

C. Complete Examples

General:

Divergence in URIs:

- tree/124/height
- tree/124#height

I'd recommend going for / throughout

In addition, will remove / from class names as this just adds confusion

C.0 Color of a smiley face sticker

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

@prefix time: <http://www.w3.org/2006/time#> .

@prefix sosa: <http://www.w3.org/ns/sosa/> .

@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

@base <http://example.org/data/> .

Determining the color of a smiley face sticker, including sampling from a population of smiley stickers

First setting up all the basics: FeatureOfInterest, Property, Procedure, Sensor, Platform

```
<SmilySticker> rdf:type      sosa:FeatureOfInterest ;  
  rdfs:label "Smiley face sticker"@en ;  
  sosa:hasProperty <stickerColor> .
```

```
<StickerColor> rdf:type      sosa:Property;  
  rdfs:label "The color of a sticker"@en .
```

```
<ColorDetermination> rdf:type      sosa:Procedure ;  
  rdfs:label "Procedure for determining the color of a sticker"@en ;  
  sosa:forProperty <StickerColor> .
```

```
<ColorDeterminer> rdf:type      sosa:Sensor;  
  rdfs:label "Sensor for determining the color of a sticker"@en ;  
  sosa:observes <StickerColor> .
```

```
<StickerAssayOffice> rdf:type      sosa:Platform;  
  rdfs:label "Assay office for determining the color of a sticker"@en ;  
  sosa:hosts <ColorDeterminer> .
```

Adding an Observation

```
<Observation-Smiley-Color> rdf:type sosa:Observation ;  
  sosa:hasFeatureOfInterest <SmilySticker> ;
```

```

sosa:observedProperty <StickerColor> ;
sosa:madeBySensor <ColorDeterminer> ;
sosa:usedProcedure <ColorDetermination> ;

sosa:hasSimpleResult "Yellow"^^xsd:string ;
sosa:phenomenonTime [
    rdf:type time:Instant ;
    time:inXSDDateTimeStamp "2017-04-15T00:00:00+00:00"^^xsd:dateTimeStamp ] ;
sosa:resultTime "2017-04-16T00:00:12+00:00"^^xsd:dateTimeStamp .

```

Sampling of the SmileySticker from a wider population of smiley face stickers

First setting up all the basics: FeatureOfInterest, Sampler, Procedure

```

<SmilyPopulation> rdf:type sosa:FeatureOfInterest ;
    rdfs:label "A population of smiley face stickers"@en ;
    sosa:hasProperty <stickerColor> .

<SmileySamplingProcedure> rdf:type sosa:Procedure ;
    rdfs:label "Procedure for sampling smiley stickers"@en .

<SmileySampler> rdf:type sosa:Sampler ;
    rdfs:label "Smiley sticker sampler"@en ;
    sosa:implements <SmileySamplingProcedure> .

```

Adding a Sampling act

```

<SmileySampling> rdf:type sosa:Sampling ;
    rdfs:label "Sampling of a representative Smiley Sticker from a Collection of Smiley
Stickers"@en ;
    sosa:hasFeatureOfInterest <SmilyPopulation> ;
    sosa:usedProcedure <SmileySamplingProcedure> ;
    sosa:madeBySampler <SmileySampler> ;
    sosa:hasResult <SmilySticker> .

```

C.1 iPhone Barometer

Clean example, all parts defined, ObsProp is neutral

An RDF file containing a [graph corresponding to this example is available](#).

[Example 7](#)

```

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .

```

@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix geo: <http://www.opengis.net/ont/geosparql#> .
@prefix qudt: <http://qudt.org/schema/qudt/> .
@prefix unit: <http://qudt.org/vocab/unit/> .
@prefix cdt: <http://w3id.org/lindt/custom_datatypes#> .
@base <http://example.org/data/> .

