Node reference range calculation

1 Apple archetype example

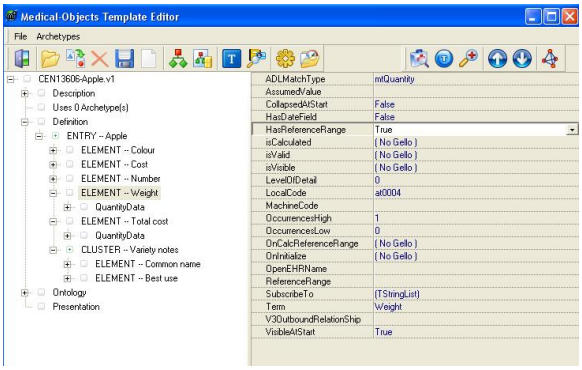
GELLO code will be used to determine the reference range for a Physical Quantity. This functionality is crucial for the pathology domain. Patient characteristics such as age, gender, weight, pregnancy status and fasting status can be used in the GELLO algorithm. Reference Ranges can be simply set by typing the value in the **ReferenceRange** attribute and setting **HasReferenceRange** to True. However when the reference range changes depending on retrieved patient state data (from the virtual medical record (vMR) for example) you need to use GELLO in **OnCalcReferenceRange,** not the **ReferenceRange** attribute.

Apple archetype example

We'll keep it nice and simple and build on earlier work with our fruity friend again.

Open CEN-Apple.v1.xml one more time. What we are going to do is write GELLO that goes in the **OnCalcReferenceRange** tag on the RHS. As reference ranges normally apply in the human pathology domain, the GELLO that can describe them is really meant to be the result of GELLO query and processing on patient data such as age and gender, available from the PMS through the V.3 vMR interface. So for our apple example, it is best to specify a reference range for a 'humanoid' apple which will have some given date of birth.

1. Set the **HasReferenceRange** RHS tag to True for 'Weight'.



2. Put the following GELLO v.1 code in the **OnCalcReferenceRange** attribute, for the 'Weight' node:

```
Context CEN_Apple_v1::ArchetypeRoot

Let days28: PQ = PQ{value=28*24*60*60, unit='s'}
Let dob: TS = vmr.patient.dob
Let dobPlusFourWeeks: TS = dob + days28
Let isBabyApple: Boolean =  dobPlusFourWeeks > factory.TS('now')
Let result: String =
  if isBabyApple = true then '30-70'
     else '150-200'
     endif
result
```

3. Cut and paste the following HL7 file text in its entirety into any text editor and save the file somewhere on your computer as a text file named 'BabyApple.oru'

```
MSH|^~\&|EDITOR^EDITOR:
Unknown^L|MO^123^GUID|||20070424153908+1100||ORU^R01|XX04241539656.
7589|P|2.3.1^AUS&&ISO^AS4700.2&&L|||||AUS
PID|1||4024728675^^^AUSHIC^MC||Apple^Baby||20210619|M|||1 Woodgrove
Lane^^Anytown^QLD^4556
```

4. Test the GELLO code by going **File -> Load HL7 data -> BabyApple.oru** from the Medical Objects Gello Editor we are working in. Hit the Green **Run** Arrow in the menu bar . Note the Result in the **Variable Explorer** tab of the bottom pane shows the correct value for this

apple. Change the date of birth in the HL7 file to make the apple less and then more than four weeks old and see what happens.
Here's the bit to change. (The date of birth format is YYYYMMDD):

```
PID|1||4024728675^^^AUSHIC^MC||Apple^Baby||20080609|M|||1 Woodgrove Lane^^Anytown^QLD^4556
```

5. Exit the GELLO editor and check things out again. From the main MO Template Editor window, go **File -> Load Gello model data -> BabyApple.oru**. Go to Preview and see the displayed reference range for 'Weight'. Change the date of birth source data to an age older than 4 weeks old, reload and check things change accordingly.

6. Save your work.