2022-03-24 - SLPG Meeting

Date & Time Goals

20:00 to 21:00 UTC Thursday 24th March 2022

ECL v2.0 feedback and finalisation
 ECL v2.1 - Proposals for new features

Location

Zoom meeting link (password: 764978)

Attendees

- Chair: Linda Bird
- Project Group: Andrew Perry, Kai Kewley, Michael Lawley, R ob Hausam, Alejandro Lopez Osornio, Anne Randorff Højen, Roger Jane, Wayde Shipman

Agenda and Meeting Notes

Description	Owner	Notes
Welcome and agenda	All	 Next meeting - 7th April 2022?? Meeting next week to finalize ECL 2.0? Consider changing regular meeting time?
ECL v2.0 - Access to refsets and historical supplements	All	Expression Constraint Language 2.0 WIP Finalize feedback - Michael, B2i, Jeremy, Daniel • Field Name from File: ^ 447562003 ICD-10 complex map reference set {{ M mapGroup = #2, mapPriori y = #1, mapTarget = "J45.9" }} • Field names come directly from the international RF2 specification (if they're there), else directly from the RF2 files Please review updates to the following pages: • 1. Introduction (History) • 3.2 Expression Constraint and Query Requirements • 4. Logical Model • 4.1 Details • 5.1 Brief Syntax (Normative) • 5.2 Long Syntax (Informative) • 5.3 Informative Comments • 5.4 Order of Operation • 6.1 Simple Expression Constraints (Member Of) ** • 6.8 Description Filters (Module, Effective Time, Active Filters) • 6.10 Member Filters ** • 6.11 History Supplements • Appendix D - ECL Quick Reference
ECL v2.1 - Requirement proposals	All	Potential requirements for ECL v2.1 - Discussion and brainstorming

· Daniel's comments

- An explanation of the results of this ECL: <<766918008 |Product containing microbial agent (product) | MINUS (763158003 |Medicinal product (product)|:
 - { 127489000 | Has active ingredient (attribute)| = 412232009 | Microbial agent (substance)| }) (right identities vs. ECL, has been raised before)
- Cardinality of focus concepts is not supported (Example use case: which concepts have 2 or more stated IsAs)
- (Related) Using 116680003 |Is a (attribute)| in refinement/dotted expressions, e. g. 395026007.116680003, 395026007:[2..*]116680003=*
 Snowstorm and Ontoserver give different results for dotted expressions.

https://snowstorm-alpha.ihtsdotools.org/snowstorm/snomed-ct/fhir/ValueSet/\$expand? _format=json&count=10&url=http:%2F%2Fsnomed.info%2Fsct%3Ffhir_vs%3Decl%2F395026007. 116680003

https://r4.ontoserver.csiro.au/fhir/ValueSet/\$expand?_format=json&count=10&url=http:%2F%2Fsnomed.info%2Fsct%3Ffhir_vs%3Decl%2F395026007.116680003

• We've done history for concepts but not for any other components...

Realizing the information on inactive concepts is different and more extensive from other components, {{ + HISTORY... }} is (just) sugar and maybe just maybe there might be reasons to sprinkle other components with this sweetness (or not).

Examples: previously active refset members (and their fields), previously active descriptions (e.g. Refers to association refset), ...

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Context supplements - e.g.
    << 56265001 |Heart disease| {{ + CONTEXT }} - probably exclude due to risk of absent finding, not-
     done procedure and family history
       OR {{ + CONTEXT-DEFAULT }} ?
          Expansion of [[@ecl_query]] {{ + Context (Temporal = [[ @temporal_value]] }}
            • [[ @ecl_query ]] OR (< 243796009 |Situation with explicit context|:
                    { ( 246090004 |Associated finding| = ( [[ @ecl_query ]] )
                      OR |Associated procedure| = ( [[ @ecl_query ]] )
( |Procedure context| = |Done| OR |Finding context| = |Known present|),
                      |Subject relationship context| = |Subject of record|,
                       |Temporal context| = [[ @temporal_value ]] } )
          Example 1: << |Heart procedure| {{ + Context (Temporal = *) }}

