

Source DM discussion

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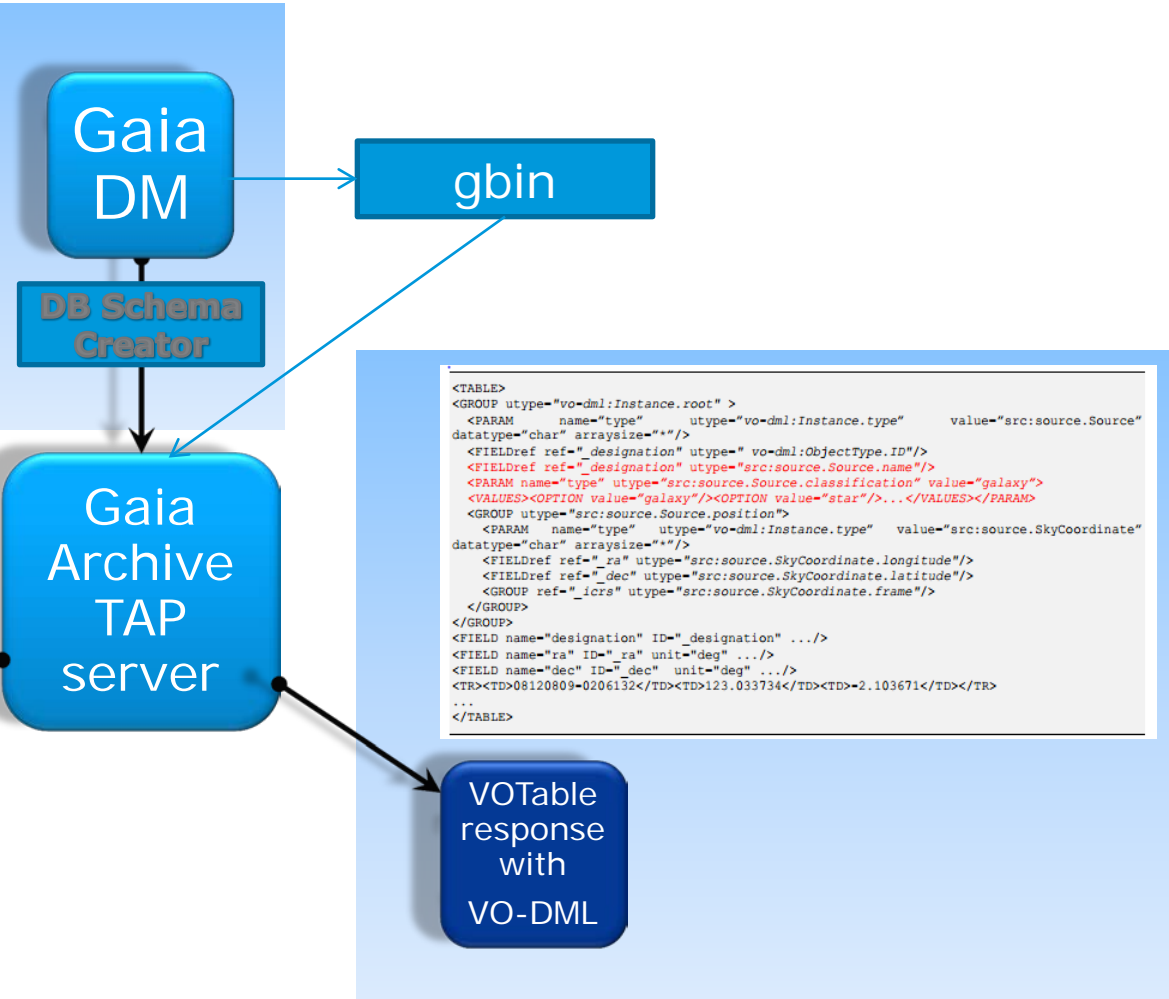
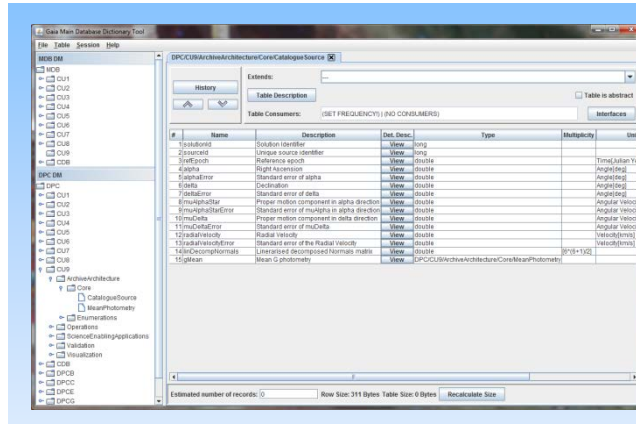
How a Source DM is done in a project: The Gaia example



