

# UCD1, UCD1+ and utypes in VOTable



## Difference between ucd and utype attributes (1)

- VOTable elements (<PARAM>, <TD>) are kept generic :
  - instead of having as many schemas as there are different measured quantities in astronomy
  - instead of attempting to predefine every possible measurements (and defining <flux>, <right\_ascension>, ... elements)
  - the meaning of the parameters is given provided by the **ucd** and **utype** attributes
  - this helps interoperability: one single schema for all possible tables



# Difference between ucd and utype attributes (2)

- **ucd**

- The UCD provide the semantic meaning of a quantity, with some **reasonable** level of detail
  - "the ucd attribute supplies a standardized classification of the physical quantity expressed in the column" – IVOA Rec 2004-08-11

- **utype**

- The UTYPE refers to a precise element in a Data Model
  - It is a unique-type attribute
  - **utype**="datamodel\_identifier:role\_identifier"



# Current implementation (1)

- <http://www.ivoa.net/xml/VOTable/VOTable-1.1.xsd>
- In VOTable 1.1 schema, there are two attributes: **ucd** and **utype**, allowed in:
  - TABLE
  - PARAM
  - FIELD
  - GROUP
- A comment suggests that FIELDref and PARAMref could also have ucd and utype



# Current implementation (2)

- ucd attribute has type ucdType, defined as:

```
<xs:simpleType name="ucdType">  
  <xs:restriction base="xs:token">  
    <xs:pattern value="[A-Za-z0-9_.;\-\]*"/><!-- UCD1 use also / + % -->  
  </xs:restriction>  
</xs:simpleType>
```

- utype attribute has type xs:string



## Problem: UCD1 and UCD1+

- There are two versions of UCD, with quite different syntax and usage:
  - UCD1: POS\_EQ\_RA\_MAIN
  - UCD1+: pos.eq;meta.main
- The VOTable recommendation doc. implicitly states that the **ucd** attribute should contain a UCD1+ (see examples and comment in the .xsd)
- However, UCD1 are still used as default in various applications



# Problem: UCD1 and UCD1+

- Possible solutions:
  - impose that from VOTable v1.1 (or v1.2?), the **ucd** attribute only contains UCD1+
  - add another optional attribute for old-style UCD:
    - use **ucd** for UCD1+
    - use, e.g. **ucd1** for UCD1
  - add another **ucd1p** attribute for UCD1+:
    - use **ucd** for UCD1
    - **ucd1p** for UCD1+



## Issues

- The current xsd schema **ucdType** suggests that **ucd** must be a UCD1+:
  - does not allow some char sometimes present in UCD1 (e.g. %)
  - but does not allow namespaces in UCD1+ (':' not supported)
- Current tools (Aladin, VOPlot, TOPCat) support both UCD1 and UCD1+ syntax in the **ucd** attribute



# Discussion...