The barometric readings from a Bosch Sensortec BMP282 sensor in an Apple iPhone 7
observed on June 6 2017 using only the SOSA core for modelling.

the atmosphere is sampled at a specific location
location coordinates are given using GeoSPARQL

<earthAtmosphere> a sosa:FeatureOfInterest ;
 rdfs:label "Atmosphere of Earth"@en .

<earthAtmosphere_StE> a sosa:Sample ;
 sosa:isSampleOf <earthAtmosphere> ;
 geo:hasGeometry [
 a geo:Point ;
 geo:asWKT "POINT (4.387611 45.437772)"^^geo:WktLiteral ;
] ;
.

<atmosphericPressure> a sosa:ObservableProperty ;
 rdfs:label "Atmospheric pressure"@en .

An iPhone 7 as the Platform that hosts several sensors,
among others the Bosch Sensortec BMP282 atmospheric pressure sensor.

<iphone7/35-207306-844818-0> a sosa:Platform ;
 rdfs:label "iPhone 7 - IMEI 35-207306-844818-0"@en ;
 rdfs:comment "iPhone 7 - IMEI 35-207306-844818-0 - John Doe"@en ;
 sosa:hosts <sensor/35-207306-844818-0/BMP282> .

<sensor/35-207306-844818-0/BMP282> a sosa:Sensor ;
 rdfs:label "Bosch Sensortec BMP282"@en ;
 sosa:observes <atmosphericPressure> .

An observation made by the BMP282 atmospheric pressure sensor
using the cdt:ucum custom datatype.

<Observation/346344> a sosa:Observation ;
 sosa:observedProperty <atmosphericPressure> ;
 sosa:hasFeatureOfInterest <earthAtmosphere_StE> ;

```
sosa:madeBySensor <sensor/35-207306-844818-0/BMP282> ;
sosa:hasSimpleResult "1021.45 hPa"^^cdt:ucum ;
sosa:resultTime "2017-06-06T12:36:12Z"^^xsd:dateTime .
```

Another observation made a second later by the BMP282 atmospheric pressure sensor
using the QUDT Ontology for the Units of Measurement

```
<Observation/346345> a sosa:Observation ;
sosa:observedProperty <atmosphericPressure> ;
sosa:hasFeatureOfInterest <earthAtmosphere_StE> ;
sosa:madeBySensor <sensor/35-207306-844818-0/BMP282> ;
sosa:hasResult [
  a qudt:QuantityValue ;
  qudt:value "101936"^^xsd:decimal ;
  qudt:hasUnit unit:PA ] ;
sosa:resultTime "2017-06-06T12:36:13Z"^^xsd:dateTime .
```

C.2 Coal Oil Point Reserve

COPR_SL is created as Sample, but never used
Station has a Platform for Humidity and Temperature, but only models Humidity
all parts defined, ObsProp is neutral

An RDF file containing a [graph corresponding to this example is available](#).

Example 8

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix sosa: <http://www.w3.org/ns/sosa#> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix cdt: <http://w3id.org/lindt/custom_datatypes#> .
```

```
@base <http://example.org/data/> .
```

```
<COPR> a sosa:FeatureOfInterest ;
sosa:hasSample <COPR_SL> ;
rdfs:comment "Coal Oil Point Reserve: UC Santa Barbara Natural Reserve System"@en ;
rdfs:label "Coal Oil Point Reserve"@en .
```

```
<COPR_Station_Location> a sosa:Sample ;
rdfs:comment "."@en ;
rdfs:label "Air around COPR Station"@en ;
sosa:isSampleOf <COPR> .
```

```
<COPR_Station> a sosa:Platform ;
```

```

    rdfs:comment "Station at Coal Oil Point Reserve, CA (see
http://www.geog.ucsb.edu/ideas/COPR.html for details)"@en ;
    rdfs:label "Coal Oil Point Reserve Wx Station"@en ;
    rdfs:seeAlso <http://www.geog.ucsb.edu/ideas/COPR.html> ;
    sosa:hosts <COPR-HMP45C-L> .

