EML - Bug #655

need better model for numeric domains for attributes

10/25/2002 11:02 AM - Matt Jones

Status:	Resolved	**Start date:**	10/25/2002
Priority:	Immediate	**Due date:**	
Assignee:	Matt Jones	**% Done:**	0%
Category:	eml - general bugs	**Estimated time:**	0.00 hour
Target version:	EML2.0.0rc3	**Spent time:**	0.00 hour
Bugzilla-Id:	655		

Description

We've found another problem with attributeDomain that needs to be fixed for the EML 2 release. Currently, the numericDomain subtype does not indicate which number type is intended, and so some legitimate numeric domains are not expressible in EML. This is a fatal flaw in the model, especially if domain is required and people can't describe their domains. For example, right now, one can not express a domain that only incudes the positive real numbers.

To fix this, I propose that we change the content model of numericDomain to the following:

numericDomain (numberType, (minimum|minimumExclusive)?, (maximum|maximumExclusive)?)
numberType (#PCDATA) and is a choice of the following enumeration:
natural, whole, integer, real

One might argue that the distinction between rational and irrational is needed (but I think not), so we might consider adding "rational" and "irrational" to the list (which together make real numbers). But I don't think irrational numbers are relevant because they can't actually be written down except symbolically (e.g., pi). See http://www.purplemath.com/modules/numtypes.htm for a summary of these number types.

Under this new system, someone who wanted to express a positive integral number that was less than or equal to 10 could say:
<numericDomain>
<numberType>whole</numberType>
<maximum>10</maximum>
<numericDomain>

Under this new system, someone who wanted to express a positive fractional number that was less than 10 could say:
<numericDomain>
<numberType>real</numberType>
<minimumExclusive>0</minimumExclusive>
<maximumExclusive>10</maximumExclusive>
<numericDomain>

Thanks for the feedback.

History

#1 - 10/25/2002 12:58 PM - Peter McCartney

Does this belong in numeric domain or in measurement scale? seems like it qualifies measuremnt scale rather than domain.

#2 - 10/30/2002 12:27 PM - Matt Jones

DONE. Both number type and the exclusive options are now part of the domain expression. This allows precise numeric domain statements. We decided that it did not belong in measurementScale as it is an aspect of the domain. Because domain is part of measurementScale, you can only use these numeric domain constructs on interval and ratio scale attributes.

#3 - 03/27/2013 02:14 PM - Redmine Admin

Original Bugzilla ID was 655