- Gaia is one of the few projects where the DM definition is a coordinated effort
- Gaia DPAC is a quite big consortium distributed across Europe and other countries
- Work is divided into different Coordination Units (e.g. archive in under CU9)
- All the participants of the different coordination units can propose changes into the DM
- A Coordination Control Board (CCB) accept/reject changes per CU (in operations)

- Result: Collaborative process but not interoperability with other projects is not always maintained

Gaia DM propagation



- VO-DML Annotations in TAP_SCHEMA?
- Different structure?

Gaia CatalogueSource + External Catalogues



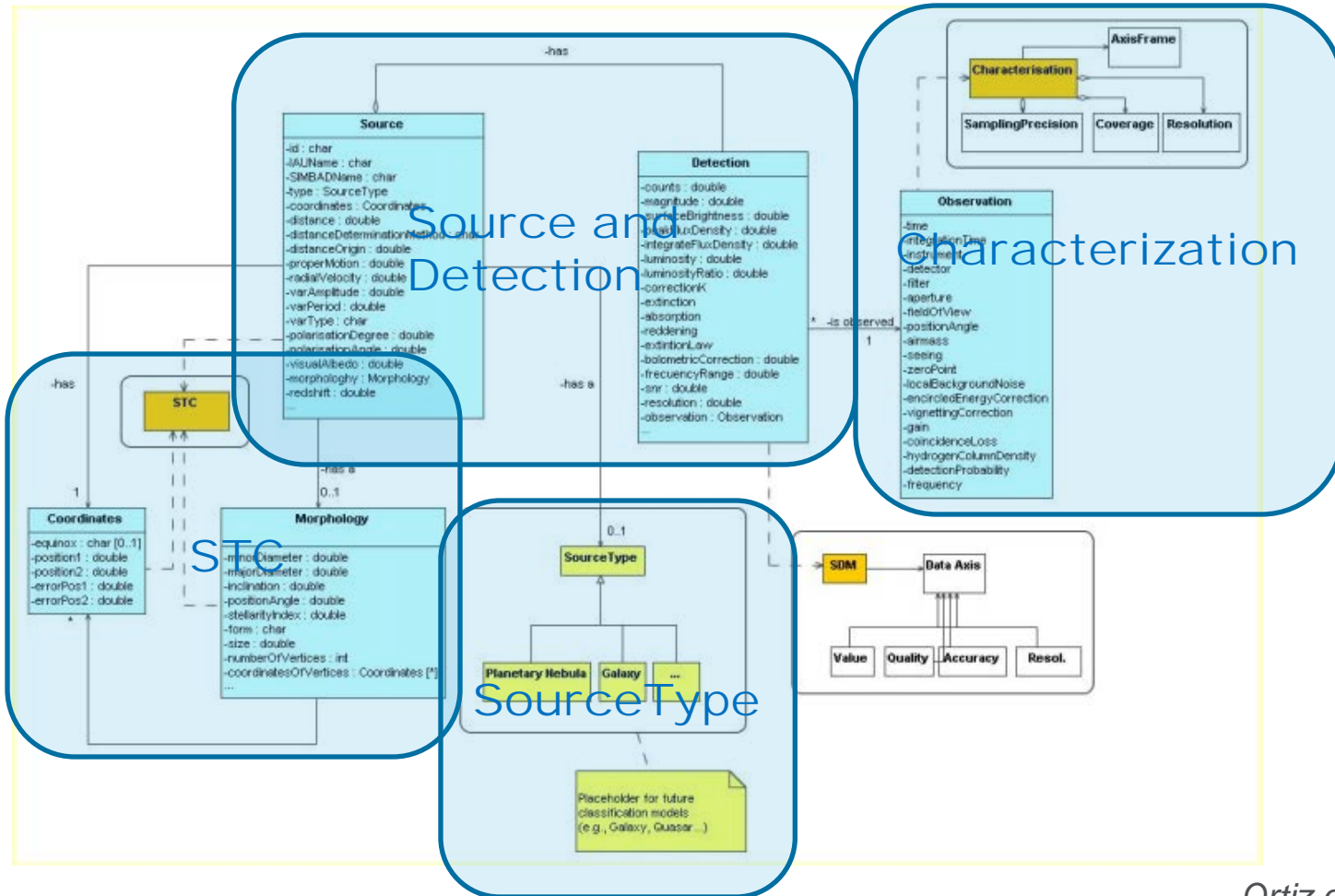
alpha
radeg
ra

muAlphaStar
pmRA

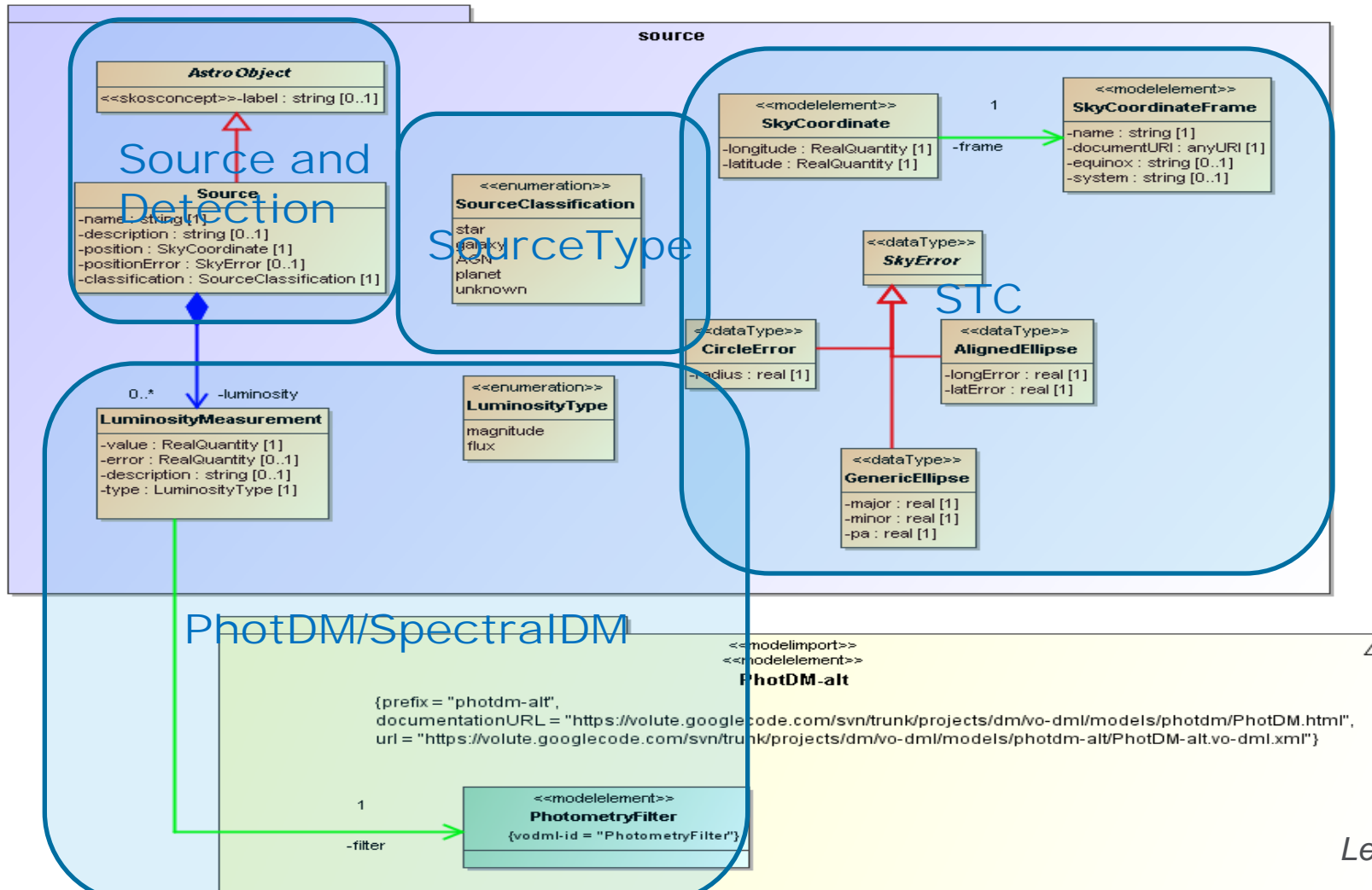
CatalogueSourceImpl
<u>dmVersion</u> : String
<u>dmVersionClass</u> : Class
<u>serialVersionUID</u> : long
solutionId : long
sourceId : long
refEpoch : double
alpha : double
alphaError : double
delta : double
deltaError : double
varpi : double
varpiError : double
muAlphaStar : double
muAlphaStarError : double
muDelta : double
muDeltaError : double
radialVelocity : double
radialVelocityError : double
muR : double
muRError : double
matchedObservations : short
observed : boolean
superseded : boolean
nObs : int[]
nOutliers : int[]
f2 : float
chi2 : float[]
deltaQ : float
excessNoise : double
excessNoiseSig : double
paramsSolved : byte
rankDefect : int
decomposedN : float[]
primaryFlag : boolean
relegationFactor : float
astrometricWeight : float[]
gMean : MeanPhotometry
rvConstancyProbability : double
randomIndex : long
ran : Random