<COPR-HMP45C-L> a sosa:Platform ;
    rdfs:label "HMP45C-L Temperature and Relative Humidity Probe at Coal Oil Point, UCSB,
CA"@en ;
    sosa:hosts <HUMICAP-H> ;
    sosa:isHostedBy <COPR_Station> .

<HUMICAP-H> a sosa:Sensor ;
    rdfs:label "Vaisala HUMICAP H-chip"@en ;
    sosa:isHostedBy <COPR-HMP45C-L> .

<RelativeHumidity> a sosa:ObservableProperty ;
    rdfs:comment "Humidity is a measure of the moisture content of air."@en ;
    rdfs:label "Relative Humidity"@en .

<MeasuringRelativeHumidityA23> a sosa:Procedure ;
    rdfs:comment "... detailed instructions for measuring relative humidity ..."@en ;
    .

<RH_avg_1_COPR_15min_201706020300PM> a sosa:Observation ;
    rdfs:comment "Relative humidity as averaged over 15min at COPR."@en ;
    rdfs:label "Relative humidity, AVG, 15min, COPR, 06.02.2017, 3:00 PM"@en ;
    sosa:madeBySensor <HUMICAP-H> ;
    sosa:hasFeatureOfInterest <COPR_Station_Location> ;
    sosa:hasSimpleResult "92.5 %"^^cdt:ucum ;
    sosa:resultTime "2017-06-02-T03:00:00-7:00"^^xsd:dateTime ;
    sosa:observedProperty <RelativeHumidity> ;
    sosa:usedProcedure <MeasuringRelativeHumidityA23> .

```

C.3 apartment 134

ObsProps Fol Specific

No Fol as implicit in ObsProp

Various variants seem to be provided, but would need better explanation on these variants

[\[Show only core SOSA terms\]](#)

An RDF file containing a [graph corresponding to this example is available](#).

[Example 9](#)

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

@prefix time: <http://www.w3.org/2006/time#> .

@prefix sosa: <http://www.w3.org/ns/sosa/> .

@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

@prefix qudt: <http://qudt.org/schema/qudt/> .
@prefix unit: <http://qudt.org/vocab/unit/> .
@base <http://example.org/data/> .

The electric consumption of apartment #134 on April 15 2017 was 22.4 kWh as
observed by sensor #926. The result was available 12 seconds later.

```
<Observation/235714> rdf:type sosa:Observation ;
  sosa:observedProperty <apartment/134/electricConsumption> ;
  sosa:madeBySensor <sensor/926> ;
  sosa:hasResult [
    rdf:type qudt:QuantityValue ;
    qudt:numericValue "22.4"^^xsd:double ;
    qudt:hasUnit unit:KiloW-HR ] ;
  sosa:phenomenonTime [
    rdf:type time:Interval ;
    time:hasBeginning [
      rdf:type time:Instant ;
      time:inXSDDateTimeStamp "2017-04-15T00:00:00+00:00"^^xsd:dateTimeStamp ] ;
    time:hasEnd [
      rdf:type time:Instant ;
      time:inXSDDateTimeStamp "2017-04-16T00:00:00+00:00"^^xsd:dateTimeStamp ] ] ;
  sosa:resultTime "2017-04-16T00:00:12+00:00"^^xsd:dateTimeStamp .
```

Sensor #926 observes the electric consumption of apartment #134, and we know that
it made some observations.

```
<sensor/926> rdf:type sosa:Sensor ;
  sosa:observes <apartment/134/electricConsumption> ;
  sosa:madeObservation <Observation/235714>, <Observation/235715>,
  <Observation/235716> .
```

mobile sensor tempSensor #23 observes the temperature in its surroundings, and we
know
that it made some observations.

