

## 2 - LexEVS 5.x Loader Model Elements Mapping

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### Introduction

This document is a section of the [Loader Guide](#). It was formerly the LexEVS v5.0 *Loader Mapping Guide*.

For the LexEVS v5.1 enhancements to the RRF loader, see the [Loader Source Mapping](#) section.

### OWL Mapping - 4.2.1

#### OWL: RDF Schema Features

##### OWL Mapping - Protégé (4.2.1)

| OWL Element                | LexGrid                        | Comments                |
|----------------------------|--------------------------------|-------------------------|
| owl:ontology               | codingScheme                   | No comments             |
| xml:lang                   | codingScheme.defaultLanguage   | Default is 'en'         |
| dc:title                   | codingScheme.formalName        | No comments             |
| rdfs:label                 | codingScheme.localName         | No comments             |
| URI                        | codingScheme.registeredName    | No comments             |
| owl:versionInfo            | codingScheme.representsVersion | Default is 'UNASSIGNED' |
| dc:rights                  | codingScheme.copyright         | No comments             |
| owl:Class (Thing, Nothing) | concept                        | No comments             |
| rdf:ID                     | concept.conceptCode            | No comments             |

|                                 |                                           |                                                                                                                                      |
|---------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| rdf:ID                          | concept.isActive                          | Hard coded as "Active"                                                                                                               |
| rdf:ID                          | concept.isAnonymous                       | No comments                                                                                                                          |
| rsfs:label                      | concept.entityDescription                 | No comments                                                                                                                          |
| rdf:comment                     | concept.comment                           | No comments                                                                                                                          |
| rdfs:subClassOf                 | association                               | No comments                                                                                                                          |
| rdfs:subClassOf                 | association.id = "subClassOf"             | No comments                                                                                                                          |
| rdfs:subClassOf                 | association.forwardName = "subClassOf"    | No comments                                                                                                                          |
| rdfs:subClassOf                 | association.isFunctional = "false"        | No comments                                                                                                                          |
| rdfs:subClassOf                 | association.isNavigable = "true"          | No comments                                                                                                                          |
| rdfs:subClassOf                 | association.isReflexive="true"            | No comments                                                                                                                          |
| rdfs:subClassOf                 | association.isSymmetric="false"           | No comments                                                                                                                          |
| rdfs:subClassOf                 | association.isTransitive="true"           | No comments                                                                                                                          |
| rdf:Property (ObjectProperty)   | association                               | An association between two classes (hasDomain, hasRange)                                                                             |
| rdf:Property (DatatypeProperty) | association<br>concept.conceptProperty    | An association between one class (domain) and one association(hasDomain and hasDataProperty). The conceptProperty defines the range. |
| rdfs:subPropertyOf              | association                               | No comments                                                                                                                          |
| rdfs:subPropertyOf              | association.id = "subPropertyOf"          | No comments                                                                                                                          |
| rdfs:subPropertyOf              | association.forwardName = "subPropertyOf" | No comments                                                                                                                          |
| rdfs:subPropertyOf              | association.isFunctional = "false"        | No comments                                                                                                                          |
| rdfs:subPropertyOf              | association.isNavigable = "true"          | No comments                                                                                                                          |
| rdfs:subPropertyOf              | association.isReflexive="true"            | No comments                                                                                                                          |
| rdfs:subPropertyOf              | association.isSymmetric="false"           | No comments                                                                                                                          |
| rdfs:subPropertyOf              | association.isTransitive="true"           | No comments                                                                                                                          |
| rdfs:domain                     | association                               | No comments                                                                                                                          |
| rdfs:domain                     | association.id = "hasDomain"              | No comments                                                                                                                          |
| rdfs:domain                     | association.forwardName = "hasDomain"     | No comments                                                                                                                          |
| rdfs:domain                     | association.isNavigable = "true"          | No comments                                                                                                                          |
| rdfs:domain                     | association.isReflexive="false"           | No comments                                                                                                                          |
| rdfs:domain                     | association.isSymmetric="false"           | No comments                                                                                                                          |
| rdfs:domain                     | association.isTransitive="true"           | No comments                                                                                                                          |
| rdfs:range                      | association                               | No comments                                                                                                                          |
| rdfs:range                      | association.id = "hasRange"               | No comments                                                                                                                          |
| rdfs:range                      | association.forwardName = "hasRange"      | No comments                                                                                                                          |
| rdfs:range                      | association.isNavigable = "true"          | No comments                                                                                                                          |
| rdfs:range                      | association.isReflexive="false"           | No comments                                                                                                                          |
| rdfs:range                      | association.isSymmetric="false"           | No comments                                                                                                                          |
| rdfs:range                      | association.isTransitive="false"          | No comments                                                                                                                          |
| Individual                      | association                               | A 'hasInstance' association is created. (ie. sourceId = Country, targetId = America)                                                 |
| Individual                      | association.id = "hasInstance"            | No comments                                                                                                                          |

## OWL: (In)Equality

### OWL Mapping - Protégé (4.2.1)

| OWL Element         | LexGrid     | Comments    |
|---------------------|-------------|-------------|
| owl:equivalentClass | association | No comments |

|                        |                                                |             |
|------------------------|------------------------------------------------|-------------|
| owl:equivalentClass    | association.id = "equivalentClass"             | No comments |
| owl:equivalentClass    | association.forwardName = "equivalentClass"    | No comments |
| owl:equivalentClass    | association.isFunctional = "false"             | No comments |
| owl:equivalentClass    | association.isNavigable = "true"               | No comments |
| owl:equivalentClass    | association.isReflexive="true"                 | No comments |
| owl:equivalentClass    | association.isSymmetric="true"                 | No comments |
| owl:equivalentClass    | association.isTransitive="true"                | No comments |
| owl:equivalentClass    | association.reverseName="equivalentClass"      | No comments |
| owl:equivalentProperty | association                                    | No comments |
| owl:equivalentProperty | association.id = "equivalentProperty"          | No comments |
| owl:equivalentProperty | association.forwardName = "equivalentProperty" | No comments |
| owl:equivalentProperty | association.isFunctional = "false"             | No comments |
| owl:equivalentProperty | association.isNavigable = "true"               | No comments |
| owl:equivalentProperty | association.isReflexive="true"                 | No comments |
| owl:equivalentProperty | association.isSymmetric="true"                 | No comments |
| owl:equivalentProperty | association.isTransitive="true"                | No comments |
| owl:equivalentProperty | association.reverseName="equivalentProperty"   | No comments |
| owl:sameAs             | association                                    | No comments |
| owl:sameAs             | association.id = "sameAs"                      | No comments |
| owl:sameAs             | association.forwardName = "sameAs"             | No comments |
| owl:sameAs             | association.isFunctional = "false"             | No comments |
| owl:sameAs             | association.isNavigable = "true"               | No comments |
| owl:sameAs             | association.isReflexive="true"                 | No comments |
| owl:sameAs             | association.isSymmetric="true"                 | No comments |
| owl:sameAs             | association.isTransitive="true"                | No comments |
| owl:sameAs             | association.reverseName="equivalentProperty"   | No comments |
| differentFrom          | association                                    | No comments |
| differentFrom          | association.id = "differentFrom"               | No comments |
| differentFrom          | association.forwardName = "differentFrom"      | No comments |
| differentFrom          | association.isFunctional = "false"             | No comments |
| differentFrom          | association.isNavigable = "true"               | No comments |
| differentFrom          | association.isReflexive="true"                 | No comments |
| differentFrom          | association.isSymmetric="true"                 | No comments |
| differentFrom          | association.isTransitive="true"                | No comments |
| differentFrom          | association.reverseName= "differentFrom"       | No comments |
| owl:AllDifferent       | association                                    | No comments |
| owl:AllDifferent       | association.id = "AllDifferent"                | No comments |
| owl:AllDifferent       | association.forwardName = "AllDifferent"       | No comments |
| owl:AllDifferent       | association.isFunctional = "false"             | No comments |
| owl:AllDifferent       | association.isNavigable = "true"               | No comments |
| owl:AllDifferent       | association.isReflexive="true"                 | No comments |
| owl:AllDifferent       | association.isSymmetric="true"                 | No comments |

|                  |                                         |             |
|------------------|-----------------------------------------|-------------|
| owl:AllDifferent | association.isTransitive="true"         | No comments |
| owl:AllDifferent | association.reverseName= "AllDifferent" | No comments |

## OWL: Property Characteristics

### OWL Mapping - Protégé (4.2.1)

| OWL Element                   | LexGrid                               | Comments                                   |
|-------------------------------|---------------------------------------|--------------------------------------------|
| owl:inverseOf                 | association                           | No comments                                |
| owl:inverseOf                 | association.id = "inverseOf"          | No comments                                |
| owl:inverseOf                 | association.forwardName = "inverseOf" | No comments                                |
| owl:inverseOf                 | association.isFunctional = "false"    | No comments                                |
| owl:inverseOf                 | association.isNavigable = "true"      | No comments                                |
| owl:inverseOf                 | association.isReflexive="true"        | No comments                                |
| owl:inverseOf                 | association.isSymmetric="true"        | No comments                                |
| owl:inverseOf                 | association.isTransitive="true"       | No comments                                |
| owl:inverseOf                 | association.reverseName="inverseOf"   | No comments                                |
| owl:TransitiveProperty        | association.isTransitive              | association property 'isTransitive'        |
| owl:SymmetricProperty         | association.isSymmetric               | association property 'isSymmetric'         |
| owl:InverseFunctionalProperty | association.isReverseFunctional       | association property 'isReverseFunctional' |
| owl:FunctionalProperty        | association.isFunctional              | association property 'isFunctional'        |

## OWL: Property Restrictions

### OWL Mapping - Protégé (4.2.1)

| OWL Element        | LexGrid                                      | Comments                                                                                                              |
|--------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| owl:Restriction    | concept                                      | Create an anonymous concept for the restriction                                                                       |
| owl:Restriction    | concept.id                                   | System generated                                                                                                      |
| owl:Restriction    | concept.isActive = true                      | No comments                                                                                                           |
| owl:Restriction    | concept.isAnonymous = true                   | Hardcoded "True"                                                                                                      |
| owl:onProperty     | association.id                               | No comments                                                                                                           |
| owl:allValuesFrom  | concept.entityDescription                    | String of allValuesFrom values                                                                                        |
| owl:allValuesFrom  | concept.presentation.propertyId              | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:allValuesFrom  | concept.presentation.propertyName            | Hardcoded "textualPresentation"                                                                                       |
| owl:allValuesFrom  | concept.presentation.isPreferred = true      | Hardcoded "true"                                                                                                      |
| owl:allValuesFrom  | concept.presentation.text                    | String of allValuesFrom values                                                                                        |
| owl:allValuesFrom  | concept.conceptProperty.propertyId           | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:allValuesFrom  | concept.conceptProperty.propertyName = type  | Hardcoded "type"                                                                                                      |
| owl:allValuesFrom  | concept.conceptProperty.text = "owl:unionOf" | No comments                                                                                                           |
| owl:someValuesFrom | concept.entityDescription                    | String of someValuesFrom values                                                                                       |
| owl:someValuesFrom | concept.presentation.propertyId              | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:someValuesFrom | concept.presentation.propertyName            | Hardcoded "textualPresentation"                                                                                       |

|                        |                                                         |                                                                                                                       |
|------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| owl:<br>someValuesFrom | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |
| owl:<br>someValuesFrom | concept.presentation.text                               | String of someValuesFrom values                                                                                       |
| owl:<br>someValuesFrom | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:<br>someValuesFrom | concept.conceptProperty.propertyName = type             | Hardcoded "type"                                                                                                      |
| owl:<br>someValuesFrom | concept.conceptProperty.text = "owl:<br>intersectionOf" | No comments                                                                                                           |
| owl:intersectionOf     | concept.entityDescription                               | String of intersectionOf values (ie. Pizza and not VegetarianPizza)                                                   |
| owl:intersectionOf     | concept.presentation.propertyId                         | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:intersectionOf     | concept.presentation.propertyName                       | Hardcoded "textualPresentation"                                                                                       |
| owl:intersectionOf     | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |
| owl:intersectionOf     | concept.presentation.text                               | String of intersectionOf values (ie. Pizza and not VegetarianPizza)                                                   |
| owl:intersectionOf     | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:intersectionOf     | concept.conceptProperty.propertyName = type             | Hardcoded "type"                                                                                                      |
| owl:intersectionOf     | concept.conceptProperty.text = "owl:<br>intersectionOf" | No comments                                                                                                           |
| UnionOf                | concept.conceptProperty.text = "owl:<br>unionOf"        | No comments                                                                                                           |
| owl:<br>complementOf   | association                                             | association.id = "subClassOf"                                                                                         |
| owl:oneOf              | concept.entityDescription                               | String of oneOf values                                                                                                |
| owl:oneOf              | concept.presentation.propertyId                         | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:oneOf              | concept.presentation.propertyName                       | Hardcoded "textualPresentation"                                                                                       |
| owl:oneOf              | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |
| owl:oneOf              | concept.presentation.text                               | String of oneOf values                                                                                                |
| owl:oneOf              | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:oneOf              | concept.conceptProperty.propertyName = type             | Hardcoded "type"                                                                                                      |
| owl:oneOf              | concept.conceptProperty.text = "owl:<br>intersectionOf" | No comments                                                                                                           |
| owl:hasValue           | associationQualification.nameAndValueList.<br>content   | No comments                                                                                                           |
| owl:minCardinality     | concept.entityDescription                               | String of minCardinality Values (ie. (hasTopping min 3) and Pizza)                                                    |
| owl:minCardinality     | concept.presentation.propertyId                         | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:minCardinality     | concept.presentation.propertyName                       | Hardcoded "textualPresentation"                                                                                       |
| owl:minCardinality     | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |
| owl:minCardinality     | concept.presentation.text                               | String of minCardinality Value (ie. (hasTopping min 3) and Pizza)                                                     |
| owl:minCardinality     | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:minCardinality     | concept.conceptProperty.propertyName = type             | Hardcoded "type"                                                                                                      |
| owl:minCardinality     | concept.conceptProperty.text = "owl:<br>intersectionOf" | No comments                                                                                                           |
| owl:<br>maxCardinality | concept.entityDescription                               | String of maxCardinality Values (ie. (hasTopping max 2) and Pizza)                                                    |
| owl:<br>maxCardinality | concept.presentation.propertyId                         | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:<br>maxCardinality | concept.presentation.propertyName                       | Hardcoded "textualPresentation"                                                                                       |
| owl:<br>maxCardinality | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |

|                        |                                                         |                                                                                                                       |
|------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| owl:<br>maxCardinality | concept.presentation.text                               | String of maxCardinality Values (ie. (hasTopping max 2) and Pizza)                                                    |
| owl:<br>maxCardinality | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:<br>maxCardinality | concept.conceptProperty.propertyName =<br>type          | Hardcoded "type"                                                                                                      |
| owl:<br>maxCardinality | concept.conceptProperty.text = "owl:<br>intersectionOf" | No comments                                                                                                           |
| owl:cardinality        | concept.entityDescription                               | String of cardinality Values                                                                                          |
| owl:cardinality        | concept.presentation.propertyId                         | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:cardinality        | concept.presentation.propertyName                       | Hardcoded "textualPresentation"                                                                                       |
| owl:cardinality        | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |
| owl:cardinality        | concept.presentation.text                               | String of maxCardinality Values (ie. (hasTopping max 2) and Pizza)                                                    |
| owl:cardinality        | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:cardinality        | concept.conceptProperty.propertyName =<br>type          | Hardcoded "type"                                                                                                      |
| owl:cardinality        | concept.conceptProperty.text = "owl:<br>intersectionOf" | No comments                                                                                                           |
| owl:disjointWith       | association                                             | association.id = "disjointWith"                                                                                       |

