2019-03-13 - SLPG Meeting

Date & Time
20:00 UTC Wednesday 13th March 2019

Teleconference Details
To join the meeting please go to https://snomed.zoom.us/j/471420169.
Further information can be found at SLPG meeting information

Goals
- Review actions from last meeting
- Proposed enhancements to template language
- Proposed new language features for mapping

Attendees
- Chair: Linda Bird
- Project Group: Daniel Karlsson, Michael Lawley, Yongsheng Gao, Anne Randorff Højen, Ed Cheetham, Rob Hausam

Agenda and Meeting Notes

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<td>Welcome and apologies</td>
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| Actions from last week       | Linda Bird | • Actions from last week:  
• Consider new syntax to support proposed expression template use case  
• Consider new syntax to support proposed map use case |
| Template Syntax              | Linda Bird | Use cases: New concept development, querying based on template matching, and template-based modeling transformation  
New requirements |
1. Constrain values across 2 or more replacement slots
   - 2 replacement slots must have the same value, different values, subsumed values, or not subsumed values.
   - **Example A** - A clinical finding, with 2 role groups with the same morphology, and finding sites that do not subsume each other
     - **Template**
       ```
       [ [ +id ] ]:
       { 116676008 |Associated morphology| = [ [ +id @morphology ] ],
       363698007 |finding site| = [ [ +id (<< Body structure MINUS << $findingSite2 ) @findingSite1 ] ],
       ( 16676008 |Associated morphology| = [ [ +id @morphology ] ],
       363698007 |finding site| = [ [ +id ("MINUS << $findingSite1 @findingSite2" ] )
       ]
       }
       ```
     - **Valid Expression** (Definition of 16027391000119109 |Bone cyst of bilateral tibias (disorder)|)
       ```
       64572001 |Disease| : {
       116676008 |Associated morphology| = 66954000 |Bone cyst|,
       363698007 |finding site| = 719491009 |Bone structure of right tibia|
       (116676008 |Associated morphology| = 66954000 |Bone cyst|,
       363698007 |finding site| = 719492002 |Bone structure of left tibia|
       )
       ```
   - **Example B** - A clinical finding, with one or more role groups in which the morphology is always the same, and no 2 finding sites subsume each other.
     - **Template** - 3 role groups with 3 sites: site[1], site[2], site[3] /// site[1,2]
     ```
     [ [ +id ] ]:
     { [..!@group1] |Finding site| = [ [ +id ("MINUS Site1 SELF") ] @site constraint ( [n] != << $site[n] ) ]
     [Associated morphology] = [ [ +id ($morphology SELF) ] @morphology constraint ( [n] = << $morphology[n] ) ]
     ```
     - **Valid Expression** (Definition of 208510002 |Multiple fracture of clavicle, scapula and humerus (disorder)|)
       ```
       64572001 |Disease| : {
       363698007 |Finding site| = 85050009 |Bone structure of humerus|
       116676008 |Associated morphology| = 5468008 |Fracture of multiple sites of bone|,
       363698007 |Finding site| = 51299004 |Bone structure of clavicle|,
       116676008 |Associated morphology| = 5468008 |Fracture of multiple sites of bone|,
       363698007 |Finding site| = 79601000 |Bone structure of scapula|,
       116676008 |Associated morphology| = 5468008 |Fracture of multiple sites of bone|,
       363698007 |Finding site| = 773134001 |Bone structure of multiple body regions|
       116676008 |Associated morphology| = 771485007 |Fracture of multiple bones|,
       ```

2. Default value for replacement slot
   - Default value for authoring and template-driven modelling transformations
   - **Example A** - Default finding site of 72673000 |Bone structure|
     - **Template**
       ```
       { [ [ +id ] ]:
       { [Finding site] = [ [ +id (<< 72673000 |Bone structure|) @site default (72673000 |Bone structure (body structure)|) ] ]
       ```

3. Definition status of a replacement slot
   - Specifying whether the value used in a replacement slot be primitive or defined
   - **Example A** - When proximal primitive modelling, the focus concept must be a primitive concept
     - Template - Requires use of more expressive query language with filters
     ```
     [ [ +id (<< 64572001 |Disease| { c.definitionStatus = primitive } ) ] ]
     ```
     - **Valid Expression**
       ```
       195967001 |Asthma (disorder)|
       ```

4. Definition status of a templated expression
   - Specifying the definition status of a templated expression
   - **Template**
     ```
     [ [ +tok (""":""""") ] ] [ [ +id ] ] : { [Finding site] = [ [ +id ] ]
     ```
     - **Valid Expression**
       ```
       128272009 |Disorder of lower respiratory system| : 363698007 |Finding site| = 39607008 |Lung structure|
       <<< 128272009 |Disorder of lower respiratory system| : 363698007 |Finding site| = 39607008 |Lung structure|
       ```
5. Attributes used in repeating role groups

- Constraining the set of attributes that appear in a repeating role group

**Example A** - The same set of attributes must appear in each instance of a repeating role group (with optional attributes)