```
<tempSensor/23> rdf:type sosa:Sensor ;
  sosa:observes <tempSensor/23#temperature> ;
  sosa:madeObservation <tempSensor/23/4572>, <tempSensor/23/4573>,
  <tempSensor/23/4574> .
```

Sensor #926 observes the electric consumption of apartment #134

```
<sensor/926> rdf:type sosa:Sensor ;
  sosa:observes <apartment/134/electricConsumption> .
```

This is equivalent to saying that the electric consumption of apartment #134 is
observed by Sensor #926

```
<apartment/134/electricConsumption> rdf:type sosa:ObservableProperty ;  
  sosa:isObservedBy <sensor/926> .
```

Sensor #926 made observations identified by <Observation/235714> and
<Observation/235715>.

```
<sensor/926> rdf:type sosa:Sensor ;  
  sosa:madeObservation <Observation/235714>, <Observation/235715> .
```

This is equivalent to saying that these observations have been made by sensor #926.

```
<Observation/235714> rdf:type sosa:Observation ;  
  sosa:madeBySensor <sensor/926> .
```

```
<Observation/235754> rdf:type sosa:Observation ;  
  sosa:madeBySensor <sensor/926> .
```

the window opening state is an ActuatableProperty.
SSN allows to explicitly say that <window/104#state> is a property of <window>

```
<window> rdf:type sosa:FeatureOfInterest ;  
  sosa:hasProperty <window/104#state> .
```

```
<window/104#state> rdf:type sosa:ActuatableProperty ;  
  sosa:isActedOnBy <actuation/188> .
```

WindowCloser #987 made actuation #188
SSN allows to explicitly say that <windowCloser/987> is designed to automatically open
and close window #104.

```
<windowCloser/987> rdf:type sosa:Actuator ;  
  sosa:madeActuation <actuation/188> ;  
  sosa:forProperty <window/104#state> .
```

Actuation #188 acted on the state of window #104 and returned 'true'.

```
<actuation/188> rdf:type sosa:Actuation ;  
  sosa:actsOnProperty <window/104#state> ;  
  sosa:actuationMadeBy <windowCloser/987> ;  
  sosa:hasSimplResult true ;  
  sosa:resultTime "2017-04-18T17:24:00+02:00"^^xsd:dateTimeStamp .
```

[\[Show only core SOSA terms\]](#)

Update 1

Kept specialized properties but removed /# from names as confusing. Removed unlinked temperature measurement. Some comments with #!!!

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix time: <http://www.w3.org/2006/time#> .
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix qudt: <http://qudt.org/schema/qudt/> .
@prefix unit: <http://qudt.org/vocab/unit/> .
@base <http://example.org/data/> .
```

```
# The electric consumption of apartment #134 on April 15 2017 was 22.4 kWh as
# observed by sensor #926. The result was available 12 seconds later.
```

```
<apartment-electricConsumption> rdf:type    sosa:ObservableProperty , sosa:Property ;
  rdfs:label "the electric consumption of an apartment"@en.
```

```
<apartment-134> rdf:type    sosa:FeatureOfInterest ;
  rdfs:label "apartment #134"@en ;
  sosa:hasProperty <apartment-electricConsumption> .
```

#!!!

```
# would be nice if we could state that apartment-134-electricConsumption is a subProperty
of electricConsumption
```

```
<Observation-235714> rdf:type sosa:Observation ;
  sosa:observedProperty <apartment-134-electricConsumption> ;
  sosa:madeBySensor <sensor-926> ;
  sosa:hasFeatureOfInterest <apartment-134> ;
  sosa:hasResult [
    rdf:type qudt:QuantityValue ;
    qudt:numericValue "22.4"^^xsd:double ;
    qudt:hasUnit unit:KiloW-HR ] ;
  sosa:phenomenonTime [
    rdf:type time:Interval ;
    time:hasBeginning [
      rdf:type time:Instant ;
      time:inXSDDateTimeStamp "2017-04-15T00:00:00+00:00"^^xsd:dateTimeStamp ] ;
    time:hasEnd [
      rdf:type time:Instant ;
```

```
time:inXSDDateTimeStamp "2017-04-16T00:00:00+00:00"^^xsd:dateTimeStamp ] ] ;  
sosa:resultTime "2017-04-16T00:00:12+00:00"^^xsd:dateTimeStamp .
```