## OWL: Annotation Property

### OWL Mapping - Protégé (4.2.1)

| OWL Element          | LexGrid                                                      | Comments                                                                                                              |
|----------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| rdfs:label           | Presentation                                                 | No comments                                                                                                           |
| rdfs:label           | concept.presentation.propertyId                              | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| rdfs:label           | concept.presentation.propertyName =<br>"textualPresentation" | Hardcoded "textualPresentation"                                                                                       |
| rdfs:label           | concept.presentation.isPreferred = true                      | Hardcoded "true"                                                                                                      |
| rdfs:label           | concept.presentation.text                                    | Value of rdfs:label                                                                                                   |
| rdfs:comment         | Comment                                                      | No comments                                                                                                           |
| rdfs:comment         | concept.comment.propertyId                                   | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| rdfs:comment         | concept.comment.propertyName = "comment"                     | Hardcoded "comment"                                                                                                   |
| rdfs:comment         | concept.presentation.text                                    | Value of rdfs:comment                                                                                                 |
| rdfs:seeAlso         | conceptProperty                                              | No comments                                                                                                           |
| rdfs:<br>isDefinedBy | conceptProperty                                              | No comments                                                                                                           |

## OWL: Versioning

### OWL Mapping - Protégé (4.2.1)

| OWL Element            | LexGrid                                         | Comments    |
|------------------------|-------------------------------------------------|-------------|
| owl:versionInfo        | codingScheme.representsVersion                  | No comments |
| priorVersion           | None                                            | Not Mapped  |
| backwardCompatibleWith | None                                            | Not Mapped  |
| owl:incompatibleWith   | association                                     | No comments |
| owl:incompatibleWith   | association.id = "incompatibleWith"             | No comments |
| owl:incompatibleWith   | association.forwardName =<br>"incompatibleWith" | No comments |

|                      |                                            |             |
|----------------------|--------------------------------------------|-------------|
| owl:incompatibleWith | association.isFunctional = "false"         | No comments |
| owl:incompatibleWith | association.isNavigable = "true"           | No comments |
| owl:incompatibleWith | association.isReflexive="true"             | No comments |
| owl:incompatibleWith | association.isSymmetric="true"             | No comments |
| owl:incompatibleWith | association.isTransitive="true"            | No comments |
| owl:incompatibleWith | association.reverseName="incompatibleWith" | No comments |
| DeprecatedClass      | Concept attribute setIsActive = false      | Not Mapped  |
| DeprecatedProperty   | None                                       | Not Mapped  |

## OWL Mapping - 5.0

### OWL: RDF Schema Features

#### OWL Mapping - Protégé (5.0)

| OWL Element                     | LexEVS                                    | Comments                                                                                                                           |
|---------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| owl:ontology                    | codingScheme                              | No comments                                                                                                                        |
| xml:lang                        | codingScheme.defaultLanguage              | Default is 'en'                                                                                                                    |
| dc:title                        | codingScheme.formalName                   | No comments                                                                                                                        |
| rdfs:label                      | codingScheme.localName                    | No comments                                                                                                                        |
| URI                             | codingScheme.registeredName               | No comments                                                                                                                        |
| owl:versionInfo                 | codingScheme.<br>representsVersion        | Default is 'UNASSIGNED'                                                                                                            |
| dc:rights                       | codingScheme.copyright                    | No comments                                                                                                                        |
| owl:Class (Thing, Nothing)      | concept                                   | No comments                                                                                                                        |
| rdf:ID                          | concept.conceptCode                       | No comments                                                                                                                        |
| rdf:ID                          | concept.isActive                          | Hard coded as "Active"                                                                                                             |
| rdf:ID                          | concept.isAnonymous                       | No comments                                                                                                                        |
| rdf:ID                          | concept.isDefined                         | No comments                                                                                                                        |
| rsfs:label                      | concept.entityDescription                 | No comments                                                                                                                        |
| rdf:comment                     | concept.comment                           | No comments                                                                                                                        |
| rdfs:subClassOf                 | association                               | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.id = "subClassOf"             | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.forwardName = "subClassOf"    | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.isFunctional = "false"        | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.isNavigable = "true"          | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.isReflexive="true"            | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.isSymmetric="false"           | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.isTransitive="true"           | No comments                                                                                                                        |
| rdf:Property (ObjectProperty)   | association                               | An association between two classes (domain, range)                                                                                 |
| rdf:Property (DatatypeProperty) | association<br>concept.conceptProperty    | An association between one class (domain) and one association (domain and hasDataProperty). The conceptProperty defines the range. |
| rdfs:subPropertyOf              | association                               | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.id = "subPropertyOf"          | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.forwardName = "subPropertyOf" | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.isFunctional = "false"        | No comments                                                                                                                        |
| rdfs:subClassOf                 | association.isNavigable = "true"          | No comments                                                                                                                        |

|                 |                                    |                                                                                    |
|-----------------|------------------------------------|------------------------------------------------------------------------------------|
| rdfs:subClassOf | association.isReflexive="true"     | No comments                                                                        |
| rdfs:subClassOf | association.isSymmetric="false"    | No comments                                                                        |
| rdfs:subClassOf | association.isTransitive="true"    | No comments                                                                        |
| rdfs:domain     | association                        | No comments                                                                        |
| rdfs:domain     | association.id = "domain"          | No comments                                                                        |
| rdfs:domain     | association.forwardName = "domain" | No comments                                                                        |
| rdfs:domain     | association.isNavigable = "true"   | No comments                                                                        |
| rdfs:domain     | association.isReflexive="false"    | No comments                                                                        |
| rdfs:domain     | association.isSymmetric="false"    | No comments                                                                        |
| rdfs:domain     | association.isTransitive="true"    | No comments                                                                        |
| rdfs:range      | association                        | No comments                                                                        |
| rdfs:range      | association.id = "range"           | No comments                                                                        |
| rdfs:range      | association.forwardName = "range"  | No comments                                                                        |
| rdfs:range      | association.isNavigable = "true"   | No comments                                                                        |
| rdfs:range      | association.isReflexive="false"    | No comments                                                                        |
| rdfs:range      | association.isSymmetric="false"    | No comments                                                                        |
| rdfs:range      | association.isTransitive="false"   | No comments                                                                        |
| Individual      | association                        | An 'instance' association is created. (ie. sourceId = Country, targetId = America) |
| Individual      | association.id = "instance"        | No comments                                                                        |

## OWL: (In)Equality

### OWL Mapping - Protégé (5.0)

| OWL Element            | LexEVS                                         | Comments    |
|------------------------|------------------------------------------------|-------------|
| owl:equivalentClass    | association                                    | No comments |
| owl:equivalentClass    | association.id = "equivalentClass"             | No comments |
| owl:equivalentClass    | association.forwardName = "equivalentClass"    | No comments |
| owl:equivalentClass    | association.isFunctional = "false"             | No comments |
| owl:equivalentClass    | association.isNavigable = "true"               | No comments |
| owl:equivalentClass    | association.isReflexive="true"                 | No comments |
| owl:equivalentClass    | association.isSymmetric="true"                 | No comments |
| owl:equivalentClass    | association.isTransitive="true"                | No comments |
| owl:equivalentClass    | association.reverseName="equivalentClass"      | No comments |
| owl:equivalentProperty | association                                    | No comments |
| owl:equivalentProperty | association.id = "equivalentProperty"          | No comments |
| owl:equivalentProperty | association.forwardName = "equivalentProperty" | No comments |
| owl:equivalentProperty | association.isFunctional = "false"             | No comments |
| owl:equivalentProperty | association.isNavigable = "true"               | No comments |
| owl:equivalentProperty | association.isReflexive="true"                 | No comments |
| owl:equivalentProperty | association.isSymmetric="true"                 | No comments |
| owl:equivalentProperty | association.isTransitive="true"                | No comments |



|                        |                                              |             |
|------------------------|----------------------------------------------|-------------|
| owl:equivalentProperty | association.reverseName="equivalentProperty" | No comments |
| owl:sameAs             | association                                  | No comments |
| owl:sameAs             | association.id = "sameAs"                    | No comments |
| owl:sameAs             | association.forwardName = "sameAs"           | No comments |
| owl:sameAs             | association.isFunctional = "false"           | No comments |
| owl:sameAs             | association.isNavigable = "true"             | No comments |
| owl:sameAs             | association.isReflexive="true"               | No comments |
| owl:sameAs             | association.isSymmetric="true"               | No comments |
| owl:sameAs             | association.isTransitive="true"              | No comments |
| owl:sameAs             | association.reverseName="sameAs"             | No comments |
| differentFrom          | association                                  | No comments |
| differentFrom          | association.id = "differentFrom"             | No comments |
| differentFrom          | association.forwardName = "differentFrom"    | No comments |
| differentFrom          | association.isFunctional = "false"           | No comments |
| differentFrom          | association.isNavigable = "true"             | No comments |
| differentFrom          | association.isReflexive="true"               | No comments |
| differentFrom          | association.isSymmetric="true"               | No comments |
| differentFrom          | association.isTransitive="true"              | No comments |
| differentFrom          | association.reverseName= "differentFrom"     | No comments |
| owl:AllDifferent       | association                                  | No comments |
| owl:AllDifferent       | association.id = "AllDifferent"              | No comments |
| owl:AllDifferent       | association.forwardName = "AllDifferent"     | No comments |
| owl:AllDifferent       | association.isFunctional = "false"           | No comments |
| owl:AllDifferent       | association.isNavigable = "true"             | No comments |
| owl:AllDifferent       | association.isReflexive="true"               | No comments |
| owl:AllDifferent       | association.isSymmetric="true"               | No comments |
| owl:AllDifferent       | association.isTransitive="true"              | No comments |
| owl:AllDifferent       | association.reverseName= "AllDifferent"      | No comments |

## OWL: Property Characteristics

### OWL Mapping - Protégé (5.0)

| OWL Element                   | LexEVS                                | Comments                                   |
|-------------------------------|---------------------------------------|--------------------------------------------|
| owl:inverseOf                 | association                           | No comments                                |
| owl:inverseOf                 | association.id = "inverseOf"          | No comments                                |
| owl:inverseOf                 | association.forwardName = "inverseOf" | No comments                                |
| owl:inverseOf                 | association.isFunctional = "false"    | No comments                                |
| owl:inverseOf                 | association.isNavigable = "true"      | No comments                                |
| owl:inverseOf                 | association.isReflexive="true"        | No comments                                |
| owl:inverseOf                 | association.isSymmetric="true"        | No comments                                |
| owl:inverseOf                 | association.isTransitive="true"       | No comments                                |
| owl:inverseOf                 | association.reverseName="inverseOf"   | No comments                                |
| owl:TransitiveProperty        | association.isTransitive              | association property 'isTransitive'        |
| owl:SymmetricProperty         | association.isSymmetric               | association property 'isSymmetric'         |
| owl:InverseFunctionalProperty | association.isReverseFunctional       | association property 'isReverseFunctional' |
| owl:FunctionalProperty        | association.isFunctional              | association property 'isFunctional'        |

## OWL: Property Restrictions

### OWL Mapping - Protégé (5.0)

| OWL Element            | LexEVS                                                  | Comments                                                                                                              |
|------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| owl:Restriction        | concept                                                 | Create an anonymous concept for the restriction                                                                       |
| owl:Restriction        | concept.id                                              | System generated                                                                                                      |
| owl:Restriction        | concept.isActive = true                                 | No comments                                                                                                           |
| owl:Restriction        | concept.isAnonymous = true                              | Hardcoded "True"                                                                                                      |
| owl:onProperty         | association.id                                          | No comments                                                                                                           |
| owl:<br>allValuesFrom  | concept.entityDescription                               | String of allValuesFrom values                                                                                        |
| owl:<br>allValuesFrom  | concept.presentation.propertyId                         | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:<br>allValuesFrom  | concept.presentation.propertyName                       | Hardcoded "textualPresentation"                                                                                       |
| owl:<br>allValuesFrom  | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |
| owl:<br>allValuesFrom  | concept.presentation.text                               | String of allValuesFrom values                                                                                        |
| owl:<br>allValuesFrom  | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:<br>allValuesFrom  | concept.conceptProperty.propertyName =<br>type          | Hardcoded "type"                                                                                                      |
| owl:<br>allValuesFrom  | concept.conceptProperty.text = "owl:<br>unionOf"        | No comments                                                                                                           |
| owl:<br>someValuesFrom | concept.entityDescription                               | String of someValuesFrom values                                                                                       |
| owl:<br>someValuesFrom | concept.presentation.propertyId                         | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:<br>someValuesFrom | concept.presentation.propertyName                       | Hardcoded "textualPresentation"                                                                                       |
| owl:<br>someValuesFrom | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |
| owl:<br>someValuesFrom | concept.presentation.text                               | String of someValuesFrom values                                                                                       |
| owl:<br>someValuesFrom | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:<br>someValuesFrom | concept.conceptProperty.propertyName =<br>type          | Hardcoded "type"                                                                                                      |
| owl:<br>someValuesFrom | concept.conceptProperty.text = "owl:<br>intersectionOf" | No comments                                                                                                           |
| owl:intersectionOf     | concept.entityDescription                               | String of intersectionOf values (ie. Pizza and not VegetarianPizza)                                                   |
| owl:intersectionOf     | concept.presentation.propertyId                         | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:intersectionOf     | concept.presentation.propertyName                       | Hardcoded "textualPresentation"                                                                                       |
| owl:intersectionOf     | concept.presentation.isPreferred = true                 | Hardcoded "true"                                                                                                      |
| owl:intersectionOf     | concept.presentation.text                               | String of intersectionOf values (ie. Pizza and not VegetarianPizza)                                                   |
| owl:intersectionOf     | concept.conceptProperty.propertyId                      | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:intersectionOf     | concept.conceptProperty.propertyName =<br>type          | Hardcoded "type"                                                                                                      |
| owl:intersectionOf     | concept.conceptProperty.text = "owl:<br>intersectionOf" | No comments                                                                                                           |
| UnionOf                | concept.conceptProperty.text = "owl:<br>unionOf"        | No comments                                                                                                           |
| owl:<br>complementOf   | association                                             | association.id = "subClassOf"                                                                                         |