Tycho2OriginalXmImpl
<u>dmVersion</u> : String
<u>dmVersionClass</u> : Class
<u>serialVersionUID</u> : long
id : long
tyc1 : int
tyc2 : int
tyc3 : int
mRAdeg : float
mDEdeg : float
emRA : int
emDE : int
pmRA : float
pmDE : float
epmRA : float
epmDE : float
bt : float
ebt : float
vt : float
evt : float
radeg : float
dedeg : float
eRA : float
eDE : float
epRA : float
epDE : float
posfig : char
ran : Random

TMassOriginalXmImpl
<u>dmVersion</u> : String
<u>dmVersionClass</u> : Class
<u>serialVersionUID</u> : long
id : long
designation : String
ra : double
dec : double
errMaj : float
errMin : float
errAng : float
jM : float
jMsigcom : float
hM : float
hMsigcom : float
kM : float
kMsigcom : float
extKey : long
jDate : float
ran : Random



Ortiz et al (2006)



Lemson et al (2013)

Objectives

- Create a simple (but useful) SourceDM definition that could help in the publishing of catalogues through VO protocols
- Support on the definition for catalogues metadata for near-future missions (e.g. Gaia, Euclid,...) and allow the mapping for old ones
- Support interoperability operations between protocols (SED creation, crossmatch operations, etc)