Sensor #926 observes the electric consumption of apartment #134, and we know that
it made some observations.

```
<sensor-926> rdf:type sosa:Sensor ;  
  sosa:observes <apartment-electricConsumption> ;  
  sosa:madeObservation <Observation-235714>, <Observation-235715>,  
<Observation-235716> .
```

#!!! The next bits are variants - how do we explain this?

Sensor #926 observes the electric consumption of apartment #134

```
<sensor/926> rdf:type sosa:Sensor ;  
  sosa:observes <apartment/134/electricConsumption> .
```

This is equivalent to saying that the electric consumption of apartment #134 is
observed by Sensor #926

```
<apartment/134/electricConsumption> rdf:type sosa:ObservableProperty ;  
  sosa:isObservedBy <sensor/926> .
```

Sensor #926 made observations identified by <Observation/235714> and
<Observation/235715>.

```
<sensor/926> rdf:type sosa:Sensor ;  
  sosa:madeObservation <Observation/235714>, <Observation/235715> .
```

This is equivalent to saying that these observations have been made by sensor #926.

```
<Observation/235714> rdf:type sosa:Observation ;  
  sosa:madeBySensor <sensor/926> .
```

```
<Observation/235754> rdf:type sosa:Observation ;  
  sosa:madeBySensor <sensor/926> .
```

the window opening state is an ActuatableProperty.

SSN allows to explicitly say that <window-104-state> is a property of <window-104>

```
<window-104> rdf:type sosa:FeatureOfInterest ;  
  sosa:hasProperty <window-104-state> .
```

```
<window-104-state> rdf:type sosa:ActuatableProperty ;  
  sosa:isActedOnBy <actuation-188> .
```

WindowCloser #987 made actuation #188
SSN allows to explicitly say that <windowCloser-987> is designed to automatically open and close window #104.

```
<windowCloser-987> rdf:type sos:Actuator ;  
  sos:madeActuation <actuation-188> ;  
  sos:forProperty <window-104-state> .
```

Actuation #188 acted on the state of window #104 and returned 'true'.

```
<actuation-188> rdf:type sos:Actuation ;  
  sos:actsOnProperty <window-104-state> ;  
  sos:actuationMadeBy <windowCloser-987> ;  
  sos:hasSimplResult true ;  
  sos:resultTime "2017-04-18T17:24:00+02:00"^^xsd:dateTimeStamp .
```

Update 2 - generic ObsProps

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .  
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .  
@prefix time: <http://www.w3.org/2006/time#> .  
@prefix sos: <http://www.w3.org/ns/sos/> .  
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .  
@prefix qudt: <http://qudt.org/schema/qudt/> .  
@prefix unit: <http://qudt.org/vocab/unit/> .  
@base <http://example.org/data/> .
```

The electric consumption of apartment #134 on April 15 2017 was 22.4 kWh as
observed by sensor #926. The result was available 12 seconds later.

```
<apartment-134> rdf:type    sos:FeatureOfInterest, sos:Platform ;  
  rdfs:label "apartment #134"@en ;  
  sos:hasProperty <electricConsumption> .
```

```
<electricConsumption> rdf:type    sos:Property , sos:Property ;  
  rdfs:label "The electric consumption of a unit, e.g. apartment"@en .
```

```
<Observation-235714> rdf:type sos:Observation ;  
  sos:hasFeatureOfInterest <apartment-134> ;  
  sos:observedProperty <electricConsumption> ;  
  sos:madeBySensor <sensor-926> ;  
  sos:hasResult [  
    rdf:type qudt:QuantityValue ;
```

