**Action List for 1087-1 VOM diagrams – 20 March 2014**

**Concept Systems Diagrams**

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1. Restrictions CS.1.1 and CS.1.2 should indicate minCardinality = 0
2. The comprises property for Restrictions CS.1.1 and CS.1.2 will need an inverse/reverse property such as *constitutes*. Another option that might be more straightforward is to use *consistsOf* (instead of *comprises*) with a reverse property of *partOf*.) – *need to think about this further, as we have hasPart and isPartOf already, not sure that consistsOf and hasPart are identical, but we should talk about this – see 7 below (I’ve implemented constitutes) … we might consider whether there is some relationship between these properties, and whether separability comes into play here in the definitions.*
3. The Relation concept will be used instead of the ISO parenthetical and informal term ConceptRelation (indicated in ISO Appendix A.3. page 22). The definitions of all subclasses must be augmented to reflect the new name, as well.
4. The Diagram concept was added for generality alignment. Will need a definition. Also, the ConceptDiagram definition will need modification to include the notion Diagram supertype in the definition.
5. Restriction CS.1.4 should indicate minCardinality = 0, rather than =1.
6. Restriction CS.1.4’s property *depicts* needs a reverse property, such as *depictedBy*.

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1. The comprises property for Restriction CS.2.1 will need an inverse/reverse property such as *constitutes*. Another option that might be more straightforward is to use *consistsOf* (instead of *comprises*) with a reverse property of *partOf*.) -- see the discussion under 2, above.
2. The Context concept needs a better definition than ISO’s. (Note: it should probably include the notion of Namespace.

**Relationship Diagrams**

***Page 1***

1. Restrictions R.1.3 should indicate that its union should be disjoint. (created disjointWith relationship between the two)

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1. AssociativeRelation and HierarchicalRelation (subclasss of Relation) should be a disjoint union. (created UnionClass and disjointWith relationship between the two)
2. GenericRelation and HierarchicalRelation (subclasss of HierarchicalRelation) should be a disjoint union. (created UnionClass and disjointWith relationship between GenericRelation and PartitiveRelation \*\*\* please recheck to make sure I did the right thing)
3. RelationBetweenDesignations and RelationBetweenDesignations (subclasss of Relation) need definitions.

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1. Package name at top left of page should read “Relationship Diagrams” instead of “OWL Diagram Relationship Diagrams”—for consistency with other pages in same package.
2. New Designation concepts (Antonym and Synonym) were added so that the base concepts would be in place for definitional purposes only. (To be reconsidered at a later date.)
3. The RelationBetweenDesignations subclasses are disjoint, but it was decided to leave as-is and reconsidered at a later date.

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1. New Designation concepts (Homonym, Mononym, Monoseme, and Polyseme) were added so that the base concepts would be in place for definitional purposes only. (To be reconsidered at a later date.)
2. The RelationBetweenDesignationsAndConcepts subclasses are disjoint, but it was decided to leave as-is and reconsidered at a later date.

**Terminology Work**

***Page 1***

1. HarmonizationActivity is ne an requires a definition. The superclasses for the existing terms, ConceptHarmonization and TermHarmonization requires that the definition refers to new superclass (i.e., each definition would begin with something like a “**harmonization activity** that ....).
2. The ISO-specified disjoint union under HarmonizationActivity will not be employed by this model. (No action required for VOM diagramming.)
3. TerminologyScience needs to include in its notes that in is a synonym to Terminology 2 in the ISO specification in A.6.
4. TerminologyScience is not a subclass of TerminologyWork. The “subclass” relation between these two should be removed.
5. Associations between TerminologyWork, TerminologyScience, and Terminology (as depicted in ISO 1087-1, A.6) need to be added to the VOM version. (Jim will develop a PPT slide that will propose what those association should be.)
6. Between the TermException and TermIdentification, relace the subclass relation with an “includes” property from TermIdentification to TermException. Additionally, add a subclassOf relation from TerminologyWork to the subclass TermIdentification.
7. Both TermException and TermIdentification require property association (e.g., “reflects”) to Corpus (from ISO A.7 and OVM’s Collections and Dictionaries 2.Designation Sets). This can be specified, instead, on the Terminology Work page 1 or on Collections and Dictionaries page 2. (Note: The ISO document includes a reverse property, but Elisa will decide.)
8. In Restriction TW.1.2 replace DesignationSet concept with BaseList and the “produces” property with “reflects”. ~~BaseList (from ISO A.7 and OVM’s Collections and Dictionaries 2.Designation Sets) also requires a property association (e.g. “reflects” or “resultsFrom”) to TermIdentification. This can be specified on the Terminology Work page 1~~ *~~or~~* ~~on Collections and Dictionaries page 2. (Note: The ISO document includes a reverse property, but Elisa will decide.)~~