|                    |                                                     |                                                                                                                       |
|--------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| owl:oneOf          | concept.entityDescription                           | String of oneOf values                                                                                                |
| owl:oneOf          | concept.presentation.propertyId                     | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:oneOf          | concept.presentation.propertyName                   | Hardcoded "textualPresentation"                                                                                       |
| owl:oneOf          | concept.presentation.isPreferred = true             | Hardcoded "true"                                                                                                      |
| owl:oneOf          | concept.presentation.text                           | String of oneOf values                                                                                                |
| owl:oneOf          | concept.conceptProperty.propertyId                  | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:oneOf          | concept.conceptProperty.propertyName = type         | Hardcoded "type"                                                                                                      |
| owl:oneOf          | concept.conceptProperty.text = "owl:intersectionOf" | No comments                                                                                                           |
| owl:hasValue       | associationQualification.nameAndValueList.content   | No comments                                                                                                           |
| owl:minCardinality | concept.entityDescription                           | String of minCardinality Values (ie. (hasTopping min 3) and Pizza)                                                    |
| owl:minCardinality | concept.presentation.propertyId                     | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:minCardinality | concept.presentation.propertyName                   | Hardcoded "textualPresentation"                                                                                       |
| owl:minCardinality | concept.presentation.isPreferred = true             | Hardcoded "true"                                                                                                      |
| owl:minCardinality | concept.presentation.text                           | String of minCardinality Value (ie. (hasTopping min 3) and Pizza)                                                     |
| owl:minCardinality | concept.conceptProperty.propertyId                  | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:minCardinality | concept.conceptProperty.propertyName = type         | Hardcoded "type"                                                                                                      |
| owl:minCardinality | concept.conceptProperty.text = "owl:intersectionOf" | No comments                                                                                                           |
| owl:maxCardinality | concept.entityDescription                           | String of maxCardinality Values (ie. (hasTopping max 2) and Pizza)                                                    |
| owl:maxCardinality | concept.presentation.propertyId                     | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:maxCardinality | concept.presentation.propertyName                   | Hardcoded "textualPresentation"                                                                                       |
| owl:maxCardinality | concept.presentation.isPreferred = true             | Hardcoded "true"                                                                                                      |
| owl:maxCardinality | concept.presentation.text                           | String of maxCardinality Values (ie. (hasTopping max 2) and Pizza)                                                    |
| owl:maxCardinality | concept.conceptProperty.propertyId                  | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:maxCardinality | concept.conceptProperty.propertyName = type         | Hardcoded "type"                                                                                                      |
| owl:maxCardinality | concept.conceptProperty.text = "owl:intersectionOf" | No comments                                                                                                           |
| owl:cardinality    | concept.entityDescription                           | String of cardinality Values                                                                                          |
| owl:cardinality    | concept.presentation.propertyId                     | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:cardinality    | concept.presentation.propertyName                   | Hardcoded "textualPresentation"                                                                                       |
| owl:cardinality    | concept.presentation.isPreferred = true             | Hardcoded "true"                                                                                                      |
| owl:cardinality    | concept.presentation.text                           | String of cardinality Values                                                                                          |
| owl:cardinality    | concept.conceptProperty.propertyId                  | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:cardinality    | concept.conceptProperty.propertyName = type         | Hardcoded "type"                                                                                                      |
| owl:cardinality    | concept.conceptProperty.text = "owl:intersectionOf" | No comments                                                                                                           |
| owl:disjointWith   | association                                         | association.id = "disjointWith"                                                                                       |

## OWL: Annotation Property

### OWL Mapping - Protégé (5.0)

| OWL Element      | LexEVS                                                    | Comments                                                                                                              |
|------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| rdfs:label       | Presentation                                              | No comments                                                                                                           |
| rdfs:label       | concept.presentation.propertyId                           | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| rdfs:label       | concept.presentation.propertyName = "textualPresentation" | Hardcoded "textualPresentation"                                                                                       |
| rdfs:label       | concept.presentation.isPreferred = true                   | Hardcoded "true"                                                                                                      |
| rdfs:label       | concept.presentation.text                                 | Value of rdfs:label                                                                                                   |
| rdfs:comment     | Comment                                                   | No comments                                                                                                           |
| rdfs:comment     | concept.comment.propertyId                                | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| rdfs:comment     | concept.comment.propertyName = "comment"                  | Hardcoded "comment"                                                                                                   |
| rdfs:comment     | concept.presentation.text                                 | Value of rdfs:comment                                                                                                 |
| rdfs:seeAlso     | conceptProperty                                           | No comments                                                                                                           |
| rdfs:isDefinedBy | conceptProperty                                           | No comments                                                                                                           |

## OWL: Versioning

### OWL Mapping - Protégé (5.0)

| OWL Element            | LexEVS                                       | Comments    |
|------------------------|----------------------------------------------|-------------|
| owl:versionInfo        | codingScheme.representsVersion               | No comments |
| priorVersion           | None                                         | Not Mapped  |
| backwardCompatibleWith | None                                         | Not Mapped  |
| owl:incompatibleWith   | association                                  | No comments |
| owl:incompatibleWith   | association.id = "incompatibleWith"          | No comments |
| owl:incompatibleWith   | association.forwardName = "incompatibleWith" | No comments |
| owl:incompatibleWith   | association.isFunctional = "false"           | No comments |
| owl:incompatibleWith   | association.isNavigable = "true"             | No comments |
| owl:incompatibleWith   | association.isReflexive="true"               | No comments |
| owl:incompatibleWith   | association.isSymmetric="true"               | No comments |
| owl:incompatibleWith   | association.isTransitive="true"              | No comments |
| owl:incompatibleWith   | association.reverseName="incompatibleWith"   | No comments |
| DeprecatedClass        | Concept attribute setIsActive = false        | Not Mapped  |
| DeprecatedProperty     | None                                         | Not Mapped  |

## OWL Mapping - NCI OWL

### OWL: RDF Schema Features

#### OWL Mapping - NCI OWL

| OWL Element  | LexGrid                      | Comments                                       |
|--------------|------------------------------|------------------------------------------------|
| owl:ontology | codingScheme                 | Hardcoded "NCI_Thesaurus"                      |
| xml:lang     | codingScheme.defaultLanguage | Hardcoded "en"                                 |
| dc:title     | codingScheme.formalName      | Hardcoded "NCI Thesaurus"                      |
| rdfs:label   | codingScheme.localName       | Hardcoded "NCI_Thesaurus"                      |
| rdfs:label   | Non                          | Hardcoded "40010"                              |
| rdfs:label   | None                         | Hardcoded "urn:oid:2.16.840.1.113883.3.26.1.1" |

|                            |                                        |                                                                                                                       |
|----------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| URI                        | codingScheme.registeredName            | Hardcoded "http://ncicb.nci.nih.gov/xml/owl/EVS/Thesaurus.owl#"                                                       |
| owl:versionInfo            | codingScheme.representsVersion         | No comments                                                                                                           |
| dc:rights                  | codingScheme.copyright                 | Read from hardcoded "Terms.txt" file .                                                                                |
| rdfs:comment               | codingScheme.entityDescription         | No comments                                                                                                           |
| rdfs:comment               | codingScheme.isNative                  | Hardcoded "true"                                                                                                      |
| owl:Class (Thing, Nothing) | concept                                | No comments                                                                                                           |
| code                       | concept.id                             | No comments                                                                                                           |
| code                       | concept.isActive                       | Hard coded as "true" unless class "owl:DeprecatedClass", then 'false'                                                 |
| code                       | concept.isAnonymous                    | No comments                                                                                                           |
| rsfs:label                 | concept.entityDescription              | No comments                                                                                                           |
| rdf:comment                | concept.comment                        | No comments                                                                                                           |
| rdf:comment                | conceptProperty                        | Indicate whether the concept is primitive (has no equivalent classes)                                                 |
| rdf:comment                | concept.conceptProperty.propertyName   | Hard coded as "primitive"                                                                                             |
| rdf:comment                | concept.conceptProperty.text           | "true"                                                                                                                |
| rdf:comment                | concept.conceptProperty.propertyId     | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| rdf:comment                | presentation                           | Provide default presentation to match concept entity description if not provided as property                          |
| rdf:comment                | concept.presentation.propertyId        | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| rdf:comment                | concept.presentation.propertyName      | Hardcoded "NCI_Preferred_Term"                                                                                        |
| rdfs:label                 | concept.presentation.text              | concept.entityDescription                                                                                             |
| rdfs:label                 | conceptProperty                        | Property with designated concept name label (per NCI requirements and used in codeToName /nameToCode lookup).         |
| rdfs:label                 | concept.conceptProperty.propertyName   | Hard coded as "CONCEPT_NAME"                                                                                          |
| rdfs:label                 | concept.conceptProperty.text           | concept.entityDescription                                                                                             |
| rdfs:label                 | concept.conceptProperty.propertyId     | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| rdfs:label                 | relation                               | Top-level container for associations (non-inheritable, non-defining relationships between concepts).                  |
| rdfs:label                 | relations.dc                           | Hard coded as "associations"                                                                                          |
| rdfs:label                 | relations.isNative                     | Hard coded as "true"                                                                                                  |
| rdfs:label                 | relations.entityDescription            | Hard coded as "Non-inheritable non-defining relations."                                                               |
| rdfs:label                 | relation                               | Top-level container for roles (inheritable relationships)                                                             |
| rdfs:label                 | relations.dc                           | Hard coded as "roles"                                                                                                 |
| rdfs:label                 | relations.isNative                     | Hard coded as "true"                                                                                                  |
| rdfs:label                 | relations.entityDescription            | Hard coded as "Inheritable/defining relations."                                                                       |
| rdfs:subClassOf            | association                            | Association for subtype hierarchy.                                                                                    |
| rdfs:subClassOf            | association.id = "hasSubtype"          | No comments                                                                                                           |
| rdfs:subClassOf            | association.forwardName = "hasSubtype" | No comments                                                                                                           |
| rdfs:subClassOf            | association.reverseName = "isA"        | No comments                                                                                                           |
| rdfs:subClassOf            | association.isNavigable = "true"       | Hard coded as "true"                                                                                                  |
| rdfs:subClassOf            | association.isReflexive="true"         | Hard coded as "true"                                                                                                  |
| rdfs:subClassOf            | association.isSymmetric="false"        | Hard coded as "false"                                                                                                 |
| rdfs:subClassOf            | association.isTransitive="true"        | Hard coded as "true"                                                                                                  |
| hasElement                 | association                            | Association used to register component classes as elements of anonymous node representations.                         |
| hasElement                 | association.id = "hasElement"          | No comments                                                                                                           |
| hasElement                 | association.forwardName = "hasElement" | No comments                                                                                                           |
| hasElement                 | association.isNavigable = "true"       | Hard coded as "true"                                                                                                  |

|                               |                                            |                                                          |
|-------------------------------|--------------------------------------------|----------------------------------------------------------|
| hasElement                    | association.isSymmetric="false"            | Hard coded as "false"                                    |
| hasElement                    | association.isTransitive="true"            | Hard coded as "true"                                     |
| rdfs:domain                   | association                                | Association for role_has_domain relations                |
| rdfs:domain                   | association.id = "Role_Has_Domain"         | No comments                                              |
| rdfs:domain                   | association.forwardName = "roleHasDomain"  | No comments                                              |
| rdfs:domain                   | association.reverseName = "kindIsDomainOf" | No comments                                              |
| rdfs:domain                   | association.isNavigable = "true"           | Hard coded as "true"                                     |
| rdfs:domain                   | association.isReflexive="false"            | Hard coded as "false"                                    |
| rdfs:domain                   | association.isSymmetric="false"            | Hard coded as "false"                                    |
| rdfs:domain                   | association.isTransitive="true"            | Hard coded as "true"                                     |
| rdfs:range                    | association                                | Association for range relations                          |
| rdfs:range                    | association.id = "Role_Has_Range"          | No comments                                              |
| rdfs:range                    | association.forwardName = "roleHasRange"   | No comments                                              |
| rdfs:range                    | association.reverseName = "kindIsRangeOf"  | No comments                                              |
| rdfs:range                    | association.isNavigable = "true"           | Hard coded as "true"                                     |
| rdfs:range                    | association.isReflexive="false"            | Hard coded as "false"                                    |
| rdfs:range                    | association.isSymmetric="false"            | Hard coded as "false"                                    |
| rdfs:range                    | association.isTransitive="false"           | Hard coded as "false"                                    |
| rdf:Property (ObjectProperty) | association                                | An association between two classes (hasDomain, hasRange) |
| rdfs:subPropertyOf            | None                                       | Not Mapped                                               |

## OWL: (In)Equality

### OWL Mapping - NCI OWL

| OWL Element         | LexGrid                                     | Comments                          |
|---------------------|---------------------------------------------|-----------------------------------|
| owl:equivalentClass | association                                 | Association for equivalent class. |
| owl:equivalentClass | association.id = "equivalentClass"          | No comments                       |
| owl:equivalentClass | association.forwardName = "equivalentClass" | No comments                       |
| owl:equivalentClass | association.reverseName = "equivalentClass" | No comments                       |
| owl:equivalentClass | association.isNavigable = "true"            | Hard coded as "true"              |
| owl:equivalentClass | association.isReflexive="true"              | Hard coded as "true"              |
| owl:equivalentClass | association.isSymmetric="true"              | Hard coded as "true"              |
| owl:equivalentClass | association.isTransitive="true"             | Hard coded as "true"              |