```

    qudt:numericValue "22.4"^^xsd:double ;
    qudt:hasUnit unit:KiloW-HR ] ;
sosa:phenomenonTime [
    rdf:type time:Interval ;
    time:hasBeginning [
        rdf:type time:Instant ;
        time:inXSDDateTimeStamp "2017-04-15T00:00:00+00:00"^^xsd:dateTimeStamp ] ;
    time:hasEnd [
        rdf:type time:Instant ;
        time:inXSDDateTimeStamp "2017-04-16T00:00:00+00:00"^^xsd:dateTimeStamp ] ] ;
sosa:resultTime "2017-04-16T00:00:12+00:00"^^xsd:dateTimeStamp .

```

Sensor #926 is hosted by apartment #134, observes the electric consumption, and we know that
it made some observations.

```

<sensor-926> rdf:type sosa:Sensor ;
    sosa:observes <electricConsumption> ;
    sosa:isHostedBy <apartment-134> ;
    sosa:madeObservation <Observation-235714>, <Observation-235715>,
<Observation-235716> .

```

Often, the same assertion can be defined in 2 directions
As used above, we can state that Sensor #926 observes the electric consumption

```

<sensor-926> rdf:type sosa:Sensor ;
    sosa:observes <electricConsumption> .

```

This is equivalent to saying that the electric consumption is
observed by Sensor #926

```

<electricConsumption> rdf:type sosa:ObservableProperty ;
    sosa:isObservedBy <sensor-926> .

```

One can also state that Sensor #926 made observations identified by
<Observation-235714> and <Observation-235715>.

```

<sensor-926> rdf:type sosa:Sensor ;
    sosa:madeObservation <Observation-235714>, <Observation-235715> .

```

This is equivalent to saying that these observations have been made by sensor #926.

```

<Observation-235714> rdf:type sosa:Observation ;
    sosa:madeBySensor <sensor-926> .

```

```

<Observation-235754> rdf:type sosa:Observation ;

```

sosa:madeBySensor <sensor-926> .

the window opening state is an ActuatableProperty.

SSN allows to explicitly say that <window-104-state> is a property of <window-104>

<window-104> rdf:type sosa:FeatureOfInterest ;
sosa:hasProperty <window-state> .

<window-state> rdf:type sosa:ActuatableProperty ;
sosa:isActedOnBy <actuation-188> .

WindowCloser #987 made actuation #188

SSN allows to explicitly say that <windowCloser-987> is designed to automatically open and close window #104.

<windowCloser-987> rdf:type sosa:Actuator ;
sosa:madeActuation <actuation-188> ;
sosa:forProperty <window-state> .

Actuation #188 acted on the state of window #104 and returned 'true'.

<actuation-188> rdf:type sosa:Actuation ;
sosa:actsOnProperty <window-state> ;
sosa:actuationMadeBy <windowCloser-987> ;
sosa:hasFeatureOfInterest <window-104> ;
sosa:hasSimplResult true ;
sosa:resultTime "2017-04-18T17:24:00+02:00"^^xsd:dateTimeStamp .

C.4 Tree height measurement

ObsProps Fol Specific

Error:

<tree/**125**#height> rdf:type sosa:ObservableProperty , sosa:Property ;
rdfs:label "the height of tree #125"@en ;
sosa:isPropertyOf <tree/**124**> .

[\[Show only core SOSA terms\]](#)

An RDF file containing a [graph corresponding to this example is available](#).

[Example 11](#)

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix qudt: <http://qudt.org/schema/qudt/> .
@prefix unit: <http://qudt.org/vocab/unit/> .
@base <http://example.org/data/> .

rangefinder #30 is a laser range finder sensor that was used
to observe the height of tree #124 and #125.

<rangefinder/30> rdf:type sosa:Sensor ;
rdfs:label "rangefinder #30"@en ;
rdfs:comment "rangefinder #30 is a laser range finder sensor."@en .

rangefinder #30 made observation #1087 of the height of tree #124.

<observation/1087> rdf:type sosa:Observation ;
rdfs:label "observation #1087"@en ;
sosa:hasFeatureOfInterest <tree/124> ;
sosa:observedProperty <tree/124/height> ;
sosa:madeBySensor <rangefinder/30> ;
sosa:hasResult [
qudt:hasUnit unit:M ;
qudt:numericalValue "15.3"^^xsd:double] .

using SSN, one can explicitly link a property and its feature of interest.

<tree/124> rdf:type sosa:FeatureOfInterest ;
rdfs:label "tree #124"@en ;
sosa:hasProperty <tree/124#height> .

<tree/124#height> rdf:type sosa:ObservableProperty , sosa:Property ;
rdfs:label "the height of tree #124"@en ;
sosa:isPropertyOf <tree/124> .

rangefinder #30 made observation #1088 of the height of tree #125.

<observation/1088> rdf:type sosa:Observation ;
rdfs:label "observation #1088"@en ;
sosa:hasFeatureOfInterest <tree/125> ;
sosa:observedProperty <tree/125/height> ;
sosa:madeBySensor <rangefinder/30> ;
sosa:hasResult [
qudt:numericValue "23.0"^^xsd:double ;
qudt:hasUnit unit:M] .

using SSN, one can explicitly link a property and its feature of interest.

