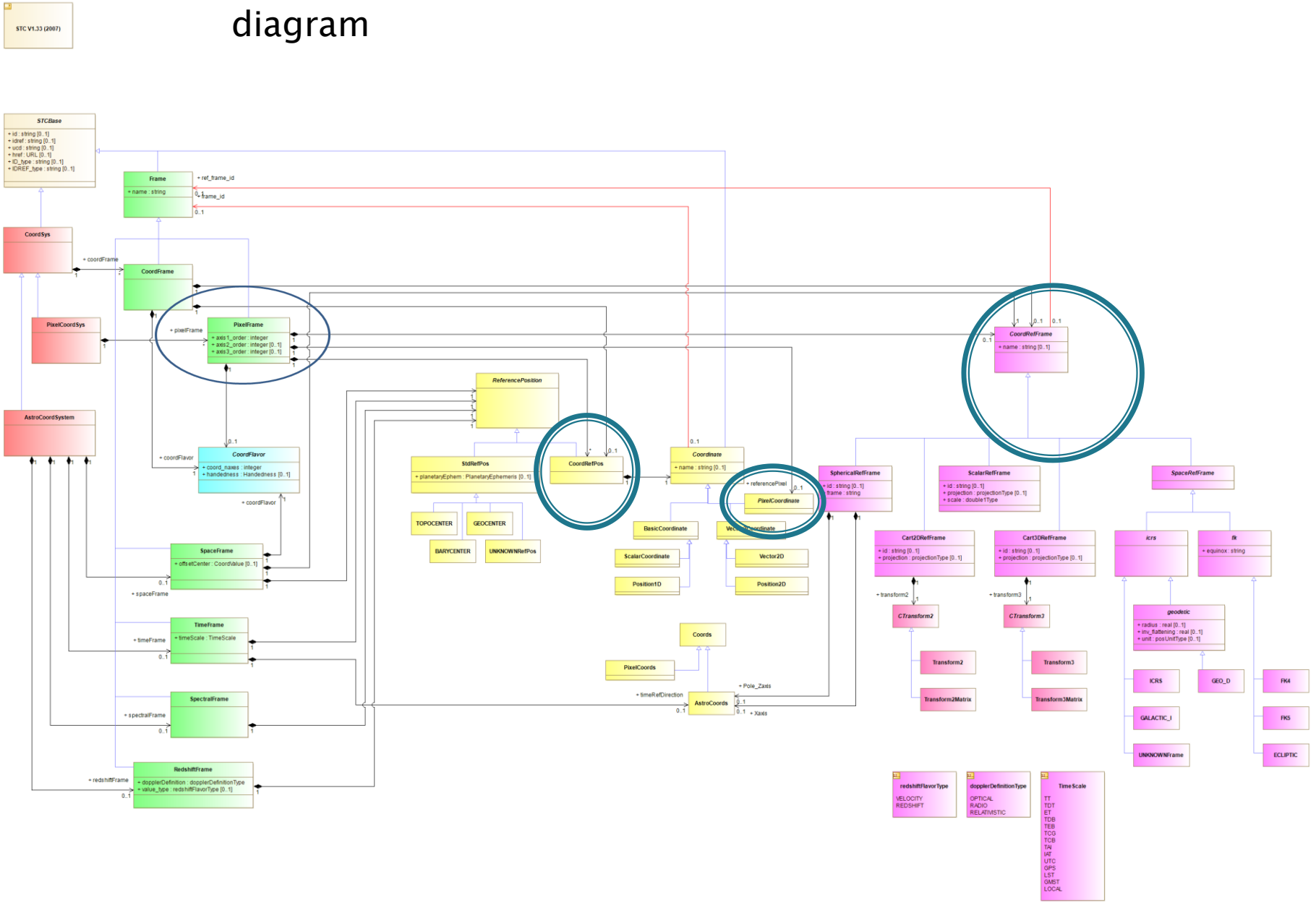
ImageDM metadata in SIAV2 context

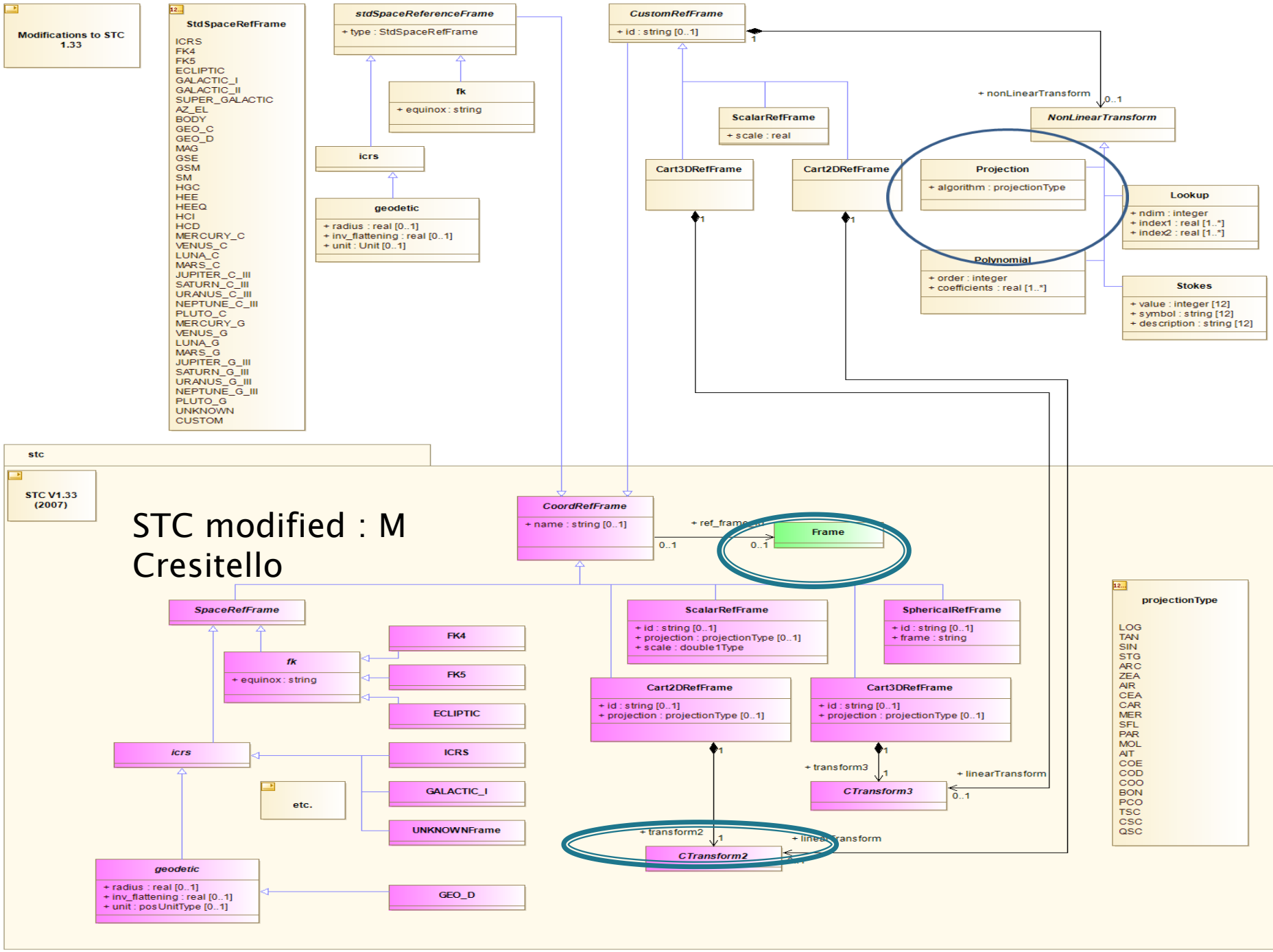
- SIAV2.0 contain only « query » resource. The response is « ObsCore »
- SIAV2.1 will contain the « metadata » resource.
  - Composed datasets : subarrays
  - WCS information
  - Information needed to prepare advanced AccessData operation
- Should we use flat utypes or VODML groups in the metadata response ?