## OWL: Property Characteristics

### OWL Mapping - NCI OWL

| OWL Element   | LexGrid                      | Comments    |
|---------------|------------------------------|-------------|
| owl:inverseOf | association                  | No comments |
| owl:inverseOf | association.id = "inverseOf" | No comments |

|                               |                                       |                                            |
|-------------------------------|---------------------------------------|--------------------------------------------|
| owl:inverseOf                 | association.forwardName = "inverseOf" | No comments                                |
| owl:inverseOf                 | association.isFunctional = "false"    | No comments                                |
| owl:inverseOf                 | association.isNavigable = "true"      | No comments                                |
| owl:inverseOf                 | association.isReflexive="true"        | No comments                                |
| owl:inverseOf                 | association.isSymmetric="true"        | No comments                                |
| owl:inverseOf                 | association.isTransitive="true"       | No comments                                |
| owl:inverseOf                 | association.reverseName="inverseOf"   | No comments                                |
| owl:TransitiveProperty        | association.isTransitive              | association property 'isTransitive'        |
| owl:SymmetricProperty         | association.isSymmetric               | association property 'isSymmetric'         |
| owl:InverseFunctionalProperty | association.isReverseFunctional       | association property 'isReverseFunctional' |
| owl:FunctionalProperty        | association.isFunctional              | association property 'isFunctional'        |

## OWL: Property Restrictions

### OWL Mapping - NCI OWL

| OWL Element        | LexGrid                                                           | Comments                                                                                                              |
|--------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| owl:Restriction    | concept                                                           | Anonymous concept created.                                                                                            |
| owl:Restriction    | concept.entityDescription = "RestrictionOn: " + association name  | Concatination of "Restriction On: " and association name                                                              |
| owl:Restriction    | concept.isAnonymous = true                                        | No comments                                                                                                           |
| owl:allValuesFrom  | associationQualification.association.Qualifier = "AllValuesFrom"  | No comments                                                                                                           |
| owl:someValuesFrom | associationQualification.association.Qualifier = "someValuesFrom" | No comments                                                                                                           |
| owl:intersectionOf | concept.entityDescription                                         | Concatination of "Restriction On: " and association name                                                              |
| owl:intersectionOf | concept.isAnonymous = true                                        | No comments                                                                                                           |
| owl:intersectionOf | concept.presentation.propertyId                                   | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:intersectionOf | concept.presentation.propertyName                                 | Hardcoded "textualPresentation"                                                                                       |
| owl:intersectionOf | concept.presentation.isPreferred = true                           | Hardcoded "true"                                                                                                      |
| owl:intersectionOf | concept.presentation.text                                         | Set to concept.entityDescription                                                                                      |
| owl:intersectionOf | concept.conceptProperty.propertyId                                | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:intersectionOf | concept.conceptProperty.propertyName = type                       | Hardcoded "type"                                                                                                      |
| owl:intersectionOf | concept.conceptProperty.text = "owl:intersectionOf"               | No comments                                                                                                           |
| owl:unionOf        | concept.entityDescription                                         | Concatination of "Restriction On: " and association name                                                              |
| owl:unionOf        | concept.isAnonymous = true                                        | No comments                                                                                                           |
| owl:unionOf        | concept.presentation.propertyId                                   | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| owl:unionOf        | concept.presentation.propertyName                                 | Hardcoded "textualPresentation"                                                                                       |
| owl:unionOf        | concept.presentation.isPreferred = true                           | Hardcoded "true"                                                                                                      |
| owl:unionOf        | concept.presentation.text                                         | Set to concept.entityDescription                                                                                      |
| owl:unionOf        | concept.conceptProperty.propertyId                                | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| owl:unionOf        | concept.conceptProperty.propertyName = type                       | Hardcoded "type"                                                                                                      |

|             |                                                    |                                                                                                  |
|-------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------|
| owl:unionOf | concept.conceptProperty.text = "owl:unionOf"       | No comments                                                                                      |
| owl:oneOf   | concept.conceptProperty.propertyId                 | Generated value for property using "P" concatenated with a steadily incremented numerical value. |
| owl:oneOf   | concept.conceptProperty.propertyName = "owl:oneOf" | Hardcoded "owl:oneOf"                                                                            |
| owl:oneOf   | concept.conceptProperty.text                       | String of oneOf values                                                                           |

## OWL: Annotation Property

### OWL Mapping - NCI OWL

| OWL Element      | LexGrid                                  | Comments                                                                                                              |
|------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| rdfs:comment     | Comment                                  | No comments                                                                                                           |
| rdfs:comment     | concept.comment.propertyId               | Generated value for property textual presentation using "P" concatenated with a steadily incremented numerical value. |
| rdfs:comment     | concept.comment.propertyName = "comment" | Hardcoded "comment"                                                                                                   |
| rdfs:comment     | concept.presentation.text                | Value of rdfs:comment                                                                                                 |
| rdfs:seeAlso     | conceptProperty                          | No comments                                                                                                           |
| rdfs:isDefinedBy | conceptProperty                          | No comments                                                                                                           |

## OWL: Versioning

### OWL Mapping - NCI OWL

| OWL Element            | LexGrid                        | Comments    |
|------------------------|--------------------------------|-------------|
| owl:versionInfo        | codingScheme.representsVersion | No comments |
| priorVersion           | None                           | Not Mapped  |
| backwardCompatibleWith | None                           | Not Mapped  |
| DeprecatedClass        | None                           | Not Mapped  |
| DeprecatedProperty     | None                           | Not Mapped  |

## Legacy Complex Properties Mapping

### Legacy Complex Properties Mapping

| Tag                      | Presentation | Source | Representational Form | Qualifier | Model Element       | Value Column Name    | Model Element                        |
|--------------------------|--------------|--------|-----------------------|-----------|---------------------|----------------------|--------------------------------------|
| go-term                  | x            | NA     | NA                    | NA        | None                | propertyValue        | No comments                          |
| go-id                    | NA           | NA     | NA                    | x         | propertyQualifierId | val1                 | PropertyQualifier attribute content? |
| go-source                | NA           | NA     | NA                    | x         | propertyQualifierId | val1                 | PropertyQualifier attribute content? |
| source-date              | NA           | NA     | NA                    | x         | propertyQualifierId | val1                 | PropertyQualifier attribute content? |
| term-name                | x            | NA     | NA                    | NA        | None                | propertyValue        | No comments                          |
| term-group               | NA           | NA     | x                     | NA        | None                | representationalForm | property attribute                   |
| term-source              | NA           | x      | NA                    | NA        | None                | attributeValue       | source                               |
| def-source               | NA           | x      | NA                    | NA        | None                | attributeValue       | source                               |
| def-definition           | x            | NA     | NA                    | NA        | None                | propertyValue        | definition                           |
| Definition_Review_Date   | NA           | NA     | NA                    | x         | propertyQualifierId | val1                 | PropertyQualifier attribute content? |
| Definition_Reviewer_Name | NA           | NA     | NA                    | x         | propertyQualifierId | val1                 | PropertyQualifier attribute content? |

## MLS SemNet Mapping



# Coding Scheme

## UMLS SemNet Mapping

| RRF File Name | RRF Column Name | RRF Definition | NCI Meta only | LexGrid Model Element                 | Comments                                                                                                                                                                                                                                                                |
|---------------|-----------------|----------------|---------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| None          | None            | None           | NA            | codingScheme.representsVersion        | No comments                                                                                                                                                                                                                                                             |
| None          | None            | None           | NA            | codingScheme.codingScheme             | Hard coded in java file as "UMLS_SemNet"                                                                                                                                                                                                                                |
| None          | None            | None           | NA            | codingScheme.formalName               | Hard coded in java file as "UMLS Semantic Network"                                                                                                                                                                                                                      |
| None          | None            | None           | NA            | codingScheme.defaultLanguage          | Hard coded in java file as "en"                                                                                                                                                                                                                                         |
| None          | None            | None           | NA            | codingScheme.approxNumConcepts        | Hard coded in java file as                                                                                                                                                                                                                                              |
| None          | None            | None           | NA            | codingScheme.entityDescription        | Hard coded in java file as "The UMLS Semantic Network is one of three UMLS Knowledge Sources developed as part of the Unified Medical Language System project. The network provides a consistent categorization of all concepts represented in the UMLS Metathesaurus." |
| license.txt   | None            | None           | NA            | codingScheme.copyright                | Read from license.txt file or hard coded reference in java file                                                                                                                                                                                                         |
| license.txt   | None            | None           | NA            | codingScheme.registeredName           | Hard coded in java file as "urn:lsid.nlm.nih.gov:semnet"                                                                                                                                                                                                                |
| license.txt   | None            | None           | NA            | codingScheme.concepts.dc              | Hard coded in java file as "concepts"                                                                                                                                                                                                                                   |
| license.txt   | None            | None           | NA            | codingScheme.relations.dc             | Hard coded in java file as "relations"                                                                                                                                                                                                                                  |
| license.txt   | None            | None           | NA            | codingScheme.mappings.dc              | Hard coded in java file as "mappings"                                                                                                                                                                                                                                   |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | Hard coded in java file as "UMLS_SemNet"                                                                                                                                                                                                                                |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.source                   | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.source.content           | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | codingScheme.localNameList            | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | mappings.supportedFormat              | No comments                                                                                                                                                                                                                                                             |
| license.txt   | None            | None           | NA            | mappings.supportedFormat.localId      | Hard coded in java file as "text/plain"                                                                                                                                                                                                                                 |
| license.txt   | None            | None           | NA            | mappings.supportedFormat.urn          | Hard coded in java file as "urn:oid:2.16.840.1.113883.6.10:text_plain"                                                                                                                                                                                                  |
| license.txt   | None            | None           | NA            | mappings.supportedAssociation         | No comments                                                                                                                                                                                                                                                             |
| SRDEF         | RL              | None           | NA            | mappings.supportedAssociation.localId | No comments                                                                                                                                                                                                                                                             |
| SRDEF         | RL              | None           | NA            | mappings.supportedContext             | No comments                                                                                                                                                                                                                                                             |
| SRDEF         | RL              | None           | NA            | mappings.supportedSource              | No comments                                                                                                                                                                                                                                                             |
| SRDEF         | RL              | None           | NA            | mappings.supportedSource.localId      | Hard coded in java file as "NLM"                                                                                                                                                                                                                                        |
| SRDEF         | RL              | None           | NA            | mappings.supportedSource.urn          | Hard coded in java file as "urn:lsid.nlm.nih.gov"                                                                                                                                                                                                                       |
| SRDEF         | RL              | None           | NA            | mappings.supportedHierarchy           | No comments                                                                                                                                                                                                                                                             |
| SRDEF         | RL              | None           | NA            | mappings.supportedHierarchy.localId   | Hard coded in java file as "is_a"                                                                                                                                                                                                                                       |

|       |     |      |    |                                                |                                                                                                                                        |
|-------|-----|------|----|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| SRDEF | RL  | None | NA | mappings.supportedHierarchy.isForwardNavigable | Hard coded as "true"                                                                                                                   |
| SRDEF | RL  | None | NA | mappings.supportedHierarchy.rootCode           | Hard coded as "@"                                                                                                                      |
| SRDEF | RL  | None | NA | mappings.supportedHierarchy.associationList    | Hard coded in java file as "hasSubtype"                                                                                                |
| SRDEF | RL  | None | NA | mappings.supportedAssociationQualifier         | No comments                                                                                                                            |
| SRFLD | COL | None | NA | mappings.supportedProperty                     | No comments                                                                                                                            |
| SRFLD | COL | None | NA | mappings.supportedProperty.localId             | If SRDEF appears in the FIL column then this is treated a potential supported property and is entered in supported properties as such. |
| SRFLD | COL | None | NA | mappings.supportedProperty.urn                 | Hard coded in java file as ""                                                                                                          |
| SRFLD | COL | None | NA | mappings.supportedLanguage                     | No comments                                                                                                                            |
| SRFLD | COL | None | NA | mappings.supportedLanguage.localId             | Hard coded in java file as "en"                                                                                                        |
| SRFLD | COL | None | NA | mappings.supportedLanguage.urn                 | Hard coded in java file as "urn:oid:2.16.840.1.113883.6.84:en"                                                                         |
| SRFLD | COL | None | NA | mappings.supportedCodingScheme                 | No comments                                                                                                                            |
| SRFLD | COL | None | NA | mappings.supportedCodingScheme.localId         | Hard coded in java file as "UMLS_SemNet"                                                                                               |
| SRFLD | COL | None | NA | mappings.supportedCodingScheme.urn             | Hard coded in java file as "urn:lsid.nlm.nih.gov:semnet"                                                                               |
| SRFLD | COL | None | NA | mappings.supportedRepresentationalForm         | No comments                                                                                                                            |
| SRFLD | COL | None | NA | mappings.supportedConceptStatus                | No comments                                                                                                                            |
| SRFLD | COL | None | NA | mappings.supportedPropertyLink                 | No comments                                                                                                                            |
| SRFLD | COL | None | NA | mappings.supportedPropertyQualifier            | No comments                                                                                                                            |
| SRFLD | COL | None | NA | mappings.supportedDataType                     | No comments                                                                                                                            |