```
<tree/125> rdf:type   sosa:FeatureOfInterest ;
  rdfs:label "tree #125"@en ;
  sosa:hasProperty <tree/125#height> .
```

```
<tree/125#height> rdf:type   sosa:ObservableProperty , sosa:Property ;
  rdfs:label "the height of tree #125"@en ;
  sosa:isPropertyOf <tree/124> .
```

[\[Show only core SOSA terms\]](#)

Update

Neutral ObsProp tree-height, not sure we need to associate this to the 2 trees
Replaced / with - in names, e.g. tree-124

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>.
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix qudt: <http://qudt.org/schema/qudt/> .
@prefix unit: <http://qudt.org/vocab/unit/> .
@base <http://example.org/data/> .
```

rangefinder #30 is a laser range finder sensor that was used
to observe the height of tree #124 and #125.

```
<rangefinder-30>   rdf:type      sosa:Sensor ;
  rdfs:label "rangefinder #30"@en ;
  rdfs:comment "rangefinder #30 is a laser range finder sensor."@en .
```

rangefinder #30 made observation #1087 of the height of tree #124.

```
<observation-1087> rdf:type      sosa:Observation ;
  rdfs:label "observation #1087"@en ;
  sosa:hasFeatureOfInterest <tree-124> ;
  sosa:observedProperty <tree-height> ;
  sosa:madeBySensor <rangefinder-30> ;
  sosa:hasResult [
    qudt:hasUnit unit:M ;
    qudt:numericalValue "15.3"^^xsd:double ] .
```

using SSN, one can explicitly link a property and its feature of interest.

```
<tree-124> rdf:type   sosa:FeatureOfInterest ;
  rdfs:label "tree #124"@en ;
  sosa:hasProperty <tree-height> .
```

```
<tree-height> rdf:type      sofa:ObservableProperty , sofa:Property ;  
  rdfs:label "the height of a tree"@en ;  
  sofa:isPropertyOf <tree-124> .
```

rangefinder #30 made observation #1088 of the height of tree #125.

```
<observation-1088> rdf:type      sofa:Observation ;  
  rdfs:label "observation #1088"@en ;  
  sofa:hasFeatureOfInterest <tree-125> ;  
  sofa:observedProperty <tree-height> ;  
  sofa:madeBySensor <rangefinder-30> ;  
  sofa:hasResult [  
    qudt:numericValue "23.0"^^xsd:double ;  
    qudt:hasUnit unit:M ] .
```

using SSN, one can explicitly link a property and its feature of interest.

```
<tree-125> rdf:type  sofa:FeatureOfInterest ;  
  rdfs:label "tree #125"@en ;  
  sofa:hasProperty <tree-height> .
```

```
<tree-height> rdf:type      sofa:ObservableProperty , sofa:Property ;  
  rdfs:label "the height of a tree"@en ;  
  sofa:isPropertyOf <tree-125> .
```