• << |Heart procedure| OR (< 243796009 |Situation with explicit context|:
                    { 246090004 |Associated finding| = << 56265001 |Heart disease|,
                      |Procedure context| = |Done|,
                      |Subject relationship context| = |Subject of record|,
                       |Temporal context| = * } )
            • Example 2: (<< |Heart disease| OR << |Heart procedure| ) {{ + Context (Temporal = *) }}
                 { ( 246090004 |Associated finding| = (<< |Heart disease| OR << |Heart
                    procedure|)
                             OR |Associated procedure| = ( << |Heart disease| OR << |Heart procedure|
                   ))
                           (|Procedure context| = |Done| OR |Finding context| = |Known present|),
                           |Subject relationship context| = |Subject of record|,
                            |Temporal context| = * } )
       << 56265001 |Heart disease| {{ + Context (Temporal = *, FindingContext=<< |Known</p>
          present| }}
              Will return all types of heart disease, plus concepts like 394886001 |Suspected heart
               disease (situation)|, and 429007001 |History of cardiac arrest (situation)|
                 o << 56265001 |Heart disease| OR
                     (< 243796009 |Situation with explicit context|:
                         { 246090004 | Associated finding| = << 56265001 | Heart disease| } )

    However, you may want to exclude (or include) specific contexts - for example:

       1. To ensure that the finding was about the subject of the record (and not a family history, e.g. to
          exclude 429959009 |Family history of heart failure (situation)|), you could say
              << 56265001 |Heart disease| {{ + CONTEXT (relationship = 410604004 |Subject of
       2. To ensure that the finding was 'Known present' (e.g. to exclude 394926003 |Heart disease
          excluded (situation)|), you could say:
             << 56265001 | Heart disease | {{ + CONTEXT (finding_context = << 410515003 | Known</p>
               present| }}
       3. To ensure that the finding was about the subject of the record AND known present, you could
            << 56265001 |Heart disease| {{ + CONTEXT (relationship = 410604004 |Subject of })</p>
                                                                       finding_context = << 410515003
               |Known present| }}
       4. ?? Is there any use case for restricting adding temporal context? (e.g. temporal !=
          << 410513005 |In the past|)
  o Is any more syntactic sugar required? E.g.
       {{ + CONTEXT (relationship = self, finding context = present, temporal != past) }}
       {{ + CONTEXT (self, present, ! past) }}
  Other ideas? Common profiles?
Ability to return attribute types (see proposal below)
    [ attributes ] << 125605004 |Fracture of bone (disorder)|
     << 125605004 |Fracture of bone (disorder)| . Attributes
     << 125605004 |Fracture of bone (disorder)| . (<< 125605004 |Fracture of bone (disorder)| . Attributes )
  o [attribute, value] << 125605004 |Fracture of bone (disorder)|
Reverse membership (see below)

    Which reference sets "contain" the given concept(s) - e.g. 421235005 |Structure of femur|?

        421235005 |Structure of femur . Refsets

    421235005 |Structure of femur|. Refsets [ referencedComponentId ]

