4.44 - Represented Variable

A scheme of reusable Represented Variables was added to Logical Product in order to better support ISO/IEC 11179 by the maintenance and reuse of the basic components of variables. It is anlages to the GSIM Represented Variable. A Represented Variable consists of a reference to a Conceptual Variable or to a Concept and Universe (the components of a Conceptual Variable) plus a definition of its representation expressed as a Category Scheme or a Value Representation. This limited structure makes the DDI Represented Variable more generic than the full ISO/IEC 11179 model as it does not include a Represented Variable example, derivation, or derivation rule. Enumerated values are expressed by reference to a Category Scheme or by use of a Code Representation (which contains references to the associated categories). Non-enumerated values may be described broadly or as specifically as supported by the Value Representation structure.

Represented Variables are managed within a Represented Variable Scheme containing all of the common Scheme structures including a Represented Variable Group which allows for associating a group of Represented Variables with a specific Concept or Universe and/or a set of Subjects and Keywords. As with other Groups of objects within Schemes, the Represented Variable Group can be typed and represent order and un-ordered lists or hierarchies.

RepresentedVariable

Extension base: VersionableType

RepresentedVariableName (0..n)

r:Label (0..n)

r:Description (0..1)

r:UniverseReference (0..1)

CHOICE

r:ConceptualVariableReference (0..1)

SEQENCE

r:UniverseReference (0..1)

r:ConceptReference (0..1)

ENDSEQUENCE

ENDCHOICE

CHOICE (0..1)

r:CategorySchemeReference

r:ValueRepresentation

r:ValueRepresentationReference

ENDCHOICE

While a Represented Variable by definition requires a Universe (Object), Concept, and Representation (Value Domain) these are optional in DDI to support production work during which all references may not be available. Note that when referenced by a Variable, the Variable may further constrain the Concept, Universe, and Value Representation. For example: The Concept of Age to a subordinate concept of Physiological Age; Universe of Persons to Persons residing within Luxembourg; and Numeric Representation of single year increments to top coding of 99.

EXAMPLE 1: <link to text file>

Example 1 shows a Represented Variable using references to a Concept, Universe, and Category Scheme. Note that the if there is a Conceptual Variable containing links to the same Concept and Universe that these two references in the Represented Variable may be replaced by a reference to the Conceptual Variable. The DDI Represented Variable is built using a set of references to a previously defined Universe, Concept and optional Category Scheme. The Universe references should reflect the broadest universe applicable, i.e., Persons. If the Concept is represented by a set of categories expressed by a CategoryScheme the scheme may be referenced.

EXAMPLE 2: <link to text file>

The Represented Variable is a conceptual model of the combination of a concept linked to a specific universe or object that is represented in a particular way. A Variable is the applied use of a Represented Variable where the universe may be further refined and the exact parameters of the representation are defined in greater detail. The DDI Represented Variable reflects the structure of the ISO/IEC 11179 Data Element. Note that the Value Representation of the Represented Variable may be broadly defined. The exact details and/or content restrictions for the representation may be added when referenced by a Variable used within a specific application. The example below shows a Represented Variable and two Variables which reference it within different contexts.

[move examples to text file with link]

EXAMPLE 1:

<l:RepresentedVariable isVersionable="true" scopeOfUniqueness="Agency">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:DE\_1:1</r:URN>

<l:RepresentedVariableName><r:String xml:lang=”en”>Household Type</r:String></l:RepresentedVariableName>

<r:Label>><r:String xml:lang=”en”>Household Type</r:String></r:Label>

<r:Description><r:Content xml:lang=”en”>Defines the type of household in terms of Non-Family and Family components</r:Content></r:Description>

<r:UniverseReference isReference="true isExternal="false" lateBound="false" typeOfIdentifier="Canonical">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Households:1</r:URN>

<r:TypeOfObject>Universe</r:TypeOfObject>

</r:UniverseReference>

<r:ConceptReference isReference="true isExternal="false" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:HouseholdType:1</r:URN>

<r:TypeOfObject>Concept</r:TypeOfObject>

</r:ConceptReference>

<r:CateogrySchemeReference isReference="true isExternal="false" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CatS\_HouseholdType:1</r:URN>