Initial team

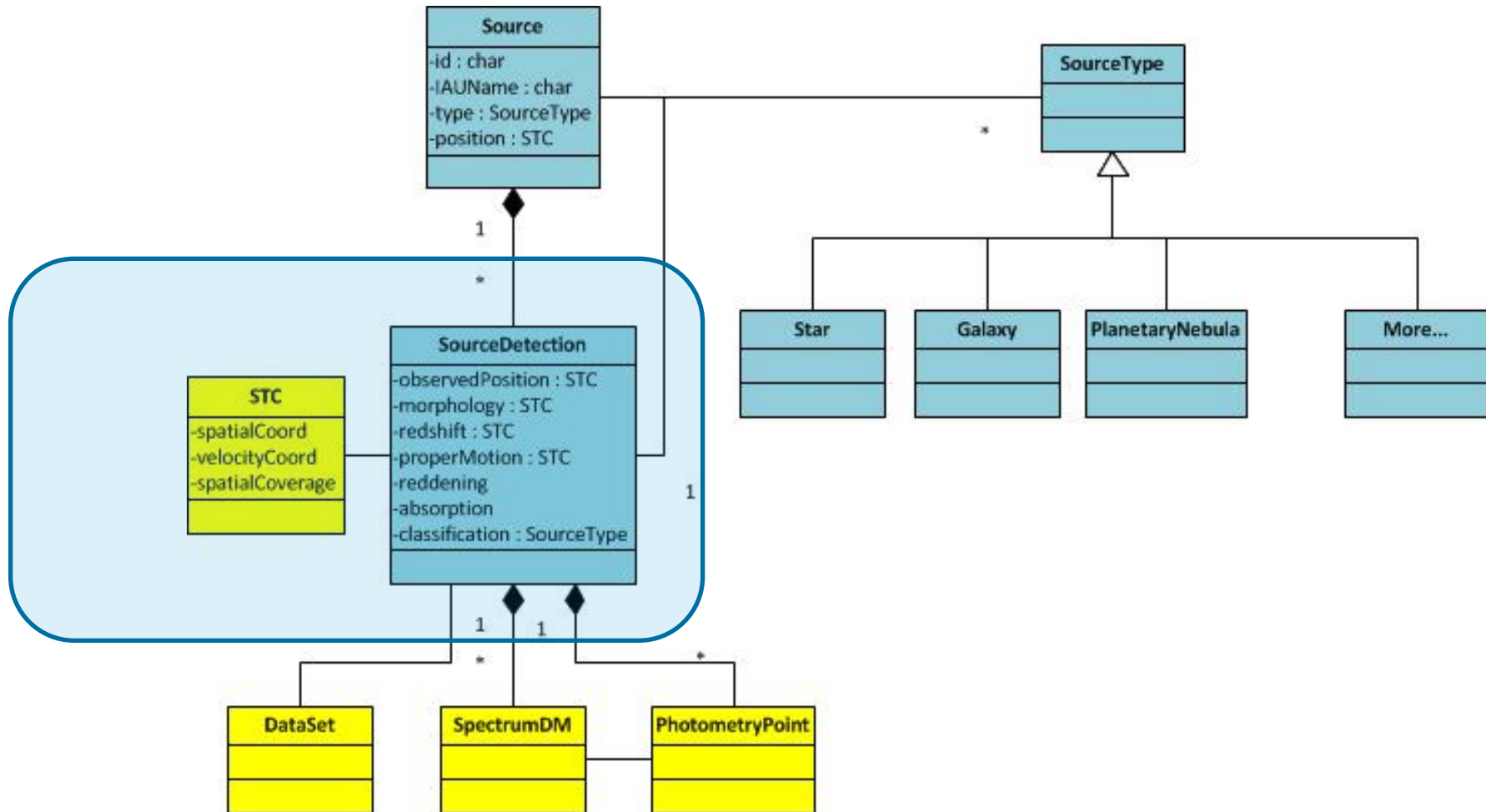
- Gerard Lemson, Sebastien Derrier, Laurent Michel, Bruno Merin, Tom Donaldson, Arnold Rots and myself
- Open for contributors