## Concepts

### UMLS SemNet Mapping

| RRF File Name | RRF Column Name | RRF Definition | NCI Meta only | LexGrid Model Element                                                         | Comments                                                                                         |
|---------------|-----------------|----------------|---------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| SRDEF         | UI              | None           | NA            | concept.id(inherited from Entity)                                             | No comments                                                                                      |
| SRDEF         | STY/RL          | None           | NA            | concept.entityDescription(inheritance path Entity->versionableAndDescribable) | No comments                                                                                      |
| SRDEF         | STY/RL          | None           | NA            | concept.conceptProperty                                                       | No comments                                                                                      |
| SRDEF         | NH              | None           | NA            | concept.conceptProperty.text.content                                          | No comments                                                                                      |
| SRDEF         | NH              | None           | NA            | concept.conceptProperty.format                                                | Hard coded in java file as "text/plain"                                                          |
| SRDEF         | NH              | None           | NA            | concept.conceptProperty.propertyName                                          | Hard coded in java file as "NH"                                                                  |
| SRDEF         | NH              | None           | NA            | concept.conceptProperty.propertyId                                            | Generated value for property using "P" concatenated with a steadily incremented numerical value. |
| SRDEF         | NH              | None           | NA            | concept.presentation                                                          | No comments                                                                                      |
| SRDEF         | NH              | None           | NA            | concept.presentation.propertyName (inherited from Property)                   | Hard coded in java file as "STY/RL" or "ABR"                                                     |
| SRDEF         | NH              | None           | NA            | concept.presentation.propertyId                                               | Generated value for property using "P" concatenated with a steadily incremented numerical value. |
| SRDEF         | STY/RL, ABR     | None           | NA            | concept.presentation.text.content                                             | No comments                                                                                      |
| SRDEF         | STY/RL, ABR     | None           | NA            | concept.presentation.format                                                   | Hard coded in java file as "text/plain"                                                          |
| SRDEF         | STY/RL, ABR     | None           | NA            | concept.presentation.isPreferred                                              | Hard coded in java file as true.                                                                 |
| SRDEF         | STY/RL, ABR     | None           | NA            | concept.definition.propertyName (inherited from Property)                     | Hard coded in java file as "DEF"                                                                 |
| SRDEF         | STY/RL, ABR     | None           | NA            | concept.definition.propertyId                                                 | Generated value for property using "P" concatenated with a steadily incremented numerical value. |
| SRDEF         | DEF             | None           | NA            | concept.definition.text.content                                               | No comments                                                                                      |
| SRDEF         | DEF             | None           | NA            | concept.definition.format                                                     | Hard coded in java file as "text/plain"                                                          |
| SRDEF         | DEF             | None           | NA            | concept.definition.isPreferred                                                | Hard coded in java file as true.                                                                 |
| SRDEF         | DEF             | None           | NA            | concept.comment                                                               | No comments                                                                                      |
| SRDEF         | EX              | None           | NA            | concept.comment.propertyName (inherited from Property)                        | Hard coded in java file as "EX"                                                                  |
| SRDEF         | EX              | None           | NA            | concept.comment.text.content                                                  | No comments                                                                                      |

|       |    |      |    |                                                            |                                                                                                  |
|-------|----|------|----|------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| SRDEF | EX | None | NA | concept.comment.format                                     | Hard coded in java file as "text/plain"                                                          |
| SRDEF | EX | None | NA | concept.comment.propertyId                                 | Generated value for property using "P" concatenated with a steadily incremented numerical value. |
| SRDEF | EX | None | NA | concept.instruction                                        | No comments                                                                                      |
| SRDEF | EX | None | NA | concept.instruction.propertyName (inherited from Property) | Hard coded in java file as "UN"                                                                  |
| SRDEF | UN | None | NA | concept.instruction.text.content                           | No comments                                                                                      |
| SRDEF | UN | None | NA | concept.instruction.format                                 | Hard coded in java file as "text/plain"                                                          |
| SRDEF | UN | None | NA | concept.instruction.propertyId                             | Generated value for property using "P" concatenated with a steadily incremented numerical value. |

## Relations

### UMLS SemNet Mapping

| RRF File Name | RRF Column Name        | RRF Definition | NCI Meta only | LexGrid Model Element                                                                                               | Comments                                                                                                               |
|---------------|------------------------|----------------|---------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| SRSTR         | RL                     | None           | NA            | association.id (inherited from Entity)                                                                              | In the case of RL value is "isa" the id is hard coded to hasSubtype. The direction of the association is also reversed |
| SRSTR         | RL                     | None           | NA            | association.isTransitive                                                                                            | hard coded to true if the value of RL is "isa"                                                                         |
| SRSTR         | RL                     | None           | NA            | association.forwardName                                                                                             | Reversed when value of RL is "isa"                                                                                     |
| SRSTR         | STY/RL                 | None           | NA            | associationInstance.sourceId                                                                                        | Reversed when value of RL is "isa"                                                                                     |
| SRSTR         | STY/RL                 | None           | NA            | associationTarget.targetId                                                                                          | No comments                                                                                                            |
| SRDEF         | RIN                    | None           | NA            | association.reverseName                                                                                             | No comments                                                                                                            |
| SRDEF         | DEF                    | None           | NA            | association.entityDescription.content (inheritance path for entityDescription is Entity->versionableAndDescribable) | When SRDEF value RT is "RL"                                                                                            |
| SRSTRE1       | UI/STY(first argument) | None           | NA            | associationInstance.sourceId                                                                                        | Reversed when value of RL is "isa"                                                                                     |
| SRSTRE1       | UI/STY(2nd argument)   | None           | NA            | associationTarget.targetId                                                                                          | Reversed when value of RL is "isa"                                                                                     |

## UMLS Mapping

This section will be updated with the RRF loader enhancements implemented in LexEVS v5.1. Until then, go to the [3 - LexEVS 5.x Loader Source Mapping](#) section of this guide.

## Coding Scheme

### UMLS Mapping

| RRF File Name | RRF Column Name | RRF Definition                             | NCI Meta only | LexGrid Model Element              | Comments                                                                                  |
|---------------|-----------------|--------------------------------------------|---------------|------------------------------------|-------------------------------------------------------------------------------------------|
| MRSAB.RRF     | SVER            | Release date or version number of a source | NA            | codingScheme.<br>representsVersion | No comments                                                                               |
| MRSAB.RRF     | SSN             | Source short name                          | NA            | codingScheme.<br>codingScheme      | No comments                                                                               |
| MRSAB.RRF     | SON             | Source Official Name                       | NA            | codingScheme.<br>formalName        | No comments                                                                               |
| MRSAB.RRF     | LAT             | Language of Term(s)                        | NA            | codingScheme.<br>defaultLanguage   | No comments                                                                               |
| MRSAB.RRF     | TRF             | Term frequency for a source                | None          | codingScheme.<br>approxNumConcepts | No comments                                                                               |
| MRSAB.RRF     | SCIT            | Source citation                            | NA            | codingScheme.<br>entityDescription | inherits entityDescription from versionableAndDescribable                                 |
| MRSAB.RRF     | SCC             | Content contact info for a source          | NA            | codingScheme.<br>copyright         | No comments                                                                               |
| MRSAB.RRF     | SCC             | None                                       | NA            | codingScheme.<br>registeredName    | Pulled from iso mapping configuration file using method getISOString(RSAB from MRSAB.RRF) |
| MRDOC.RRF     | EXPL            | Detailed explanation                       | x             | codingScheme.<br>representsVersion | Where Dockey = "RELEASE" and value = "umls.release.name"                                  |
| MRDOC.RRF     | EXPL            | None                                       | x             | codingScheme.<br>codingScheme      | Hard coded in java file as "NCI MetaThesaurus"                                            |

|             |           |                                      |    |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------|-----------|--------------------------------------|----|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MRDOC.RRF   | EXPL      | None                                 | x  | codingScheme.formalName                | Hard coded in java file as "NCI MetaThesaurus"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRDOC.RRF   | EXPL      | None                                 | x  | codingScheme.defaultLanguage           | Hard coded in java file as "ENG"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| MRCONSO.RRF | None      | None                                 | x  | codingScheme.approxNumConcepts         | Count of CODE value in MRCONSO.RRF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRCONSO.RRF | None      | None                                 | x  | codingScheme.entityDescription         | Hard coded in java file as "NCI MetaThesaurus loaded from RRF files."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| MRCONSO.RRF | None      | None                                 | x  | codingScheme.copyright                 | Hard coded in java file as "Some material in the NCI Metathesaurus is from copyrighted sources of the respective copyright claimants. All sources appearing in the NCI Metathesaurus are licensed or authorized for NCI use. Users of the NCI Metathesaurus are responsible for compliance with the terms of these licenses and with any copyright restrictions and are referred to NCI Center of Bioinformatics for license terms and to the copyright notices appearing in the original sources, all of which are obtainable online by reference at <a href="http://ncimeta.nci.nih.gov/">http://ncimeta.nci.nih.gov/</a> ." |
| MRCONSO.RRF | None      | None                                 | NA | codingScheme.localNameList             | Hard coded as constant in java file as "localName"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRSAB.RRF   | SON       | Source Official Name                 | NA | codingScheme.localNameList             | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MRSAB.RRF   | SON       | Source Official Name                 | NA | codingScheme.localNameList             | Hard coded as constant in java file as "localName"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRSAB.RRF   | SON       | Source Official Name                 | NA | codingScheme.localNameList             | Pulled from iso mapping configuration file using method getISOString(RSAB from MRSAB.RRF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| MRSAB.RRF   | SON       | Source Official Name                 | NA | codingScheme.source                    | Hard coded as constant in java file as "source"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | NA | codingScheme.source.content            | String concatenation of "UMLS-" and value of EXPL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | codingScheme.localNameList             | Hard coded as constant in java file as "localName"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | codingScheme.localNameList             | Hard coded in java file as "NCI Thesaurus"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | codingScheme.localNameList             | Hard coded as constant in java file as "localName"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | codingScheme.localNameList             | Hard coded in java file as "NCI_Thesaurus"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | codingScheme.localNameList             | Hard coded as constant in java file as "localName"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | codingScheme.localNameList             | Hard coded in java file as "10001"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | codingScheme.localNameList             | Hard coded as constant in java file as "source"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | codingScheme.localNameList             | Hard coded in java file as "RRF Files"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | mappings.supportedFormat               | Hard coded as constant in java file as "Format"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | mappings.supportedFormat.localId       | Hard coded as one of several constants in a java file                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| MRDOC.RRF   | EXPL      | Detailed explanation                 | x  | mappings.supportedAssociation          | Hard coded as constant in java file as "Association"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| MRREL.RRF   | REL, RELA | Relationship, Relationship attribute | NA | mappings.supportedAssociation.localId  | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| MRREL.RRF   | REL, RELA | Relationship, Relationship attribute | NA | mappings.supportedContext              | Hard coded as constant in java file as "Context" May not be used in individual RRF load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| MRREL.RRF   | REL, RELA | Relationship, Relationship attribute | NA | mappings.supportedSource               | Hard coded as constant in java file as "Source" May not be used in individual RRF load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRREL.RRF   | REL, RELA | Relationship, Relationship attribute | NA | mappings.supportedHierarchy            | Hard coded as constant in java file as "Hierarchy"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRREL.RRF   | REL, RELA | Relationship, Relationship attribute | NA | mappings.supportedAssociationQualifier | Hard coded as constant in java file as "AssociationQualifier"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|               |           |                                            |    |                                                    |                                                               |
|---------------|-----------|--------------------------------------------|----|----------------------------------------------------|---------------------------------------------------------------|
| MRREL.<br>RRF | REL, RELA | Relationship,<br>Relationship<br>attribute | NA | mappings.<br>supportedPro<br>perty                 | Hard coded as constant in java file as "Property"             |
| MRREL.<br>RRF | REL, RELA | Relationship,<br>Relationship<br>attribute | NA | mappings.<br>supportedLan<br>guage                 | Hard coded as constant in java file as "Language"             |
| MRREL.<br>RRF | REL, RELA | Relationship,<br>Relationship<br>attribute | NA | mappings.<br>supportedCod<br>ingScheme             | Hard coded as constant in java file as "CodingScheme"         |
| MRREL.<br>RRF | REL, RELA | Relationship,<br>Relationship<br>attribute | NA | mappings.<br>supportedRep<br>resentational<br>Form | Hard coded as constant in java file as "RepresentationalForm" |
| MRREL.<br>RRF | REL, RELA | Relationship,<br>Relationship<br>attribute | NA | mappings.<br>supportedCon<br>ceptStatus            | Hard coded as constant in java file as "ConceptStatus"        |
| MRREL.<br>RRF | REL, RELA | Relationship,<br>Relationship<br>attribute | NA | mappings.<br>supportedPro<br>pertyLink             | Hard coded as constant in java file as "PropertyLink"         |
| MRREL.<br>RRF | REL, RELA | Relationship,<br>Relationship<br>attribute | NA | mappings.<br>supportedPro<br>pertyQualifier        | Hard coded as constant in java file as "PropertyQualifier"    |
| MRREL.<br>RRF | REL, RELA | Relationship,<br>Relationship<br>attribute | NA | mappings.<br>supportedDat<br>aType                 | Hard coded as constant in java file as "DataType"             |

## Concepts

### UMLS Mapping

| RRF<br>File<br>Name | RRF<br>Column<br>Name | RRF Definition                                    | NCI<br>Meta<br>only | LexGrid<br>Model<br>Element                  | Comments                                                                                                              |
|---------------------|-----------------------|---------------------------------------------------|---------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| MRCONS<br>O.RRF     | CODE                  | Unique Identifier or code<br>for string in source | NA                  | concept.<br>conceptCode                      | No comments                                                                                                           |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | x                   | concept.<br>conceptCode                      | No comments                                                                                                           |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | NA                  | concept.isActive                             | Hardcoded in parameter as true.                                                                                       |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | NA                  | concept.<br>conceptStatus                    | Hard coded as constant in java file as "Active"                                                                       |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | NA                  | concept.<br>isAnonymous                      | Hardcoded in parameter as false.                                                                                      |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.<br>entityDescription                | No comments                                                                                                           |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.<br>conceptProperty.<br>Format       | Hard coded as constant in java file as "text/plain" or null                                                           |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.<br>conceptProperty.<br>propertyName | May be hard coded as constant in java file as one of several properties.                                              |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.<br>conceptProperty.<br>usageContext | No comments                                                                                                           |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.<br>conceptProperty.<br>propertyId   | Generated value for property using "P" concatenated with a steadily incremented numerical value.                      |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.<br>presentation.<br>propertyId      | Generated value for property textual presentation using "T" concatenated with a steadily incremented numerical value. |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.comment.<br>propertyId               | Generated value for property comment using "C" concatenated with a steadily incremented numerical value.              |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.definition.<br>propertyId            | Generated value for property definition using "D" concatenated with a steadily incremented numerical value.           |
| MRCONS<br>O.RRF     | STR                   | String                                            | NA                  | concept.instruction.<br>propertyId           | Generated value for property instruction using "I" concatenated with a steadily incremented numerical value.          |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | NA                  | concept.<br>conceptProperty.<br>text.content | No comments                                                                                                           |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | NA                  | concept.<br>conceptProperty.<br>propertyId   | Generated value for property using "CUI" concatenated with a steadily incremented numerical value.                    |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | NA                  | concept.<br>conceptProperty.<br>propertyName | Hard coded as constant in java file as "UMLS_CUI"                                                                     |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | NA                  | concept.<br>conceptProperty.<br>propertyType | Hard coded as constant in java file as "property"                                                                     |
| MRCONS<br>O.RRF     | CUI                   | Unique identifier for<br>concept                  | NA                  | concept.<br>conceptProperty.<br>format       | Left as null                                                                                                          |
| MRSTY.<br>RRF       | STY                   | Semantic type                                     | NA                  | concept.<br>conceptProperty.<br>text.content | No comments                                                                                                           |
| MRSTY.<br>RRF       | STY                   | Semantic type                                     | NA                  | concept.<br>conceptProperty.<br>propertyId   | Generated value for property using "SemType" concatenated with a steadily incremented numerical value.                |