       421235005 |Structure of femurl . Refsets [ targetComponentId ]
Other?
```

Returning Attributes	Michael Lawley	 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)
Reverse Member Of	Michael Lawley	What refsets is a given concept (e.g. 421235005 Structure of femur) a member of? • Possible new notation for this: o ^ . 421235005 Structure of femur o ? X ? 421235005 Structure of femur = ^ X
The items belo	ow are curren	ntly on hold
Postcoordinati on Topics		 Discuss feedback on transformation implementation Resources Expression transformation service generates the classifiable form and the necessary normal form from a close to user form expression Contribute your expression examples and write your feedback for consideration and discussion Recap of SNOMED on FHIR discussions What is the functionality scope of a terminology server that supports postcoordination? For example, does it include:

- {363698007 |Finding site (attribute)| = 89187006 |Airway structure (body structure)|}
- o Recap of internal discussions with Content Team
 - Inter-attribute dependencies
 Grouping rules

Dynamic Templates		 Continue discussion on dynamic templates Inter-attribute dependencies Acute/Chronic and Inflammation - Adding a clinical course requires specializing the inflammation morphology
Postcoordinati on Use Case Examples	All	 Example 1 - Dentistry / Odontogram Requires an expression template to create expressions. Resulting expression still requires a transformation to make it classifiable Example 2 - Terminology binding Uses a fixed expression template to combine codes entered into separate fields The procedure+laterality example still requires a transformation to make it classifiable Example 3 - Mapping Design-time activity Map targets may not be able to be fully represented using concept model attributes In many cases, an extension (with primitive concepts) should be recommended where there are gaps in the mapping There may be some cases in which postcoordination is helpful (e.g. LOINC to SNOMED CT map) Example 4 - Natural Language Processing Usually run-time activity. May require manual confirmation of coding suggestions (unless low clinical risk, eg for suggesting relevant patient records for manual review)
Postcoordinati on Guidance	Linda Bird , Anne Randorff Højen , Kai Kewley	Practical Guide to Postcoordination

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Proposal - Use syntax (i.e. braces) to distinguish refinement vs new role group
       There should be a syntactic distinction between refinement and constructive addition (ie adding a
       new role group). That is:
         1. 83152002 | Oophorectomy | : 405815000 | Procedure device | = 122456005 | Laser device |
               is classified as (i.e. the refinement is added to the role groups in the definition of the focus
                 concept(s)):
                      83152002 |Oophorectomy|:
                       { 260686004 |Method| = 129304002 |Excision - action|,
                        405813007 |Procedure site - Direct| = 15497006 |Ovarian structure|,
                        405815000 | Procedure device | = 122456005 | Laser device | }
         2. 83152002 | Oophorectomy | : { 405815000 | Procedure device | = 122456005 | Laser device | }
               is classified as:
                    • 83152002 Oophorectomy
                      { 260686004 | Method | = 129304002 | Excision - action |,
                        405813007 |Procedure site - Direct| = 15497006 |Ovarian structure|},
                       405815000 | Procedure device | = 122456005 | Laser device |
      However, for attributes which are always self-grouped - i.e. Priority, Due to, After, Before, During, Clinical course, Temporally related to, and all Observable entity attributes (see Relationship Group),
       these must always be put into their own role group:
         1. 125605004 | Fracture of bone |: 42752001 | Due to (attribute) | = 1912002 | Fall |
                 is classified as:
                   • 125605004 | Fracture of bone |: { 42752001 | Due to (attribute) | = 1912002 | Fall | }
                    • 125605004 | Fracture of bone |:
                      { 363698007 |Finding site| = 272673000 |Bone structure|,
                        116676008 |Associated morphology | = 72704001 |Fracture| }
                       { 42752001 | Due to (attribute) | = 1912002 | Fall | }

    Proposal: Expression forms needed for this (see 3.4 Transforming Expressions)

     Close to user form - e.g. 83152002 | Oophorectomy |: 405815000 | Procedure device | = 122456005 |
       Laser device

    Canonical close to user form - e.g. 83152002:405815000=122456005

    Classifiable form (SCG) - e.g. 83152002:(260686004=129304002,405813007=15497006,405815000=

          ■ PLUS Classifiable form (OWL) - e.g.

    EquivalentClasses(:123063

                   ObjectIntersectionOf (:71388002
                      ObjectSomeValuesFrom(:609096000 ObjectIntersectionOf( ObjectSomeValuesFrom(:
                 260686004:129304002)
                      ObjectSomeValuesFrom(:405813007:15497006))))

    Necessary normal form - e.g. 83152002+416376001:{260686004=129304002,405813007=15497006,

       405815000=122456005}

    PLUS Necessary normal form (tables)

    Relationships:

                    o (123063 116680003 83152002) - 0

    (123063 260686004 129304002) - 0

                    ° (123063 405813007 15497006) - 1
                    ° (123063 405815000 122456005) - 1
     O Primitive expressions - "<<<" (only useful in a mapping context) .... relies on the assigned identifier
       (which are necessarily semantically unique).
· Proposed Transformation Rules - Refinements (in valid domain of focus concepts)