Roadmap

- Draft for next interop

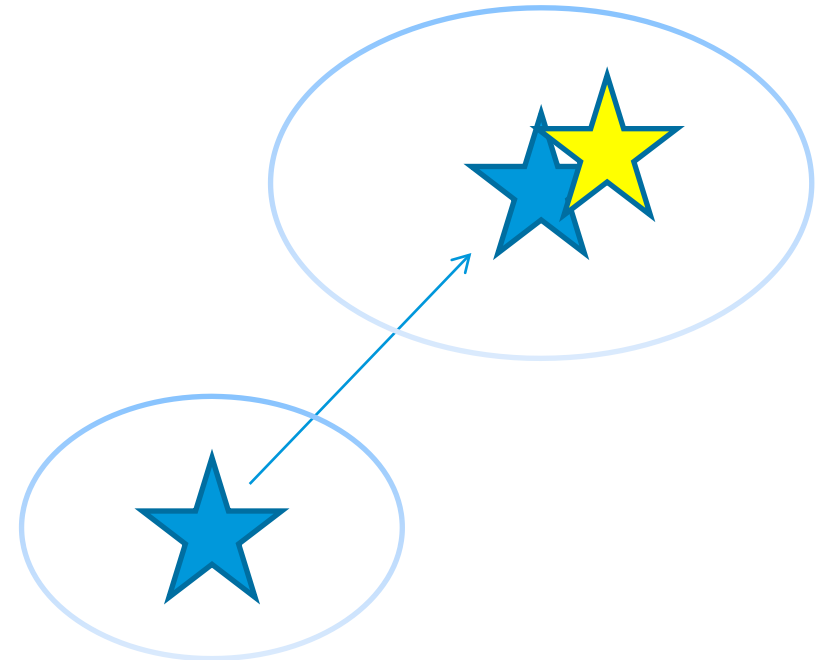
Source and Detection

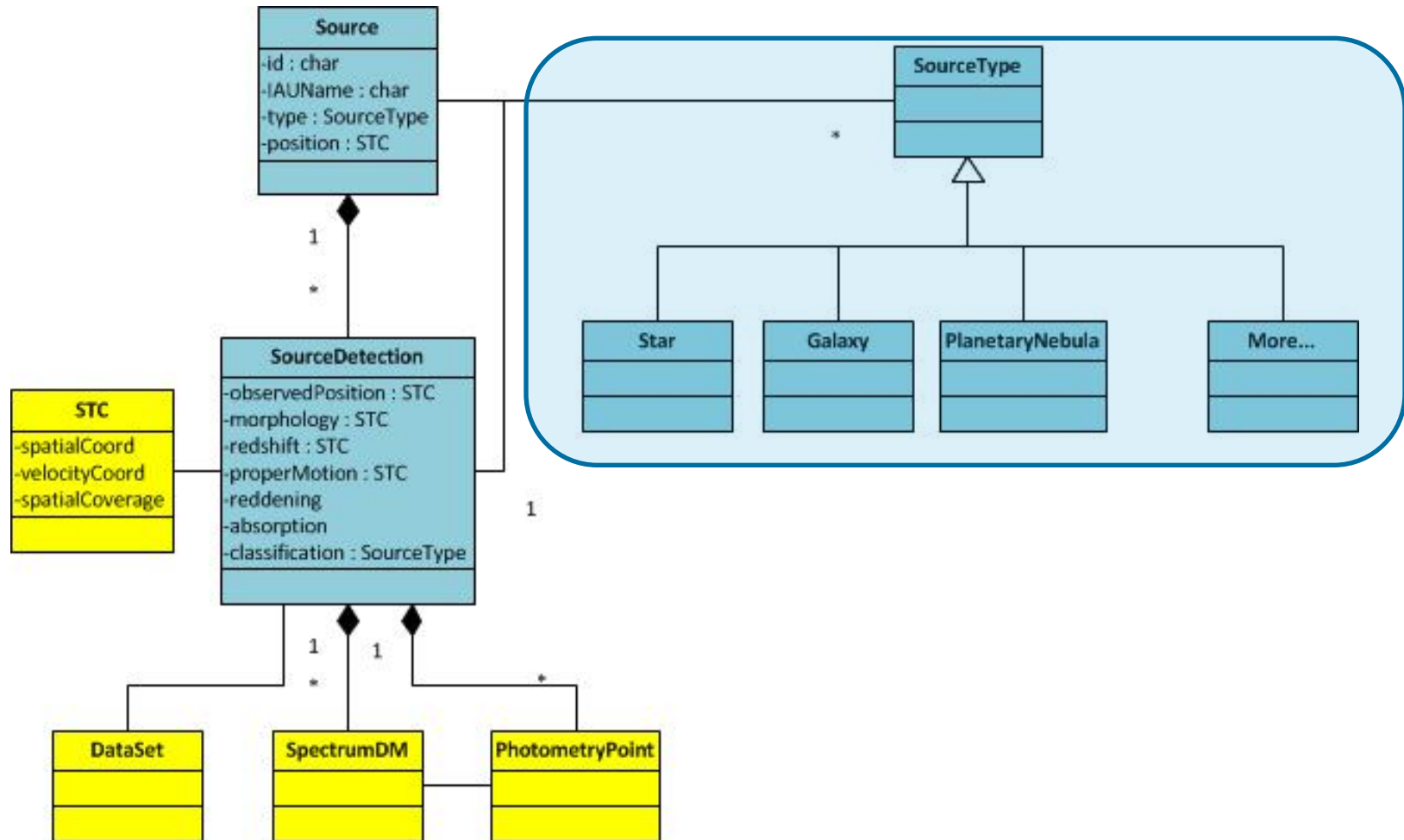
- Most of the catalogues contains detections
- Detections have different metadata than a source
- Is this difference needed?
- What are the correct names for these entities?