|                 |        |                                                                           |    |                                                                           |                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|--------|---------------------------------------------------------------------------|----|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MRSTY.<br>RRF   | STY    | Semantic type                                                             | NA | concept.<br>conceptProperty.<br>propertyName                              | Hard coded as constant in java file as "Semantic_Type"                                                                                                                                                                                                                                                                                                 |
| MRSTY.<br>RRF   | STY    | Semantic type                                                             | NA | concept.<br>conceptProperty.<br>propertyType                              | Hard coded as constant in java file as "property"                                                                                                                                                                                                                                                                                                      |
| MRSTY.<br>RRF   | STY    | Semantic type                                                             | NA | concept.<br>conceptProperty.<br>format                                    | Hard coded as constant in java file as "text/plain"                                                                                                                                                                                                                                                                                                    |
| MRCONS<br>O.RRF | LAT    | Language of Term(s)                                                       | NA | concept.<br>conceptProperty.<br>language                                  | Logic of code simply selects the first definition in the source as the preferred source                                                                                                                                                                                                                                                                |
| MRCONS<br>O.RRF | TS     | Term status                                                               | NA | concept.<br>presentation.<br>isPreferred                                  | One or a combination of these RRF values determines whether a presentation is preferred: LAT, TS, STT, ISPREF, RANK.                                                                                                                                                                                                                                   |
| MRCONS<br>O.RRF | STT    | String type                                                               | NA | concept.<br>presentation.<br>isPreferred                                  | One or a combination of these RRF values determines whether a presentation is preferred: LAT, TS, STT, ISPREF, RANK.                                                                                                                                                                                                                                   |
| MRCONS<br>O.RRF | ISPREF | Indicates whether AUI is preferred                                        | NA | concept.<br>presentation.<br>isPreferred                                  | One or a combination of these RRF values determines whether a presentation is preferred: LAT, TS, STT, ISPREF, RANK.                                                                                                                                                                                                                                   |
| MRRANK.<br>RRF  | RANK   | Termgroup ranking                                                         | NA | concept.<br>presentation.<br>isPreferred                                  | One or a combination of these RRF values determines whether a presentation is preferred: LAT, TS, STT, ISPREF, RANK.                                                                                                                                                                                                                                   |
| MRRANK.<br>RRF  | RANK   | Termgroup ranking                                                         | NA | concept.<br>presentation.<br>isPreferred                                  | The first presentation for each language is automatically marked as isPreferred="true" after using comparator to sort list of presentations using comparator to evaluate each presentation based on a combination of values from LAT, TS, STT, ISPREF, RANK.                                                                                           |
| MRDEF.<br>RRF   | DEF    | Definition                                                                | NA | concept.definition.<br>text.content                                       | No comments                                                                                                                                                                                                                                                                                                                                            |
| MRDEF.<br>RRF   | DEF    | Definition                                                                | NA | concept.definition.<br>isPreferred                                        | Logic of code simply selects the first definition in the source as the preferred source                                                                                                                                                                                                                                                                |
| MRSAT.<br>RRF   | ATN    | Attribute name                                                            | NA | concept.<br>conceptProperty.<br>propertyType                              | Translated to a LexGrid property type. For values AN, CX, HN this property is typed as a "COMMENT" in LexGrid. For value EV this property is typed "PRESENTATION" This only occurs when the STYPE points to the CODE, SCUI or SDUI columns in MRREL.RRF or MRCONSO.RRF. If the STYPE points to SAUI then the values are loaded as property qualifiers. |
| MRSAT.<br>RRF   | ATV    | Attribute value                                                           | NA | concept.<br>conceptProperty.<br>propertyValue                             | No comments                                                                                                                                                                                                                                                                                                                                            |
| MRSAT.<br>RRF   | ATN    | Attribute name                                                            | NA | concept.<br>conceptProperty.<br>propertyQualifier.<br>propertyQualifierId | If the STYPE points to SAUI then the value is loaded as a property qualifier attribute                                                                                                                                                                                                                                                                 |
| MRSAT.<br>RRF   | ATV    | Attribute value                                                           | NA | concept.<br>conceptProperty.<br>propertyQualifier.<br>content             | If the STYPE points to SAUI then the value is loaded as a property qualifier attribute                                                                                                                                                                                                                                                                 |
| MRCONS<br>O.RRF | SAB    | None                                                                      | x  | concept.<br>conceptProperty.<br>source.content                            | No comments                                                                                                                                                                                                                                                                                                                                            |
| MRCONS<br>O.RRF | SAB    | None                                                                      | x  | concept.<br>conceptProperty.<br>propertyQualifier.<br>propertyQualifierId | Hard coded as constant in java file as "source-code"                                                                                                                                                                                                                                                                                                   |
| MRCONS<br>O.RRF | CODE   | None                                                                      | x  | concept.<br>conceptProperty.<br>propertyQualifier.<br>content             | No comments                                                                                                                                                                                                                                                                                                                                            |
| MRCONS<br>O.RRF | CODE   | None                                                                      | x  | concept.<br>conceptProperty.<br>propertyQualifier.<br>propertyQualifierId | Hard coded as constant in java file as "AUI"                                                                                                                                                                                                                                                                                                           |
| MRCONS<br>O.RRF | AUI    | None                                                                      | x  | concept.<br>conceptProperty.<br>propertyQualifier.<br>content             | No comments                                                                                                                                                                                                                                                                                                                                            |
| MRCONS<br>O.RRF | AUI    | None                                                                      | x  | concept.<br>presentation.<br>representationalForm                         | When ATN value is EV this presentation will be given a representationalForm of "Abbrev."                                                                                                                                                                                                                                                               |
| MRCONS<br>O.RRF | TTY    | Term type in source                                                       | NA | concept.<br>presentation.<br>representationForm                           | When TTY value is FN then representationalForm is represented as "Full Form" Otherwise the representationalForm is the same as the TTY source (i.e. if TTY is PT then representationalForm is PT.) PT is one of the preferred presentations.                                                                                                           |
| MRCONS<br>O.RRF | TTY    | Term type in source                                                       | NA | concept.<br>conceptProperty.<br>propertyQualifier.<br>propertyQualifierId | Hard coded as "HCD"                                                                                                                                                                                                                                                                                                                                    |
| MRHIER.<br>RRF  | HCD    | Source asserted hierarchical number or code for this atom in this context | NA | concept.<br>conceptProperty.<br>propertyQualifier.<br>content             | This propertyQualifier is present when the HCD is populated in the the MRHIER file. The corresponding code and property for concept or code is qualified as a code or concept with a context derived heirarchy.                                                                                                                                        |

## Relations

### UMLS Mapping

| RRF<br>File<br>Name | RRF<br>Column<br>Name | RRF<br>Definition                         | NCI<br>Meta<br>only | LexGrid Model Element | Comments    |
|---------------------|-----------------------|-------------------------------------------|---------------------|-----------------------|-------------|
| MRREL.<br>RRF       | CUI1                  | Unique<br>identifier for<br>first concept | NA                  | None                  | No comments |

|             |                |                                                |    |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|----------------|------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MRREL.RRF   | AUI1           | Unique identifier for first atom               | NA | None                                                                                                                                                                                                    | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRCONSO.RRF | CODE           | Unique identifier or code for string in source | NA | ConceptReference.conceptCode (Model element is a ResolvedConceptReference with the value sourceOf attached to the appropriate AssociationList containing this particular REL or RELA association name.) | Mapping to the CODE depends upon the CUI or a combination of CUI and AUI values. If the CODE value is "NOCODE" then LexBIG concatenates "NOCODE" with a "-" and the CUI value. Target or source code value requires use of the DIR flag which indicates the directionality of the relationship in REL or RELA. CUI1 can be used as a pointer to the source CODE value if DIR equals Y, else CUI1 is the targetCode. Similarly, if an AUI exists AUI1 can be an indicator for CODE value to be either or source or target depending on the DIR flag. |
| MRREL.RRF   | CUI2           | Unique identifier for second concept           | NA | None                                                                                                                                                                                                    | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRREL.RRF   | AUI2           | Unique identifier for second atom              | NA | None                                                                                                                                                                                                    | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRCONSO.RRF | CODE           | Unique identifier or code for string in source | NA | ConceptReference.conceptCode (Model element is a ResolvedConceptReference with the value targetOf attached to the appropriate AssociationList containing this particular REL or RELA association name.) | Mapping to the CODE depends upon the CUI or a combination of CUI and AUI values. If the CODE value is "NOCODE" then LexBIG concatenates "NOCODE" with a "-" and the CUI value. Target or source code value requires use of the DIR flag which indicates the directionality of the relationship in REL or RELA. CUI2 can be used as a pointer to the source CODE value if DIR equals Y, else CUI1 is the targetCode. Similarly, if an AUI exists AUI2 can be an indicator for CODE value to be either or source or target depending on the DIR flag. |
| MRREL.RRF   | DIR            | Source asserted directionality flag            | NA | None                                                                                                                                                                                                    | The UMLS directional flag. Y indicates that this is the direction of the RELA relationship in its source; N indicates that it is not; otherwise indicates that it is not important or has not yet been determined. (If blank RELA, we interpret as 'N', based on empirical review of meta files).                                                                                                                                                                                                                                                   |
| MRREL.RRF   | RELA           | Relationship attribute                         | NA | association.id (id inherited from Entity)                                                                                                                                                               | Source defined associations. If RELA value is "inverse_isa" then it is changed to "hasSubtype." All others mapped as defined in source.                                                                                                                                                                                                                                                                                                                                                                                                             |
| MRREL.RRF   | REL            | Relationship                                   | NA | association.id (id inherited from Entity)                                                                                                                                                               | UMLS defined associations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| MRSAT.RRF   | METAUI         | Metathesaurus asserted unique identifier       | NA | None                                                                                                                                                                                                    | Presence of RUI in MRSAT.RRF METAUI column indicates the association defined in MRREL has an association qualifier. Currently only MedDRA uses these.                                                                                                                                                                                                                                                                                                                                                                                               |
| MRSAT.RRF   | ATN            | None                                           | NA | AssociatedConcept.nameAndValueList.name                                                                                                                                                                 | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRSAT.RRF   | ATV            | None                                           | NA | AssociationQualification.nameAndValueList.content                                                                                                                                                       | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             |                |                                                | NA | AssociatedConcept.nameAndValueList.name                                                                                                                                                                 | Qualifier name is hard coded to "HCD" This association qualifier is attached to an association when the HCD field in MRHIER.RRF is populated. Associations are identified by evaluating a structured series of AUI's that describe the path to root (PTR field in MRHIER) Once these associations are identified they have an association qualifier attached to them with the value of The HCD loaded as the qualifier.                                                                                                                             |
| MRHIER.RRF  | HCD            | None                                           | NA | AssociationQualification.nameAndValueList.content                                                                                                                                                       | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRSAB.RRF   | SSN            | Source short name                              | NA | association.codingSchemeld (Inherited from Entity)                                                                                                                                                      | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRREL.RR    | REL or RELA    | Relationship or Relationship attribute         | NA | association.forwardName                                                                                                                                                                                 | Unqualified REL or RELA value (inverse_isa remains the same)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.reverseName                                                                                                                                                                                 | Where DOCKEY in MRDOC equals REL or RELA and value is the association name and TYPE is REL or RELA name prepended to "_inverse".                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.inverse                                                                                                                                                                                     | Hard coded as a blank string.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.isAntiReflexive                                                                                                                                                                             | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.isAntiSymmetric                                                                                                                                                                             | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.isAntiTransitive                                                                                                                                                                            | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.isAntiTransitive                                                                                                                                                                            | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.isNavigable                                                                                                                                                                                 | Hard coded as Boolean with value true.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.isReflexive                                                                                                                                                                                 | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.isReverseFunctional                                                                                                                                                                         | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRDOC.RRF   | EXPL           | Detailed explanation                           | NA | association.isSymmetric                                                                                                                                                                                 | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRREL.RRF   | SAB, REL, RELA | Source abbreviation                            | NA | association.isTransitive                                                                                                                                                                                | True when the name of the association can be mapped to a source defined in the SAB attribute of MRREL.RRF. Not the SAB value itself, but extrapolated from it using SAB to REL, RELA relationship.                                                                                                                                                                                                                                                                                                                                                  |
| MRREL.RRF   | SAB, REL, RELA | Source abbreviation                            | NA | association.isTranslationAssociation                                                                                                                                                                    | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRREL.RRF   | SAB, REL, RELA | Source abbreviation                            | NA | association.targetCodingScheme                                                                                                                                                                          | Hard coded to null.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MRREL.RRF   | SAB, REL, RELA | Source abbreviation                            | NA | association.entityDescription.content (inheritance path for entityDescription is Entity->versionableAndDescribable)                                                                                     | Hard coded to: "UMLS-defined relationships"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRREL.RRF   | SAB, REL, RELA | Source abbreviation                            | NA | None                                                                                                                                                                                                    | No comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRREL.RRF   | SAB, REL, RELA | Source abbreviation                            | NA | relations.dc                                                                                                                                                                                            | If REL, this is hard coded as "UMLS-Relations" if RELA then it is hard coded to "Relations"                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MRREL.RRF   | REL, RELA      | None                                           | x  | propertyLink.link                                                                                                                                                                                       | This is a link established when the MRREL.RRF file contains a relationship where the CUI is related to itself. Under these conditions the relationship is mapped as a property link with the MRREL defined relationship mapped as the link value.                                                                                                                                                                                                                                                                                                   |
| MRREL.RRF   | REL, RELA      | None                                           | x  | propertyLink.sourceProperty                                                                                                                                                                             | Generated as a propertyId for concept, ex: "T-10" This is retrieved based on the AUI value in MRCONSO.RRF from the entityPropertyMultiAttrib table where the AUI equals the attributeValue column.                                                                                                                                                                                                                                                                                                                                                  |
| MRREL.RRF   | REL, RELA      | None                                           | x  | propertyLink.targetProperty                                                                                                                                                                             | Generated as a propertyId for concept, ex: "T-10" This is retrieved based on the AUI value in MRCONSO.RRF from the entityPropertyMultiAttrib table where the AUI equals the attributeValue column.                                                                                                                                                                                                                                                                                                                                                  |

## SNOMED UMLS Mapping

| RRF File Name | RRF Column Name | RRF Definition                             | LexGrid Model Element          | Comments          |
|---------------|-----------------|--------------------------------------------|--------------------------------|-------------------|
| RSAB.RRF      | SVER            | Release date or version number of a source | codingScheme.representsVersion | No comments       |
| RSAB.RRF      | SSN             | Source short name                          | codingScheme.codingScheme?     | No comments       |
| RSAB.RRF      | SON             | Source Official Name                       | codingScheme.formalName        | No comments       |
| RSAB.RRF      | SON             | Hard coded to "en"                         | codingScheme.defaultLanguage   | No comments       |
| MRSAT.RRF     | ATV             | None                                       | concept.presentation.language  | Unique to snomed. |