- **Template** - using allOrNone
  - `[[+id]: [1..* @group1 allOrNone ($site, $occurrence)]]`
  - `[[ [1..1] |Associated morphology| = [[ +id @morphology ]], [0..1] |Finding site| = [[ +id @site]], [0..1] |Occurrence| = [[ +id @occurrence ]] ]`

- **Valid Expression** - Injury of head, neck and chest
  - `[[ (Disease) ]]:
    - (Associated morphology) = [Injury], (Finding site) = [Head structure]
    - (Associated morphology) = [Injury], (Finding site) = [Neck structure]
    - (Associated morphology) = [Injury], (Finding site) = [Chest structure]`

**Example B** - Some of the optional attributes must either always or never appear in each instance of a repeating role group

- **Template** - using "allOrNone"
  - `[[+id]: [1..* @group1 allOrNone($morph)]]`
  - `[[ 1..1 ] |Method| = [[+id]], [0..1] |Direct morphology| = [[+id @morph]], [0..1] |Procedure site - Direct| = [[+id]], [0..1] |Using device| = [[+id]], [0..1] |Has intent| = [[+id]]]`

- **Valid Expression** - Closure of skin by suture
  - (Procedure):
    - (Method) = [Closure - action], (Procedure site - Direct) = [Skin structure], (Using device) = [Surgical suture, device]

- **Valid Expression** - Core needle biopsy of skin using ultrasonic guidance
  - (Procedure):
    - (Method) = [Ultrasound imaging - action], (Procedure site - Direct) = [Skin structure], (Has intent) = [Guidance intent]
    - (Method) = [Biopsy - action], (Procedure site - Direct) = [Skin structure], (Using device) = [Core biopsy needle, device]

- **Valid Expression** - Toilet and suture of wound
  - (Procedure):
    - (Method) = [Surgical toilet - action], (Direct morphology) = [Wound]
    - (Method) = [Closure - action], (Direct morphology) = [Wound], (Procedure site - Direct) = [Skin structure], (Using device) = [Surgical suture, device]

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**Executing maps**

Linda Bird

**Proposed extension to ECL to support the execution of maps**

- Example use cases
  - Mapping from international substance concepts to AMT substance concepts
  - Anatomy structure and part association reference set - e.g. find the anatomical parts of a given structure

- Potential syntax to consider

  - **Functional**
    - `mapTarget ([Anatomy structure and part association refset], << [Upper abdomen structure])`
    - `mapSource ([Anatomy structure and part association refset], << [Liver part])`

  - **Dot notation**
    - `([Anatomy structure and part association refset]: [ReferencedComponent] = << [Upper abdomen structure]) . [mapTarget]`
    - `([Anatomy structure and part association refset]: [mapTarget] = << [Upper abdomen structure]) . [referencedComponent]`

  - **Filters**
    - `([Anatomy structure and part association refset] ([ [referencedComponent] = << [Upper abdomen structure]])) . [mapTarget]`
    - `([Anatomy structure and part association refset] ([ mapTarget = << [Upper abdomen structure]])) . [referencedComponent]`
    - `^ ([Anatomy structure and part association refset] ([ mapTarget = << [Upper abdomen structure]]))`
Returning attributes

Michael Lawley

Proposal from Michael:

- Currently ECL expressions can match (return) concepts that are either the source or the target of a relationship triple (target is accessed via the 'reverse' notation or 'dot notation', but not the relationship type (ie attribute name) itself.

  For example, I can write:

  \[
  << 404684003|Clinical finding| : 363698007|Finding site| = <<66019005|Limb structure| \\
  << 404684003|Clinical finding| . 363698007|Finding site| 
  \]

  But I can't get all the attribute names that are used by \(<< 404684003|Clinical finding|\)

  - Perhaps something like:
    - ?? R.type ?? \(<< 404684003 |Clinical finding|\)
    - This could be extended to, for example, return different values - e.g.
      - ?? |Simple map refset|.|maptarget| ?? \(^{|\}Simple map refset| AND < |Fracture|\)

**URI Standard**

Linda Bird

- Finalize and publish language and language instance URIs

**Query Language - Summary from previous meetings**

Linda Bird

**Examples: version and language**

- \(<< 64572001 |Disease| ([ term = "*heart*" ])) VERSION http://snomed.info/sct/900000000000207008 /version/20180131\)
- \(<< 64572001 |Disease| ([ synonym = "*heart*" ]) VERSION http://snomed.info/sct/900000000000207008/version/20180131\)
- \(<< 64572001 |Disease| ([ FSN = "*heart*" ]) VERSION http://snomed.info/sct/900000000000207008/version/20180131\)
- \(<< 64572001 |Disease| ([ preferredTerm = "*heart*" ]) VERSION http://snomed.info/sct/900000000000207008/version/20180131, LANGUAGE W\)
- \(<< 64572001 |Disease| ([ acceptableTerm = "*heart*" ]) VERSION http://snomed.info/sct/900000000000207008/version/20180131, LANGUAGE Y\)
- \(\{ [ term = "*heart*" ]) VERSION http://snomed.info/sct/900000000000207008/version/20180131, LANGUAGE W\)
- \(\{ [ term = "*heart*" ]) VERSION http://snomed.info/sct/900000000000207008/version/20180131, LANGUAGE Y\)
- \(\{ [ term = "*heart*" ]) VERSION http://snomed.info/sct/900000000000207008/version/20180131, LANGUAGE W\)