Source DM geometrical support

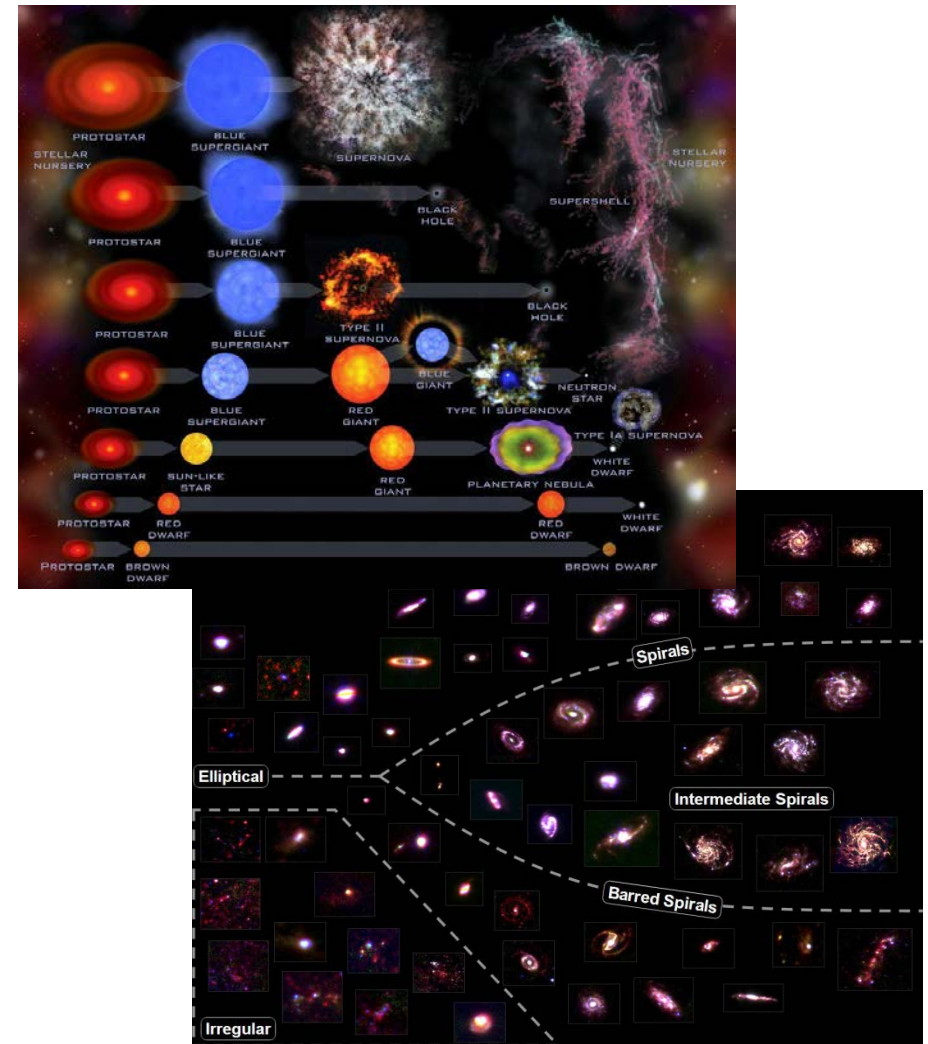
- STC-2
- Attributes for:
 - Position
 - Errors
 - Epoch/Reference frames
 - Velocities/proper motion
 - Extended sources (?)
 - Redshift
- How to map from Source DM?