## OBO Mapping

| OBO Class       | OBO Entity                     | LexGrid Model Element                                                 | Notes                                                                                                                                                                  |
|-----------------|--------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Document Header | format-version                 | None                                                                  | Not mapped                                                                                                                                                             |
| Document Header | data-version                   | CodingScheme.representsVersion                                        | Creates a codingSchemeVersion and SystemRelease record. If not specified, then hard coded "UNASSIGNED"                                                                 |
| Document Header | version                        | CodingScheme.representsVersion                                        | Deprecated - use data-version if present.                                                                                                                              |
| Document Header | date                           | None                                                                  | Not mapped                                                                                                                                                             |
| Document Header | saved-by                       | None                                                                  | Ignored but included if contained in the remark entity.                                                                                                                |
| Document Header | auto-generated-by              | None                                                                  | Ignored but included if contained in the remark entity.                                                                                                                |
| Document Header | subsetdef                      | None                                                                  | Not mapped                                                                                                                                                             |
| Document Header | import                         | None                                                                  | Deprecated - Imports are used to assemble a larger document from smaller.                                                                                              |
| Document Header | typeref                        | None                                                                  | Deprecated                                                                                                                                                             |
| Document Header | synonymtypedef                 | None                                                                  | Not mapped                                                                                                                                                             |
| Document Header | idspace                        | None                                                                  | Not mapped. The idspace is a triple - localName, URN and description.                                                                                                  |
| Document Header | default-relationship-id-prefix | None                                                                  | Not mapped                                                                                                                                                             |
| Document Header | id-mapping                     | CodingScheme.supportedAssociation                                     | This is more generalized than the LexGrid model, as it supports mapping between *any* id's. Note that its primary purpose, however, is to handle supportedAssociation. |
| Document Header | remark                         | CodingScheme.entityDescription                                        | Will combine multiple remark entities into the entityDescription.                                                                                                      |
| Document Header | default-namespace              | codingScheme.codingScheme                                             | Will use default-namespace if provided; otherwise will use filename without the extension.                                                                             |
| Document Header | default-namespace              | codingScheme.formalName                                               | Will use default-namespace if provided; otherwise will use filename without the extension.                                                                             |
| Document Header | default-namespace              | codingScheme.registeredName                                           | Combination of "urn:lsid:bioontology.org:" and if provided, the value in "default-namespace"; but if not will use filename without the extension.                      |
| Document Header | default-namespace              | codingScheme.defaultLanguage                                          | Hardcoded "en"                                                                                                                                                         |
| Document Header | default-namespace              | codingScheme.isNative                                                 | Hardcoded "true"                                                                                                                                                       |
| Stanza          | id                             | CodedEntry.conceptCode                                                | No comments                                                                                                                                                            |
| Stanza          | name                           | CodedEntry.entityDescription                                          | No comments                                                                                                                                                            |
| Stanza          | name                           | CodedEntry.presentation<br>['textualPresentation'].text               | No comments                                                                                                                                                            |
| Stanza          | name                           | CodedEntry.presentation<br>['textualPresentation'].isPreferred = true | No comments                                                                                                                                                            |
| Stanza          | alt_id                         | CodedEntry.property.property="alt_id"                                 | No comments                                                                                                                                                            |
| Stanza          | alt_id                         | CodedEntry.property['alt_id'].propertyId                              | No comments                                                                                                                                                            |
| Stanza          | alt_id                         | CodedEntry.property['alt_id'].text                                    | No comments                                                                                                                                                            |
| Stanza          | is_anonymous                   | CodedEntry.isAnonymous = true                                         | No comments                                                                                                                                                            |
| Stanza          | is_obsolete                    | CodedEntry.isActive = false                                           | No comments                                                                                                                                                            |



|                |                                |                                                            |                                                                                                                                                                  |
|----------------|--------------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stanza         | def                            | CodedEntry.definition                                      | No comments                                                                                                                                                      |
| Stanza         | def                            | CodedEntry.definition.isPreferred = true                   | No comments                                                                                                                                                      |
| Stanza         | def.dbxref                     | None                                                       | See dbxref                                                                                                                                                       |
| Stanza         | comment                        | CodedEntry.comment.text                                    | No comments                                                                                                                                                      |
| Stanza         | subset                         | property[subset tag]                                       | See subsetdef                                                                                                                                                    |
| Stanza         | synonym                        | presentation[\"textualPresentation\"].text                 | No comments                                                                                                                                                      |
| Stanza         | synonym.scope                  | presentation[\"textualPresentation\"].degreeOfFidelity     | No comments                                                                                                                                                      |
| Stanza         | synonym.type                   | presentation[\"textualPresentation\"].representationalForm | No comments                                                                                                                                                      |
| Stanza         | synonym.dbxref                 | See dbxref                                                 | No comments                                                                                                                                                      |
| Stanza         | exact_synonym                  | ---                                                        | See synonym                                                                                                                                                      |
| Stanza         | narrow_synonym                 | —                                                          | See synonym                                                                                                                                                      |
| Stanza         | broad_synonym                  | —                                                          | See synonym                                                                                                                                                      |
| Stanza         | xref                           | associations.[\"mapsTo\"]                                  | No comments                                                                                                                                                      |
| Stanza         | xref_analog                    | —                                                          | See synonym                                                                                                                                                      |
| Stanza         | xref_unk                       | None                                                       | No comments                                                                                                                                                      |
| Stanza         | is_a                           | associations.[\"hasSubtype\"]                              | Reverse of the source and target.                                                                                                                                |
| Stanza         | is_a.namespace                 | None                                                       | If present, the supplied namespace becomes the owning \"codingScheme\".                                                                                          |
| Stanza         | is_a.derived                   | associations.hasSubtype.associationQualifier               | If present, need to include derived in the supportedAssociationQualifiers section                                                                                |
| Stanza         | intersection_of                | None                                                       | Processed the same way that OWL intersection operator is processed. This includes creation of anonymous sets.                                                    |
| Stanza         | union_of                       | —                                                          | Same as OWL                                                                                                                                                      |
| Stanza         | disjoint_from                  | —                                                          | Same as OWL                                                                                                                                                      |
| Stanza         | relationship                   | associations.                                              | No comments                                                                                                                                                      |
| Stanza         | relationship.not_necessary     | associations..associationQualifier                         | No comments                                                                                                                                                      |
| Stanza         | relationship.inverse_necessary | associations..associationQualifier                         | No comments                                                                                                                                                      |
| Stanza         | relationship.namespace         | None                                                       | If present, the supplied namespace becomes the owning \"codingScheme\".                                                                                          |
| Stanza         | relationship.derived           | associations..associationQualifier                         | No comments                                                                                                                                                      |
| Stanza         | relationship.cardinality       | associations..associationQualifier                         | No comments                                                                                                                                                      |
| Stanza         | relationship.maxCardinality    | associations..associationQualifier                         | No comments                                                                                                                                                      |
| Stanza         | relationship.minCardinality    | associations..associationQualifier                         | No comments                                                                                                                                                      |
| Stanza         | is_obsolete                    | codedEntry.isActive = false                                | No comments                                                                                                                                                      |
| Stanza         | is_obsolete                    | codedEntry.conceptStatus=\"is_obsolete\"                   | No comments                                                                                                                                                      |
| Stanza         | replaced_by                    | None                                                       | No comments                                                                                                                                                      |
| Stanza         | consider                       | —                                                          | Not mapped                                                                                                                                                       |
| Stanza         | use_term                       | —                                                          | Deprecated                                                                                                                                                       |
| dbxref         | dbxref name                    | CodedEntry..source                                         | No comments                                                                                                                                                      |
| dbxref         | dbxref name                    | supportedSource                                            | dbxref name format is inconsistent. In most cases, it can be the localName of supportedSource, but special processing may be necessary in the case of URL's, etc |
| dbxref         | dbxref description             | —                                                          | Not mapped                                                                                                                                                       |
| dbxref         | trailing modifiers             | —                                                          | Not mapped                                                                                                                                                       |
| typeDef Stanza | domain                         | associations.[\"has_domain\"]                              | No comments                                                                                                                                                      |
| typeDef Stanza | range                          | associations.[\"has_range\"]                               | No comments                                                                                                                                                      |
| typeDef Stanza | is_cyclic                      | property[\"is_cyclic\"]                                    | No comments                                                                                                                                                      |
| typeDef Stanza | is_reflexive                   | property[\"is_reflexive\"]                                 | No comments                                                                                                                                                      |
| typeDef Stanza | is_reflexive                   | association.isReflexive                                    | No comments                                                                                                                                                      |
| typeDef Stanza | is_symmetric                   | property[\"is_symmetric\"]                                 | No comments                                                                                                                                                      |
| typeDef Stanza | is_symmetric                   | association.isSymmetric                                    | No comments                                                                                                                                                      |

|                 |               |                                 |                                                         |
|-----------------|---------------|---------------------------------|---------------------------------------------------------|
| typeDef Stanza  | is_transitive | property['is_transitive']       | No comments                                             |
| typeDef Stanza  | is_transitive | association.isTransitive        | No comments                                             |
| typeDef Stanza  | inverse_of    | association.inverse             | No comments                                             |
| instance stanza | id            | same rules as general stanza    | Same rules as general stanza                            |
| instance stanza | name          | same rules as general stanza    | Same rules as general stanza                            |
| instance stanza | instance_of   | association['has_instance']     | No comments                                             |
| instance stanza | instance_of   | CodedEntry.property.property="" | Data type properties go in Coded Entry property section |

## HL7 RIM Mapping

| HL7 Table               | HL7 Column           | LexGrid Model Element                                                    | Notes                                                                                                                                               | Intentionally Not Mapped    | Outstanding Issues |
|-------------------------|----------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------|
| Model                   | <modelID>            | <codingSchemeName>                                                       |                                                                                                                                                     | None                        | None               |
| Model                   | <name>               | <formalName>                                                             |                                                                                                                                                     | None                        | None               |
| Model                   | <name>               | <registeredName>                                                         | <a href="http://www.hl7.org/Library/data-model/RIM">http://www.hl7.org/Library/data-model/RIM</a> *[1]                                              | None                        | None               |
| Model                   | <name>               | <defaultLanguage>                                                        | en*                                                                                                                                                 | None                        | None               |
| Model                   | <versionNumber>      | <representsVersion>                                                      |                                                                                                                                                     | None                        | None               |
| Model                   | <versionNumber>      | <isNative>                                                               | 0*                                                                                                                                                  | None                        | None               |
| Model                   | <versionNumber>      | <approximateNumberOfConcepts>                                            | Result of count on concept bearing table?                                                                                                           | None                        | None               |
| Model                   | <versionNumber>      | <firstRelease>                                                           | MISSING                                                                                                                                             | None                        | None               |
| Model                   | <versionNumber>      | <modifiedRelease>                                                        | MISSING                                                                                                                                             | None                        | None               |
| Model                   | <versionNumber>      | <deprecated>                                                             | MISSING                                                                                                                                             | None                        | None               |
| Model                   | <description>        | <entityDescription>                                                      | None                                                                                                                                                | None                        | None               |
| Model                   | <description>        | <copyright>                                                              | MISSING                                                                                                                                             | None                        | None               |
| VCS_code_system         | codeSystemId         | codingScheme.registeredName                                              | Moved to metadata file.                                                                                                                             | None                        | None               |
| VCS_code_system         | codeSystemType       | commonTypes::Properties                                                  | This is an HL7 specific code system property to distinguish internal vs external code systems. Moved to metadata file.                              | None                        | None               |
| VCS_code_system         | codeSystemName       | concept.conceptCode                                                      | Moved to metadata file.                                                                                                                             | None                        | None               |
| VCS_code_system         | codeSystemName       | concept.presentation['textualPresentation'].text                         | None                                                                                                                                                | None                        | None               |
| VCS_code_system         | fullName             | codingScheme.formalName                                                  | None                                                                                                                                                | None                        | None               |
| VCS_code_system         | description          | codingScheme.entityDescription                                           | Moved to metadata file.                                                                                                                             | None                        | None               |
| VCS_code_system         | releaseId            | codingScheme.representsVersion                                           | Moved to metadata file.                                                                                                                             | None                        | None               |
| VCS_code_system         | copyrightNotice      | codingScheme.copyright                                                   | Moved to metadata file.                                                                                                                             | None                        | None               |
| VCS_code_system         | literal('en')        | codingScheme.defaultLanguage                                             | Moved to metadata file.                                                                                                                             | None                        | None               |
| VCS_concept_code_xref   | internalId           | None                                                                     | None                                                                                                                                                | None                        | None               |
| VCS_concept_code_xref   | Concept Code         | concept.conceptCode                                                      | None                                                                                                                                                | RIM db column conceptCode2  | None               |
| VCS_concept_code_xref   | Case Difference      | commonTypes::Properties                                                  | Basically a proptry to outline whether there are case differences in the Concept Code or not (mainly used, but not restricted tor units of measure) | RIM db column codeInstance  | None               |
| VCS_concept_code_xref   | Status               | concept.isActive=(conceptStatus=='A'?)                                   | None                                                                                                                                                | RIM db column conceptStatus | None               |
| VCS_concept_code_xref   | Status               | concept.conceptStatus                                                    | Not used by HL7. A = isActive, R = retired                                                                                                          | None                        | None               |
| VCS_concept_designation | internalId           | None                                                                     | foreign key                                                                                                                                         | None                        | None               |
| VCS_concept_designation | designation          | concept.presentation['textualPresentation'].text                         | None                                                                                                                                                | None                        | None               |
| VCS_concept_designation | designationSeq       | None                                                                     | None                                                                                                                                                | None                        | None               |
| VCS_concept_designation | language             | concept.presentation['textualPresentation'].language                     | Can be omitted if language = default language                                                                                                       | None                        | None               |
| VCS_concept_designation | preferredForLanguage | concept.presentation['textualPresentation'].isPreferred                  | None                                                                                                                                                | None                        | None               |
| VCS_concept_description | internalId           | with(codeSystem[deref(internalId)],concept[deref(internalId)].definition | foreign key                                                                                                                                         | None                        | None               |
| VCS_concept_description | description          | concept.presentation['textualPresentation'].text                         | None                                                                                                                                                | None                        | None               |
| VCS_concept_description | language             | concept.presentation['textualPresentation'].language                     | None                                                                                                                                                | None                        | None               |