**Notes**

- Allow nested version, language
- Scope of variables is inner query

**Examples: where**

- \(\{ X MINUS Y WHERE X = * , Y = * [ [ term = "*heart*" ]]) VERSION http://snomed.info/sct/900000000000207008/version/20180131, LANGUAGE W\)

**Notes**

- Allow nested where, version, language
- Scope of variables is inner query
Keywords for Term-based searching:

- **D.term**
  - D.term = "*heart*
  - D.term = wild:"*heart*"
  - D.term = regex:"*heart*"
  - D.term = match:"hear att"
  - D.term = (sv) wild:"*heart*"
- **D.languageCode**
  - D.languageCode = "en"
  - D.languageCode = "es"
- **D.caseSignificanceId**
  - D.caseSignificanceId = 900000000000448009 [entire term case insensitive]
  - D.caseSignificanceId = 900000000000017005 [entire term case sensitive]
  - D.caseSignificanceId = 900000000000020002 [only initial character case insensitive]
- **D.caseSignificance**
  - D.caseSignificance = "insensitive"
  - D.caseSignificance = "sensitive"
- **D.typeId**
  - D.typeId = 900000000000003001 |fully specified name|
  - D.typeId = 900000000000013009 |synonym|
  - D.typeId = 900000000000550004 |definition|
- **D.type**
  - D.type = "FSN"
  - D.type = "fullySpecifiedName"
  - D.type = "synonym"
  - D.type = "textDefinition"
- **D.acceptabilityId**
  - D.acceptabilityId = 900000000000549004 |acceptable|
  - D.acceptabilityId = 900000000000548007 [preferred]
- **D.acceptability**
  - D.acceptability = "acceptable"
  - D.acceptability = "preferred"

Additional Syntactic Sugar

- **FSN**
  - FSN = "*heart"
  - D.term = "*heart", D.type = "FSN"
  - D.term = "*heart", D.typeId = 900000000000003001 [fully specified name]
  - FSN = "*heart" LANGUAGE X
  - D.term = "*heart", D.type = "FSN", D.acceptability = * LANGUAGE X
  - D.term = "*heart", D.typeId = 900000000000003001 [fully specified name], acceptabilityId = * LANGUAGE X
- **synonym**
  - synonym = "*heart"
  - D.term = "*heart", D.type = "synonym"
  - D.term = "*heart", D.typeId = 900000000000013009 [synonym]
  - synonym = "*heart" LANGUAGE X
  - D.term = "*heart", D.type = "synonym", D.acceptability = * LANGUAGE X
  - D.term = "*heart", D.typeId = 900000000000013009 [synonym], (D.acceptabilityId = 900000000000549004 [acceptable] OR D.acceptabilityId = 900000000000548007 [preferred]) LANGUAGE X
- **synonymOrFSN**
  - synonymOrFSN = "*heart"
  - synonym = "*heart" OR FSN = "*heart"
  - D.term = "*heart", (D.type = "synonym" OR D.type = "fullySpecifiedName")
  - synonymOrFSN = "*heart" LANGUAGE X
  - D.term = "*heart", (D.type = "synonym" OR D.type = "fullySpecifiedName"), D.acceptability = * LANGUAGE X
- **textDefinition**
  - textDefinition = "*heart"
  - D.term = "*heart", D.type = "definition"
  - D.term = "*heart", D.typeId = 900000000000550004 [definition]
  - textDefinition = "*heart" LANGUAGE X
  - D.term = "*heart", D.type = "definition", D.acceptability = * LANGUAGE X
  - D.term = "*heart", D.typeId = 900000000000550004 [definition], D.acceptabilityId = * LANGUAGE X
- **Unacceptable Terms**
  - (D.term = "*heart") MINUS (D.term = "*heart", D.acceptability = * LANGUAGE X)
Language preferences using multiple language reference sets

- LRSs that use the same Language tend to use 'Addition' - i.e. child LRS only includes additional acceptable terms, but can override the preferred term
  - E.g. Regional LRS that adds local dialect to a National LRS
  - E.g. Specialty-specific LRS
  - E.g. Irish LRS that adds local preferences to the en-GB LRS
- LRSs that define a translation to a different language tend to use 'Replacement' - i.e. child LRS replaces set of acceptable and preferred terms for any associated concept
  - E.g. Danish LRS that does a partial translation of the International Release
    - 999999 [Danish language reference set] ELSE [GB English reference set]

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<td>The next SLPG meeting will be held in 2 weeks at 20:00 UTC on <strong>Wednesday 27th March</strong>.</td>
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