NDImage DM (M.Cresitello)

STC: A.Rots/ Mark Cresitello diagram




Modifications to STC 1.33
StdSpaceRefFrame
ICRS
FK4
FK5
ECLIPTIC
GALACTIC_I
GALACTIC_II
SUPER_GALACTIC
AZ_EL
BODY
GEO_C
GEO_D
MAG
GSE
GSM
SM
HGC
HEE
HEEQ
HCI
HCD
MERCURY_C
VENUS_C
LUNA_C
MARS_C
JUPITER_C_III
SATURN_C_III
URANUS_C_III
NEPTUNE_C_III
PLUTO_C
MERCURY_G
VENUS_G
LUNA_G
MARS_G
JUPITER_G_III
SATURN_G_III
URANUS_G_III
NEPTUNE_G_III
PLUTO_G
UNKNOWN
CUSTOM
stdSpaceReferenceFrame
+ type : StdSpaceRefFrame
fk
+ equinox : string
icrs
geodetic
+ radius : real [0..1]
+ inv_flattening : real [0..1]
+ unit : Unit [0..1]
CustomRefFrame
+ id : string [0..1]
ScalarRefFrame
+ scale : real
Cart3DRefFrame
Cart2DRefFrame
+ nonLinearTransform
0..1
NonLinearTransform
Projection
+ algorithm : projectionType
Lookup
+ ndim : integer
+ index1 : real [1..*]
+ index2 : real [1..*]
Polynomial
+ order : integer
+ coefficients : real [1..*]
Stokes
+ value : integer [12]
+ symbol : string [12]
+ description : string [12]
stc
STC V1.33 (2007)
STC modified : M Cresitello
CoordRefFrame
+ name : string [0..1]
+ ref_frame
0..1
0..1
Frame
SpaceRefFrame
fk
+ equinox : string
FK4
FK5
ECLIPTIC
icrs
ICRS
GALACTIC_I
UNKNOWNFrame
etc.
geodetic
+ radius : real [0..1]
+ inv_flattening : real [0..1]
+ unit : posUnitType [0..1]
GEO_D
ScalarRefFrame
+ id : string [0..1]
+ projection : projectionType [0..1]
+ scale : double1Type
SphericalRefFrame
+ id : string [0..1]
+ frame : string
Cart2DRefFrame
+ id : string [0..1]
+ projection : projectionType [0..1]
Cart3DRefFrame
+ id : string [0..1]
+ projection : projectionType [0..1]
+ transform3
CTransform3
+ linearTransform
0..1
+ transform2
CTransform2
+ linearTransform
projectionType
LOG
TAN
SIN
STG