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1. TerminologyProcess is a new Concept and requires a definition. Also, does it need a superclass for grounding (e.g. Process), or is Thing sufficient? (created Process, which needs a definition)
2. Terminologization is listed and defined in the ISO Vocabulary 3.4.8, however, it does not appear on any ISO diagrams. So, it was placed in Terminology Work, page 2 as a subclass of TerminologyProcess. However, the definition of Terminologization needs to be changed from a “process by which…” to a “**terminology process** by which…”.

**Terms Diagrams**

***Page 1***

1. The definition of Designation should be changed to something like a “form of representation that identifies a concept.” The current definition refers to a “sign which denotes it”. This definition is not well-defined because the terms “sign” and “denotes” have multiple interpretations – *and* neither of which are appropriate for an ontology that uses an intension and extension. Also, SKOS note in the Designation’s rdf should be changed from “In terminology work (3.6.1) three types of designations are distinguished: symbols, appellations (3.4.2) and terms (3.4.3)” to “In Terminology Diagrams (1. Terminology Hierarchy), two types of **designation** are distinguished: **symbol** and **term**.” (Note: Designation is a disjoint union of Symbol and Term. Elisa will decide that the diagram should express this disjoint union – or not.)
2. The Symbol concept is an addition to the ISO 1087-1 terminology and needs a definition, like “a **designation** that is represents a **concept** using media other than alphanumeric character (such as an image, sound, or graphical token).
3. The definition of the Term concept needs to be changed from a “verbal **designation** of a…” to (something like) an “alpha-numeric character **designation** of…”. (or a “letter and number character **designation** of…”.)
4. RatedTerm is a new Concept and requires a definition.

***Page 2***

1. The hasAcceptabilityRating is suggested to have a reverse property. (Alisa think about this at a later time.)
2. RatedTerm is a new Concept and requires a definition that states something like a “**term** that has a **term acceptability rating**.”
3. All the definitions of the concepts that are subclasses of RatedTerm should be changed from a “term rated according to…” to something like a ”**rated term** that is rated according to…”.

***Page 3***

1. The definition of Appellation concept needs to be changed from a “verbal **designation** of an **individual concept**” to (something like) a “**designation** of an **individual concept**”

***Page 4***

1. AbbreviatedForm is a new Concept and requires a definition that states something like a “**designation** that ….” (Note: Elisa, the definitions for AbbreviatedForm and its subclasses all smack of being related to Term. For example, what is and acronym for or Initialism for a Symbol? I recommend making AbbreviatedForm a subclass of Term, instead of Desgnation. Here, AbbreviatedForm would require it definition to states something like a “**term** that is a shortened form of a word or phrase.”) (inheritance for AbbreviatedForm is done – now inherits from Term)
2. Abbreviation is now a subclass of AbbreviatedForm and requires a definition that states something like an “**abbreviated form** composed by omitting ….”
3. ShortForm is now a subclass of AbbreviatedForm and requires a definition that states something like an “**abbreviated form** employs shorter words or phrases than are that represent the non-abbreviated designation.” (Note: Elisa, am not pleased with my offered definition because the ShortForm also applies to Symbol—because the ShortForm is a Designation. And while I think about it more, am not sure how it may differ from a Synonym. In this approach, we would not need AbbreviatedForm at all – and Abbreviation would a subclass of Term. In which case, the definition of Abbreviation would be something like a “**term** that is a shortened form of a word or phrase.”) *\*\*\* I think I agree, but we need to discuss further and come to some decision on this \*\*\**