  Close-to-user-form - IF the grouping of the refinement is not concept model valid THEN
        If there is a single (non-self-grouped) role group in the definition of the focus concept, then any
  ungrouped (but groupable) refinements are merged with this role group
        If there is more than one (non-self-grouped) role group in the definition then flag as ambiguous and
  require refinement
                 NEED TO FIND a realistic clinical example where this may occur // Prevent failing cases
  from coming up // use template
                 ALTERNATIVE: Refinement is applied to all (non-self-grouped) role groups in the definition
         Self-grouped attributes in the refinement are grouped on their own - i.e. Priority, Due to, After,
  Before, During, Clinical course, Temporally related to, and all Observable entity attributes (see Relationshi
  p Group)
        Self-grouped attributes in the definition of the focus concept(s) are left unchanged
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```
1. Single refinement
        83152002 | Oophorectomy | : 405815000 | Procedure device | = 122456005 | Laser device |
              83152002 |Oophorectomy|:
                 { 260686004 | Method | = 129304002 | Excision - action | ,
                   405813007 | Procedure site - direct | = 15497006 | Ovarian structure |,
                   405815000 | Procedure device | = 122456005 | Laser device | }
    2. Two groupable refinements
        83152002 Oophorectomy: 405815000 Procedure device = 122456005 Laser device, 36370000
       3 |Direct morphology| = 367643001 |Cyst |
             83152002 |Oophorectomy|:
                 { 260686004 |Method| = 129304002 |Excision - action| , 405813007 |Procedure site - direct| = 15497006 |Ovarian structure|,
                   405815000 | Procedure device | = 122456005 | Laser device | ,
                  363700003 |Direct morphology| = 367643001 |Cyst | ]
    3. One groupable refinement with one self-grouped refinement
        83152002 |Oophorectomy|: 405815000 |Procedure device| = 122456005 |Laser device|, 26087000
       9 |Priority| = 394849002 |High priority|
             83152002 |Oophorectomy| :
{ 260686004 |Method| = 129304002 |Excision - action| ,
                   405813007 | Procedure site - direct| = 15497006 | Ovarian structure|,
                  405815000 | Procedure device | = 122456005 | Laser device | }
                 { 260870009 | Priority (attribute) | = 394849002 | High priority | }
    4. Refinement attribute matches (or subsumed by) attribute in focus concept's definition
       83152002 | Oophorectomy | : 260686004 | Method | = 277261002 | Excision biopsy (qualifier value) |
            83152002 |Oophorectomy|:
                 { 260686004 | Method| = 129304002 | Excision - action| , 260686004 | Method| = 277261002 | Excision biopsy (qualifier value) | ,
                  405813007 | Procedure site - direct| = 15497006 | Ovarian structure| }
    5. Refinement explicitly in role group
       83152002 | Oophorectomy |: { 260686004 | Method | = 281615006 | Exploration - action | , 405813007 | Procedure site - direct | = 367643001 | Cyst | }
            83152002 |Oophorectomy| :
                 { 260686004 | Method | = 129304002 | Excision - action | ,
                   405813007 | Procedure site - direct| = 15497006 | Ovarian structure| },
                 { 260686004 | Method | = 281615006 | Exploration - action | ,
                  405813007 | Procedure site - direct | = 367643001 | Cyst | }

    Proposed Transformation Rules - Refinements (NOT in valid domain of focus concepts)

  Close-to-user-form - IF the refinement's attribute is not valid for the domain of the focus concept THEN
         If there is a single role group in the definition of the focus concept, which has an attribute value in
  the domain of the refinement's attribute THEN nest the relevant attribute value with the refinement added
  to the attribute value
             (Note: It doesn't matter if the role group is self-grouped or not (see example 1 below)
        If there is more than one role group in the definition of the focus concept, which has an attribute value
  in the domain of the refinement's attribute THEN (non-self-grouped) role group in the definition then flag
  as ambiguous and require refinement
    1. Left aural temperature

    415974002 | Aural temperature |: 272741003 | Laterality | = 7771000 | Left |

    415974002 |Aural temperature|: {704327008 |Direct site| = (42859004 |Ear drum|: 272741003

            |Laterality| = 7771000 |Left|)}
    2. Malignant tumor of right ovary

    363443007 |Malignant tumor of ovary|: 272741003 |Laterality| = 24028007 |Right|

            363443007 |Malignant tumor of ovary|:
               { 116676008 |Associated morphology| = 367651003 |Malignant neoplasm of primary,
            secondary or uncertain origin,
                  363698007 |Finding site| = ( 15497008 |Ovarian structure| : 272741003 |Laterality| =
            24028007 |Right|)}
. Other Example - Emergency excision of appendix
         80146002 | Excision of appendix | :
            260870009 |Priority| = 25876001 |Emergency|
  Other Example - Fracture of bone
    1. 125605004 |Fracture of bone|: 363698007 |finding site| = 84167007 |Foot bone|
    2. 125605004 |Fracture of bone|: {363698007 |finding site| = 84167007 |Foot bone| }
    3. 125605004 |Fracture of bone|: {116676008 |Associated morphology| = 72704001 |Fracture|,
                                            363698007 |finding site| = 84167007 |Foot bone| }
    4. 64572001 |Disease|: {116676008 |Associated morphology| = 72704001 |Fracture|,
                                            363698007 |finding site| = 84167007 |Foot bone| }
```