<r:TypeOfObject>CategoryScheme</r:TypeOfObject>

</r:CategorySchemeReference>

</l:RepresentedVariable>

Example 2:

<l:RepresentedVariable isVersionable="true" scopeOfUniqueness="Agency">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:DE\_Age:1</r:URN>

<l:RepresentedVariableName><r:String xml:lang="en">Age of Person</r:String></c:DataElementName>

<r:Label><r:String xml:lang="en">Age of Person in Years</r:String></r:Label>

<r:Description><r:Content xml:lang="en">Age of Person expressed as a measure of the number of years of age</r:Content></r:Description>

<r:UniverseReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Univ\_Persons:1.0</r:URN>

<r:TypeOfObject>Universe</r:TypeOfObject>

</r:UniverseReference>

<r:ConceptReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Concept\_Age:1.0</r:URN>

<r:TypeOfObject>Concept</r:TypeOfObject>

</r:ConceptReference>

<r:NumericRepresentation interval=”1” decimalPositions=”0” classificationLevel=”Interval”>

<r:NumberTypeCode>Integer</r:NumericTypeCode>

</r:NumericRepresentation>

</l:RepresentedVariable>

<l:Variable isVersionable="true" scopeOfUniqueness="Agency">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Var\_Age:1</r:URN>

<l:VariableName><r:String xml:lang="en">Age of Person</r:String></l:VariableName>

<r:Label><r:String xml:lang="en">Age of Person in Years</r:String></r:Label>

<r:Description><r:Content xml:lang="en">Age of Person in the United States expressed as a measure of the number of years of age 0 to 100 with topcode of 100 being "100 or over"</r:Content></r:Description>

<l:RepresentedVariableReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:DE\_Age:1</r:URN>

<r:TypeOfObject>RepresentedVariable</r:TypeOfObject>

</l:RepresentedVariableReference>

<r:UniverseReference isReference="true" isExternal="true" lateBound="false">

<r:URN>urn:ddi:us.mpc:Univ\_PersonsInUS:1.0</r:URN> <!-- Limited to Persons in US -->

<r:TypeOfObject>Universe</r:TypeOfObject>

</r:UniverseReference>

<r:ConceptReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Concept\_Age:1.0</r:URN>

<r:TypeOfObject>Concept</r:TypeOfObject>

</r:ConceptReference>

<l:VariableRepresentation>

<l:MeasurementUnit>Years</l:MeasurementUnit>

<r:NumericRepresentationReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Num\_1\_100\_top:1.0</r:URN>

<r:TypeOfObject>ManagedNumericRepresentation</r:TypeOfObject>

</r:NumericRepresentationReference>

</l:VariableRepresentation>

</l:Variable>

<l:Variable isVersionable="true" scopeOfUniqueness="Agency">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Var\_Age\_13\_19:1</r:URN>

<l:VariableName><r:String xml:lang="en">Age of Teenager</r:String></l:VariableName>

<r:Label><r:String xml:lang="en">Age of Person 13 to 19 years of age in Years</r:String></r:Label>

<r:Description><r:Content xml:lang="en">Age of a Teenage Person expressed as a measure of the number of years of age 13 to 19</r:Content></r:Description>

<l:DataElementReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:DE\_Age:1</r:URN>

<r:TypeOfObject>RepresentedVariable</r:TypeOfObject>

</l:DataElementReference>

<r:UniverseReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Univ\_Persons\_Age\_13\_19:1.0</r:URN> <!-- Limited to Teenagers -->

<r:TypeOfObject>Universe</r:TypeOfObject>

</r:UniverseReference>

<r:ConceptReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Concept\_Age:1.0</r:URN>

<r:TypeOfObject>Concept</r:TypeOfObject>

</r:ConceptReference>

<l:VariableRepresentation>

<l:MeasurementUnit>Years</l:MeasurementUnit>

<r:NumericRepresentation classificationLevel="interval">

<r:RecommendedDataType>Integer</r:RecommendedDataType>

<r:NumericDelineationReference isReference="true" isExternal="true" lateBound="false">

<r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Num\_13\_19:1.0</r:URN>

<r:TypeOfObject>NumericDelineation</r:TypeOfObject>

</r:NumericDelineationReference>

</r:NumericRepresentation>

</l:VariableRepresentation>

</l:Variable>