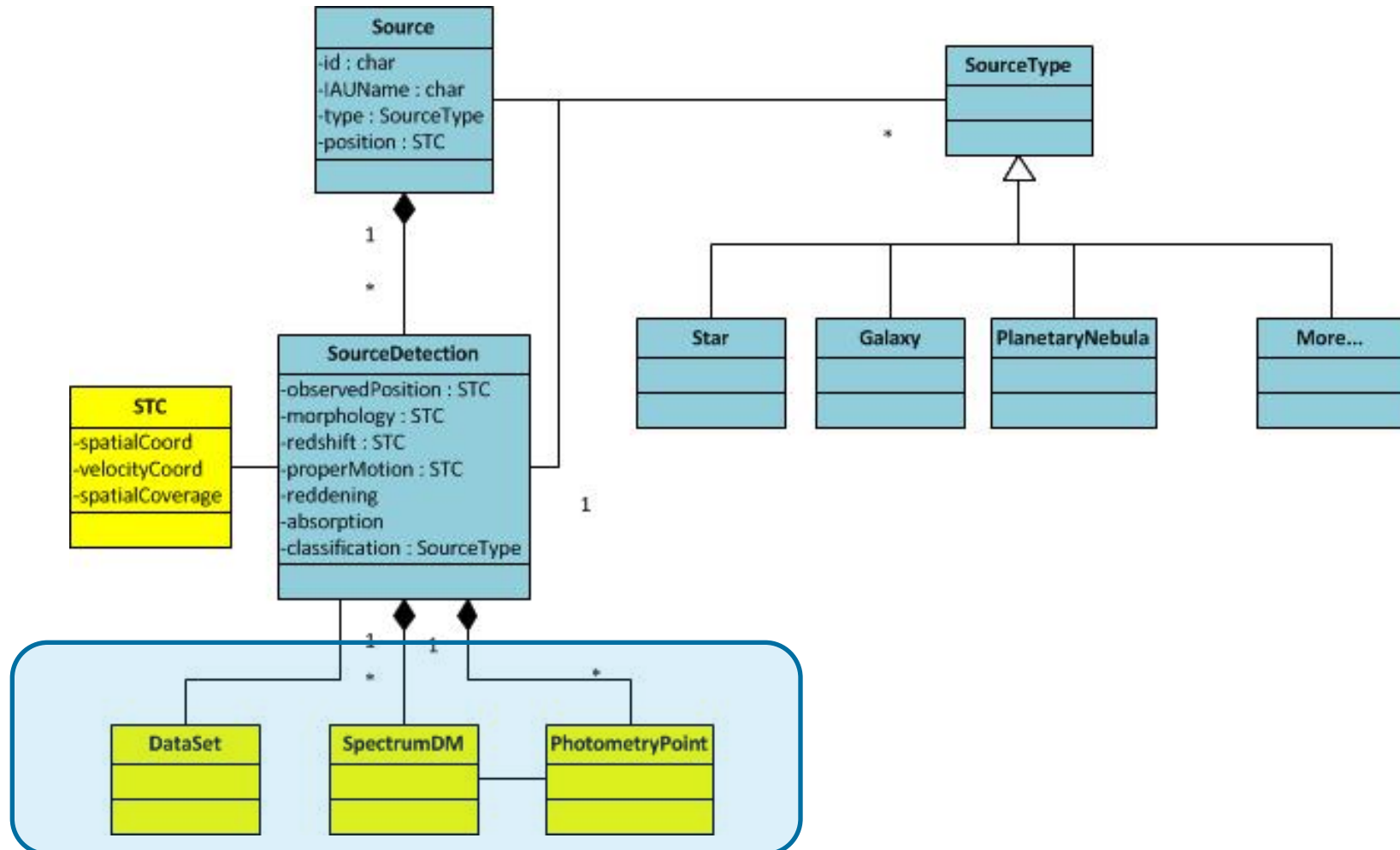




Source classification

- Usually done through ontologies
- Should we have a limited set of types?
- Which ones?
- Is this list of types a correct approach?
Enumeration?
Ontologies?





Luminosities

- Direct connection with Photometry DM?
- Connection with Spectral 2.0 DM?
- How to handle time series?

THANK YOU

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