URIs for Extended Editions

ON HOLD - How to refer to an 'extended edition' using a URI - e.g. "International Edition plus the following 2 nursing modules: 733983009 |IHTSDO Nursing Health Issues module|and 733984003 |IHTSDO Nursing Activities module|

Use Case - Need to execute an ECL, that refers to "^ 733991000 | Nursing Health Issues Reference Set (foundation metadata concept) |" and/or "^ 733990004 | Nursing Activities Reference Set (foundation metadata concept) |", where the substrate includes the international edition, plus the modules that include these reference sets

July 2020 International Edition URI: http://snomed.info/sct/90000000000207008/version/20200731

July 2020 International Edition + nursing modules URI ?? - For example:

- http://snomed.info/sct/900000000000207008/version/20200731/module/733983009/time/20200131 /module/733984003/time/20200131
- http://snomed.info/sct/900000000000207008/version/20200731/modules/733983009:733984003
- http://snomed.info/sct/90000000000000207008:733983009:733984003/version/20200731:20190731: 20200131
- · Canonical order? Or order doesn't matter?
- Constraints on what can go in the additional packages (only refsets and their metadata)

Expression Templates

Peter G. Williams

- ON HOLD WAITING FROM IMPLEMENTATION FEEDBACK FROM INTERNAL TECH TEAM
- WIP version https://confluence.ihtsdotools.org/display/WIPSTS/Template+Syntax+Specification
 - Added a 'default' constraint to each replacement slot e.g. default (72673000 |Bone structure (body structure)|)
 - Enabling 'slot references' to be used within the value constraint of a replacement slot e.g. [[+id (<< 123037004 |Body structure| MINUS << \$findingSite2) @findingSite1]]
 - Allowing repeating role groups to be referenced using an array e.g. \$rolegroup[1] or \$rolegroup [1] SFI FI
 - Allow reference to 'SELF' in role group arrays
 - Adding 'sameValue' and 'allOrNone' constraints to information slots e.g. sameValue (\$site), allOrNone (\$occurrence)
 - See changes in red here: 5.1. Normative Specification

Examples:

[[+id]]: [[1..*] @my_group sameValue(morphology)] { |Finding site| = [[+id (<<123037004 |Body structure (body structure)| MINUS << \$site[! SELF]) @site]] , |Associated morphology| = [[+id @my_morphology]] }

- Implementation feedback on draft updates to Expression Template Language syntax
 - Use cases from the Quality Improvement Project:
 - Multiple instances of the same role group, with some attributes the same and others different. Eg same morphology, potentially different finding sites.

Note that QI Project is coming from a radically different use case. Instead of *filling* template slots, we're looking at existing content and asking "exactly *how* does this concept fail to comply to this template?"

For discussion:

 $\begin{tabular}{ll} \hline [[0..1]] { [[0..1]] & 246075003 & | Causative agent| & = [[+id (< 410607006 & | Organism|) & @ Organism]] } \\ \hline \end{tabular}$

Is it correct to say either one of the cardinality blocks is redundant? What are the implications of 1..1 on either side? This is less obvious for the self grouped case.

Road Forward for SI

- 1. Generate the parser from the ABNF and implement in the Template Service
- 2. User Interface to a) allow users to specify template at runtime b) tabular (auto-completion) lookup STL
- 3. Template Service to allow multiple templates to be specified for alignment check (aligns to none-off)
- Output must clearly indicate exactly what feature of concept caused misalignment, and what condition was not met.

Additional note: QI project is no longer working in subhierarchies. Every 'set' of concepts is selected via ECL. In fact most reports should now move to this way of working since a subhierarchy is the trivial case. For a given template, we additionally specify the "domain" to which it should be applied via ECL. This is much more specific than using the focus concept which is usually the PPP eg Disease.

FYI Michael Chu

Description Templates	Kai Kewley	ON HOLD Previous discussion (in Malaysia) Overview of current use Review of General rules for generating descriptions Removing tags, words Conditional removal of words Automatic case significance Generating PTs from target PTs Reordering terms Mechanism for sharing general rules - inheritance? include? Description Templates for translation Status of planned specification
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File Modified

No files shared here yet.

Agenda and Meeting Notes