|                           |                                                                      |                                                                                      |                                                                        |      |      |
|---------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------|------|------|
| VCS_concept_description   | <i>literal('true')</i>                                               | concept.presentation["textualPresentation"].isPreferred                              | None                                                                   | None | None |
| VCS_concept_description   | <i>uniqueId()</i>                                                    | concept.presentation["textualPresentation"].propertyId                               | None                                                                   | None | None |
| VCS_concept_description   | <i>literal('definition')</i>                                         | concept.presentation["textualPresentation"].property                                 | None                                                                   | None | None |
| VCS_concept_property      | internalId                                                           | None                                                                                 | foreign key                                                            | None | None |
| VCS_concept_property      | propertyCode                                                         | concept.property.property                                                            | None                                                                   | None | None |
| VCS_concept_property      | propertySeq                                                          | None                                                                                 | Currently not used by HL7                                              | None | None |
| VCS_concept_property      | propertyValue                                                        | concept.property.text                                                                | None                                                                   | None | None |
| VCS_concept_property      | language                                                             | concept.property.language                                                            | None                                                                   | None | None |
| VCS_concept_relationship  | relationCode                                                         | association.association                                                              | None                                                                   | None | None |
| VCS_concept_relationship  | sourceInternalId                                                     | associationInstance.sourceConcept                                                    | None                                                                   | None | None |
| VCS_concept_relationship  | targetInternalId                                                     | associationTarget.targetConcept                                                      | None                                                                   | None | None |
| Model                     | modelID                                                              | systemRelease.releaseId                                                              | None                                                                   | None | None |
| Model                     | name                                                                 | service.service                                                                      | None                                                                   | None | None |
| Model                     | versionNumber                                                        | service.version                                                                      | None                                                                   | None | None |
| Model                     | lastModifiedDate                                                     | systemRelease.releaseDate                                                            | None                                                                   | None | None |
| Model                     | developingOrganization                                               | systemRelease.releaseAgency                                                          | None                                                                   | None | None |
| Model                     | committeeID                                                          | None                                                                                 | None                                                                   | None | None |
| Model                     | description                                                          | systemRelease.entityDescription                                                      | None                                                                   | None | None |
| Model                     | <i>concat('urn:oid:2.16.840.1.113883:', systemRelease.releaseId)</i> | systemRelease.releaseURN                                                             | None                                                                   | None | None |
| Model                     | <i>literal('true')</i>                                               | systemRelease.isLatest                                                               | Also have to set the prior release isLatest to false                   | None | None |
| Model                     | <i>preceding-sibling /releaseOrder + 1</i>                           | systemRelease.releaseOrder                                                           | None                                                                   | None | None |
| Model                     | modelID                                                              | commonTypes::Properties                                                              | None                                                                   | None | None |
| (Special mapping for NCI) | name                                                                 | codingScheme.localName                                                               | None                                                                   | None | None |
| (Special mapping for NCI) | versionNumber                                                        | codingScheme.representsVersion                                                       | None                                                                   | None | None |
| (Special mapping for NCI) | lastModifiedDate                                                     | commonTypes::Properties                                                              | None                                                                   | None | None |
| (Special mapping for NCI) | developingOrganization                                               | commonTypes::Properties                                                              | None                                                                   | None | None |
| (Special mapping for NCI) | committeeID                                                          | None                                                                                 | None                                                                   | None | None |
| (Special mapping for NCI) | description                                                          | codingScheme.entityDescription                                                       | None                                                                   | None | None |
| (Special mapping for NCI) | <i>concat('urn:oid:2.16.840.1.113883:', systemRelease.releaseId)</i> | codingScheme.registeredName                                                          | None                                                                   | None | None |
| (Special mapping for NCI) | <i>literal('true')</i>                                               | commonTypes::Properties                                                              | Also have to set the prior release isLatest to false                   | None | None |
| (Special mapping for NCI) | <i>preceding-sibling /releaseOrder + 1</i>                           | commonTypes::Properties                                                              | None                                                                   | None | None |
| RIM_vocabulary_domain     | vocDomain                                                            | codingscheme["VocabularyDomain"].concept.conceptCode                                 | Vocabulary Domains are carried in a code system of vocabulary domains. | None | None |
| RIM_vocabulary_domain     | vocDomain                                                            | codingscheme["VocabularyDomain"].concept.presentation["textualPresentation"].text    | preferredPresentation                                                  | None | None |
| RIM_vocabulary_domain     | description                                                          | codingscheme["VocabularyDomain"].concept.definition.text                             | preferredDefinition for code                                           | None | None |
| RIM_vocabulary_domain     | restrictsDomain                                                      | <div> codingscheme"VocabularyDomain".association"hasSubtype".sourceConcept </div>    | <i>Should this be hasSubtype or something else?</i>                    | None | None |
| RIM_vocabulary_domain     | restrictsDomain                                                      | codingscheme["VocabularyDomain"].association["hasSubtype"].targetconcept = vocDomain | None                                                                   | None | None |

|                                    |                           |                                                                                    |                                                                                                |                                  |      |
|------------------------------------|---------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------|------|
| VOC_code_re<br>ference             | usedToBuildValueSet       | with(valueDomain[registeredName=current()/.])                                      | None                                                                                           | None                             | None |
| VOC_code_re<br>ference             | referencesConceptCode     | ...valueDomainEntry/conceptCode                                                    | 1) id is synthesized<br>2) Only stored if isHeadCode == false or includeReferencedCode == true | None                             | None |
| VOC_code_re<br>ference             | referencesInternalId      | None                                                                               | Internal id's aren't exposed in lexGrid                                                        | None                             | None |
| VOC_code_re<br>ference             | relationship              | <pre>...valueDomainEntry /includeChildren = (relationship == 'hasSubtype')</pre>   | Won't deal w/ non-hasSubtype relationships, but HL7 doesn't have any.                          | None                             | None |
| VOC_code_re<br>ference             | includeReferencedCode     | ...valueDomainEntry/isSelectable                                                   |                                                                                                | Not in current<br>implementation | None |
| VOC_code_re<br>ference             | leafOnly                  | None                                                                               | Not used in HL7 Model                                                                          | None                             | None |
| VOC_code_re<br>ference             | directChildrenOnly        | None                                                                               | Not used in HL7 Model                                                                          | None                             | None |
| VOC_code_re<br>ference             | isHeadCode                | None                                                                               | Only used when referenced in VOC_value_set_constructor.                                        | None                             | None |
| VOC_code_re<br>ference             | referencesCodeSystem      | ...valueDomainEntry.codingScheme                                                   | Shortcut in HL7 model. Must = VOC_value_set.basedOnCodeSystem                                  | None                             | None |
| VOC_code_re<br>ference             | arbitraryUniqueValue()    | ...valueDomainEntry.id                                                             | None                                                                                           | None                             | None |
| VOC_register<br>ed_code_syst<br>em | codeSystemId              | None                                                                               | VOC_registered_code_system isn't currently transferred to Lexgrid                              | None                             | None |
| VOC_register<br>ed_code_syst<br>em | sponsor                   | None                                                                               | None                                                                                           | None                             | None |
| VOC_register<br>ed_code_syst<br>em | publisher                 | None                                                                               | None                                                                                           | None                             | None |
| VOC_register<br>ed_code_syst<br>em | versionReportingMethod    | None                                                                               | None                                                                                           | None                             | None |
| VOC_register<br>ed_code_syst<br>em | licensingInformation      | None                                                                               | <i>This field should really be transfer to copyright?</i>                                      | None                             | None |
| VOC_register<br>ed_code_syst<br>em | inUMLS                    | None                                                                               | None                                                                                           | None                             | None |
| VOC_register<br>ed_code_syst<br>em | systemSpecificLocatorInfo | None                                                                               | None                                                                                           | None                             | None |
| VOC_register<br>ed_code_syst<br>em | uri                       | None                                                                               | None                                                                                           | None                             | None |
| VOC_register<br>ed_code_syst<br>em | isExternal                | None                                                                               | None                                                                                           | None                             | None |
| VOC_value_s<br>et                  | valueSetId                | valueDomain.registeredName                                                         | None                                                                                           | None                             | None |
| VOC_value_s<br>et                  | valueSetName              | valueDomain.<br>valueDomain                                                        | <i>Name is the key in LexGrid, and is optional in HL7 - will need to be addressed.</i>         | None                             | None |
| VOC_value_s<br>et                  | basedOnCodeSystem         | valueDomain.<br>defaultCodingScheme                                                | <i>Optional in HL7, required in LexGrid.</i>                                                   | None                             | None |
| VOC_value_s<br>et                  | description               | valueDomain.entityDescription                                                      | None                                                                                           | None                             | None |
| VOC_value_s<br>et                  | definingExpression        | None                                                                               | Not used.                                                                                      | None                             | None |
| VOC_value_s<br>et                  | allCodes                  | if 'true': valueDomain.conceptCode = "@",<br>valueDomain.includeChildren='true'    | None                                                                                           | None                             | None |
| VOC_value_s<br>et                  | isTaxonomicSet            | None                                                                               | No mapping available                                                                           | None                             | None |
| VOC_value_s<br>et                  | valueSetAuthority         | None                                                                               | Included in valueSetID                                                                         | None                             | None |
| VOC_value_s<br>et                  | valueSetNumber            | None                                                                               | None                                                                                           | None                             | None |
| VOC_value_s<br>et_constructor      | usedToBuildValueSet       | new valueDomainEntry(parent = valueDomain<br>[valueSetId=current()/.],id=unique()) | None                                                                                           | None                             | None |
| VOC_value_s<br>et_constructor      | includesOrExcludesSet     | valueDomainEntry.includesValueDomain                                               | None                                                                                           | None                             | None |
| VOC_value_s<br>et_constructor      | includeHeadCode           | valueDomainEntry.isSelectable                                                      | None                                                                                           | None                             | None |

|                                 |                                                              |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                  |      |      |
|---------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| VOC_value_set_constructor       | includeHeadCode                                              | <pre>valueDomainEntry. conceptCode = VOC_code_reference [usedToBuildValueSet=current(). usedToBuildValueSet and isHeadCode=true]. referencesConceptCode</pre> | Assumes that there always is a head code.                                                                                                                                                                                                                                                                        | None | None |
| VOC_vocabulary_domain_value_set | representsVocDomain                                          | (selector)                                                                                                                                                    | None                                                                                                                                                                                                                                                                                                             | None | None |
| VOC_vocabulary_domain_value_set | definedByValueSet                                            | codingscheme[VocabularyDomain].concept [representsVocDomain].property[definedByValueSet].text                                                                 | have to get 'representsVocDomain' into supportedProperty header                                                                                                                                                                                                                                                  | None | None |
| VOC_vocabulary_domain_value_set | appliesInContext                                             | codingscheme[VocabularyDomain].concept [representsVocDomain].property[definedByValueSet].usageContext                                                         | Have to get all the contexts in the VocabularyDomain supportedContext header                                                                                                                                                                                                                                     | None | None |
| VCS_release_version             | releaseId                                                    | codingSchemeVersion.version                                                                                                                                   | <div>  <b>Note</b><br/>           This is not the way that things are done at the moment. At the moment, VCS_release_versions are loaded into systemRelease. Entered if one or more concept/relationship change.         </div> | None | None |
| VCS_release_version             | releaseId                                                    | valueDomainVersion.version                                                                                                                                    | Set iff one or more value sets change                                                                                                                                                                                                                                                                            | None | None |
| VCS_release_version             | literal("false")                                             | codingSchemeVersion.isComplete                                                                                                                                | All versions are delta's in this model                                                                                                                                                                                                                                                                           | None | None |
| VCS_release_version             | releaseAgency                                                | None                                                                                                                                                          | None                                                                                                                                                                                                                                                                                                             | None | None |
| VCS_release_version             | releaseDate                                                  | codingSchemeVersion.versionDate                                                                                                                               | None                                                                                                                                                                                                                                                                                                             | None | None |
| VCS_release_version             | releaseDate                                                  | valueDomainVersion.versionDate                                                                                                                                | None                                                                                                                                                                                                                                                                                                             | None | None |
| VCS_release_version             | description                                                  | codingSchemeVersion.entityDescription                                                                                                                         | None                                                                                                                                                                                                                                                                                                             | None | None |
| VCS_release_version             | description                                                  | valueDomainVersion.entityDescription                                                                                                                          | None                                                                                                                                                                                                                                                                                                             |      |      |
| VCS_release_version             | editorID                                                     | None                                                                                                                                                          | There is no place for these currently.                                                                                                                                                                                                                                                                           | None | None |
| VCS_release_version             | forWhomID                                                    | None                                                                                                                                                          | None                                                                                                                                                                                                                                                                                                             | None |      |
| VCS_release_version             | concat("urn:oid:2.16.840.1.113883.;systemRelease.releaseId") | None                                                                                                                                                          | This corresponds to the containing system release when the sytem release occurs. It is empty until then.                                                                                                                                                                                                         | None | None |

## LexGrid Text Mapping

The following table lists Source Definition column contents.

| Line | Source Definition Column 1 | Source Definition Column 2 | Source Definition Column 3 | Source Definition Column 4 | Source Definition Column 5 | Source Definition Column 6 | Source Definition Column 7 | Source Definition Column 8 | Comments                                                                        |
|------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------------------------------------------------------------|
| 1    | <codingSchemeName>         | <codingSchemeId>           | <defaultLanguage>          | <formalName>               | [<version>]                | [<source>]                 | [<description>]            | [<copyright>]              | This must be the first line. It contains the coding scheme metadata.            |
| 2    | [<code>]                   | <name>                     | [<description>]            | None                       | None                       | None                       | None                       | None                       | Beginning of concepts in coding scheme.                                         |
| 3    | None                       | [<code>]                   | <name>                     | [<description>]            | None                       | None                       | None                       | None                       | Represent hierarchical 'hasSubtype' relationship nesting (name hasSubtype name) |

| Text Element Coding Scheme | LexGrid                       | Comments    |
|----------------------------|-------------------------------|-------------|
| codingSchemeName           | codingScheme.codingSchemeName | No comments |
| codingSchemeId             | codingScheme.codingSchemeId   | No comments |
| defaultLanguage            | codingScheme.defaultLanguage  | No comments |
| formalName                 | codingScheme.formalName       | No comments |

|             |                                |          |
|-------------|--------------------------------|----------|
| version     | codingScheme.representsVersion | Optional |
| source      | codingScheme.source            | Optional |
| description | codingScheme.entityDescription | Optional |
| copyright   | codingScheme.copyright         | Optional |

| Text Element Concepts | LexGrid                       | Comments    |
|-----------------------|-------------------------------|-------------|
| code                  | concept.conceptCode           | Optional    |
| name                  | concept.conceptName           | No comments |
| description           | concept.<br>entityDescription | No comments |