**Concepts and Dictionaries**

***Page 1***

1. Collection needs a qualifier (e.g. TermRelatedCollection). While Elisa rightly doesn’t like “TermRelated” as a qualifier, a qualifier is still necessary, IMO. Collection is generic to mathematics, like the terms Set and Relation. For example, according to the Dictionary of Mathematics” In mathematics, a **set** is a collection of distinct objects, considered as an object in its own right.” In computer science, a **collection** … is a grouping of some variable number of data items (possibly zero) that have some shared significance to the problem being solved and need to be operated upon together in some controlled fashion. Since the use of “Collection” in ISO 1087-1 is much more restrictive in its meaning—which already has common meaning in math and computer science—I prefer qualifying the term. *Collection, archive, or library, per Wikipedia’s Collection (artwork) but broader than that, is what I was thinking – we should figure this out, but I’ll look around in thesauri for an appropriate replacement*
2. Make an association of Macrostructure and Collection – as well “somehow” with TerminologicalDictionary.
3. Make SpecialLanguage a subclass of DesignationSet. (Here and/or on Page 2)

***Page 2***

1. Make SpecialLanguage a subclass of DesignationSet. (Done)

***Page 4***

1. Add a note to the TerminologicaFormat that indicates the actual usage in a given application would suggest that specifying a supplementary ontology would be necessary. Each technology-specific domain typically has its format and, therefore, a supplementary ontology to express them.

***Page 5***

1. Add a property from TerminologicalEntry to Macrostructure. (Since TerminologicalEntry was not on this diagram, it needs to be added.)

**Terms Diagrams**

***Page 1***

1. TypeOfCharacteristic needs a restriction to say that in “classifies” Characteristic. \*\*\* need definition for classifies \*\*\*
2. Delimiting “characteristics” should also include Relations with Concepts (restriction C.1.4). For example: an Employee *is a Person* that has an employedBy property to Employer. Here, we have to defining associations: one is and ISO Relation and the other is an ISO Characteristic—where both are really DelimitingCharacteristics. (For discussion and possible future inclusion.) *\*\*\* interesting – we should talk about how this looks, etc. \*\*\**

***Page 2***

1. Note 46, above, also applies to C.1.4.
2. Currently, there is no association between Intension and IntensionalDefiniton, as well as Extension and ExtensionalDefiniton. In mathematics, the pairs are —in practice—synonyms. At a minimum, though, the pairs should be associated in some manner (as an ISO Relation or Characteristic). (To be discussed.)

***Page 4***

1. Concept hasIntension via restriction C.4.1. However, need incorporate the (already existing) hasExtension by adding a new restriction (C.4.7) to Concept. Restriction C.4.4 needs to have its minCardinality = 0 – instead of “= 1”. *(renumbered restrictions to go from left to right)*
2. Proposed new definitions for Intension and Extension are as follows:

* **intension** – complete **definition** of the **concept** that furnishes the criterion for membership in the **extension**.   
  Note: The *intension* is often referred to as the “comprehension” (Port Royal Logic), “defining form\*” (Langer, 1967) or “definition that mentions a defining property/characteristic” (Russell, 1919) of a concept
* **extension** –set of all those and only those **object**s to which a given **concept** applies. The criterion for being a member of a **concept**’s **extension** is its **intension**.  
  Note: The *extension* is often referred to as the “range of applicability” (Langer, 1967) or “definition which enumerates“ (Russell, 1919) of a concept.

References are as follows:

* Russell, Bertrand, *Introduction to Mathematical Philosophy*, Touchstone Books, New York, 1919.
* Russell, Bertrand, *Principles of Mathematics (2nd Edition)*, Norton, New York, 1931.
* Ogden, C. K. and I.A. Richards, *The Meaning of Meaning (8th Edition)*, Harcourt Brace, New York, 1946.
* Langer, Susanne K., *An Introduction to Symbolic Logic (3rd Edition)*, Dover, New York, 1967.
* Flew, Anthony, *A Dictionary of Philosophy*, Macmillan, New York, 1985.