ARC
ZEA
AIR
CEA
CAR
MER
SFL
PAR
MOL
AIT
COE
COD
COO
BON
PCO
TSC
CSC
QSC

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            <GROUP utype="stc:PixelCoordSys.CoordRefPos">
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             ……..
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            <GROUP  utype="stc:PixelCoordSys.PixelCoordinate"/>
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             ……..
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              <FIELDref ref=« Matrix" utype="stc:CoordReFrame.Ctransform2"/>
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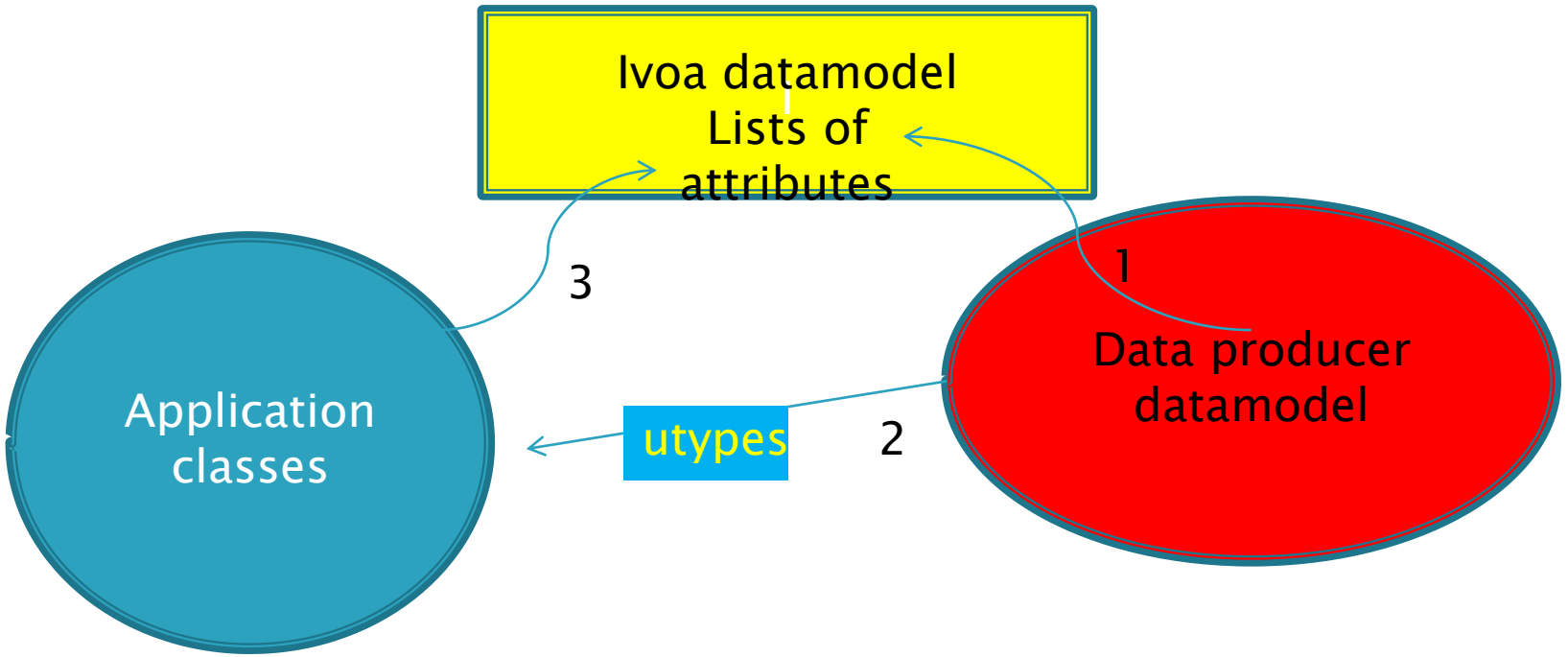
        </GROUP>
```

Questions

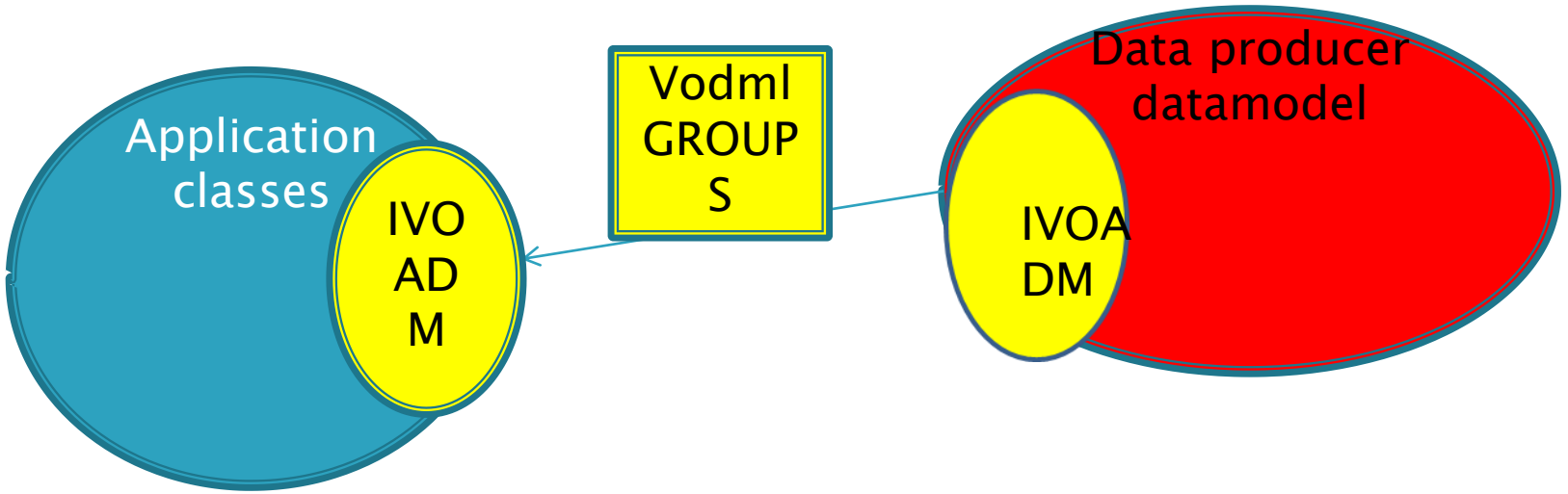
- Could we replace current ImageDM view of PixelatedData with one PixelCoordSys by
  - Simple PixelCoordSys (Pixel coordinate, naxisorder, …)
  - Simple World AstroCoordSys
  - A Transform class with
    - Linear Transforms (CTransform2, CTransform3, etc..
    - Non Linear Transforms (Projection, Stokes, polynomial, Lookup)
  - Could we ?
- Use « IVOA DM attribute » utypes instead of VO dml groups ?

Mapping of columns to IVOA datamodel attributes



- Utypes transport association of VOTABLE content with IVOA DM attributes from DS to applications
- More adapted to metadata = discovery-description

Mapping of IVOA DM structures into VOTABLE



- Vodml GROUPS transport the DM structure
- More adapted to full datasets with structure consistent with the DM

Conclusion

- SIAV2.1 will work with « DM attributes » utypes
- Support the new proposal of changing « utype » in « dmtype » attribute in VODML VOTABLE mapping.
- Create the dmtype attribute in VOTABLE