Attendees:

- Karl Hammar (Jönköping University)
- Mathias Bonduel (KU Leuven)
- María Poveda-Villalón (OEG-UPM)
- Jyrki Oraskari (RWTH Aachen University)
- Anna Wagner (individual, affiliated with PROSTEP)
- Joel Bender (Cornell University)
- Madhumitha Senthilvel (RWTH Aachen University)
- Richard Pinka (CTU Prague)
- Katja Breitenfelder (Fraunhofer IBP / TU Munich)
- Serge Chávez-Feria (UPM)
- Mads Holten Rasmussen (NIRAS)
- Sjoerd Rongen (Taxonic)
- Nico Pauen (RWTH Aachen University)
- Gabe Fierro (UC Berkeley)
- Sylvain MARIE (Railenium)
- Salvatore Cataldi (BELIMO Automation AG)
- Gabe Fierro (UC Berkeley)
- Steve Ray (QUDT)
- Hong An Sandlin (ASTRA)
- Parastoo Delgoshaei (NIST)
- Seppo Törmä (VisuaLynk, FI)
- Georg Schneider (Individual CLA but affiliated with Schaeffler)
- Pouya Zangeneh (Hatch, UToronto)

Date and time

- 26/01/2021, Tuesday, 16:00-17:30@UTC/ 17:00-18:30@CET/ 08:00-09:30@PST/ 00:00-01:30@CST

Agenda (tentative)

1. Introduction of new participants
2. Product/property modelling aspects in the current draft CEN TC442/WG4/TG3 Semantic Modelling and Linking Standard (SML) by Michel Böhms (~15min)
3. Presentation on “Brief introduction into complex properties of HVAC-R products within the CAE-FM sector” by Richard Pinka (~15min)
4. Q&A
5. Open Discussion

Minutes

1. Introduction of new participants

    a. Gabe Fierro [UC Berkelely]
    b. Parastoo Delgoshaei: research related with ASHRAE, connected with Joel Bender
    c. Steve Ray: independent developer and CEO of QUDT ontology (units of measure), 223 ASHRAE standard, connected with Joel
    d. Hong An Sandlin: ASTRA (Swiss federal agency for roads), data scientist
2. Product/property modelling aspects in the current draft CEN TC442/WG4/TG3 Semantic Modelling and Linking Standard (SML) by Michel Böhms (~15min) SLIDES
    a. Overview of standards from BIM and/or Linked Building Data domain: properties and product modelling
    b. SML property modeling (CEN 442): focus on quantitative properties using QUDT for units. In future look to RDF*/SPARQL* to add metadata to properties
    c. Need for technical and semantic harmonization between standards (ISO 120063 / bSI). Linked Data as primary source for other representations?
3. Presentation on “Brief introduction into complex properties of HVAC-R products within the CAE-FM sector” by Richard Pinka (~15min) SLIDES
    a. Complex properties modelling: HVAC products during design and operations of buildings
    b. Static vs. dynamic properties of objects and individuals
        i. Rigid vs. non-rigid properties
    c. Dynamic property: Modeling in “snapshot of time” for operation parameters/properties of HVAC elements
    d. Combinatorial explosion of states when looking on analytical curves for HVAC properties
    e. Properties that cannot be expressed as simple, single value: depend on mathematical function/graphs, tabular values
    f. Slides 18 take away: analytical expressions might be necessary to be added as a property of a technical device in a building
    g. Ideas for modeling complex properties: RDF collections, RDF lists, GeoSPARQL (lines and areas)
4. Discussion (pending questions)
    a. Presentation Michel
        i. [Sjoerd] What do you think of SHACL? Since you (want to) use RDF* where SHACL may suffice and is already available.
            1. [Michel]: SHACL is good in many closed world cases and an important tool to use. RDF* is considered more as a RDF 2.0.
        ii. [Anna] Why do you rely on hierarchical OWL structures for opening height and height instead of SKOS terminology?
            1. [Michel]
                a. We reuse SKOS properties to annotate properties etc.
        iii. [Richard] why RDF* over named graphs?
            1. [Michel] every approach for metadata modeling has advantages and issues

iv. [Georg] Reuse of QUDT. How is this realised in smls via a full import (owl:imports)? qudt:quantityKind vs. smls:quantityKind
    1. [Michel] no import, directly reusable through dereferencing (Topquadrant software)
    2. [Steve Ray] developments in Australia regarding Profiles, check community report
v. [Mathias] reason for preference of QUDT over CDT UCUM or OM [added by Georg]?
    1. [Michel] big advantage of QUDT based on datatype modeling: dimensional analysis
    2. [Georg] alignment from QUDT to OM/CDT UCUM?
    3. [Steve Ray] looking into it, QUDT is member of W3C, some actions going on
    4. [Mathias] QUDT already has ref to UCUM and others
vi. [Mathias] Slide 6 mentions OWL punning but I do not see why/how. Do you think there risks related to punning?
    1. [Michel] smls:quantityKind owl:ObjectProperty on ex:height (ObjectProperty) makes ex:height also an instance.
    2. [Mathias] Using an owl:AnnotationProperty instead might avoid OWL punning unless reasoning is needed for smls:quantityKind property

b. Presentation Richard
    i. [Georg] Evolution of a property over time (e.g. balloon) -> similar to OPM modelling approach for states of properties.
    ii. [Georg] + for idea on using geosparql like notion of envelopes for operation of HVAC equipment
        1. LInk by Mads: Function Ontology: https://fno.io/spec
        2. MathML https://en.wikipedia.org/wiki/MathML#MathML_version_3
        3. http://spc205.ashraepcs.org/ ASHRAE standard/specification to facilitate sharing of equipment characteristics for performance simulation by defining standard representations such as data models, data formats, and automation interfaces

5. Open Discussion

Next Call

- 09/02/2021, Tuesday, 16:00-17:30@UTC

We are interested in getting suggestions from the community about potential agenda items for the following calls. Please send your suggestions to public-lbd@w3.org, whether you have a short presentation to bootstrap the discussion, and an approximate duration you think the discussion will last.

Previous minutes

https://www.w3.org/community/lbd/meeting-minutes/