C.5 Seismographs

ObsProps Sensor Specific

FoI Sensor Specific

Interesting approach to Observation Timeseries subsetting, not sure correct:

```
<VCAB-DP1-BP-40?t=2017-04-18T08%3A23%3A00-07%3A00> rdf:type sofa:Observation  
;
```

[\[Show only core SOSA terms\]](#)

An RDF file containing a [graph corresponding to this example is available](#).

Example 13

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .  
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .  
@prefix sofa: <http://www.w3.org/ns/sofa/> .  
@prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#> .  
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .  
@prefix qudt: <http://qudt.org/schema/qudt/> .
```

@prefix unit: <http://qudt.org/vocab/unit/> .

@base <http://example.org/data/> .

Observation #358 of seismograph VCAB DP1 BP 40 (Vineyard Canyon, Parkfield, Ca) measured

a earth displacement speed of 0.000500 cm/sec at 8:23 am on April 18, 2017, Pacific

Daylight Time.

<earth> rdf:type sosa:FeatureOfInterest ;
rdfs:label "earth"@en .

<VCAB-DP1-BP-40> rdf:type sosa:Sensor ;
rdfs:label "seismograph VCAB DP1 BP 40 (Vineyard Canyon, Parkfield, Ca)"@en ;
rdfs:seeAlso <https://earthquake.usgs.gov/monitoring/seismograms/153> ;
sosa:observes <VCAB-DP1-BP-40#groundDisplacementSpeed> .

<VCAB-DP1-BP-40#location> rdf:type sosa:FeatureOfInterest ;
rdfs:label "location of VCAB-DP1-BP-40"@en ;
geo:lat 35.8648067 ;
geo:long -120.6195831 ;
geo:alt 12.75 ;
sosa:isSampleOf <earth> .

<VCAB-DP1-BP-40#groundDisplacementSpeed> rdf:type sosa:ObservableProperty ,
sosa:Property ;
rdfs:label "the ground displacement speed at location of VCAB-DP1-BP-40"@en ;
sosa:isObservedBy <VCAB-DP1-BP-40> .

<VCAB-DP1-BP-40?t=2017-04-18T08%3A23%3A00-07%3A00> rdf:type sosa:Observation ;
sosa:madeBySensor <VCAB-DP1-BP-40> ;
sosa:hasFeatureOfInterest <VCAB-DP1-BP-40#location> ;
sosa:observedProperty <VCAB-DP1-BP-40#groundDisplacementSpeed> ;
sosa:hasResult [
rdf:type qudt:QuantityValue ;
qudt:numericValue "5e-4"^^xsd:double ;
qudt:hasUnit unit:CentiM-PER-SEC] ;
sosa:resultTime "2017-04-18T08:23:00-07:00"^^xsd:dateTimeStamp .

using SSN one can explicitly state that <VCAB-DP1-BP-40#groundDisplacementSpeed> is
the property of <VCAB-DP1-BP-40#location> .

<VCAB-DP1-BP-40#location> sosa:hasProperty
<VCAB-DP1-BP-40#groundDisplacementSpeed> .

[\[Show only core SOSA terms\]](#)

C.6 Number of sunspots

ObsProps Fol Specific

Fol only declared via ObsProp, not created or linked to Obs:
sosa:observedProperty <Sun#sunspotNumber> ;

An RDF file containing a [graph corresponding to this example is available](#).

Example 15

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix time: <http://www.w3.org/2006/time#> .
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@base <http://example.org/data/> .
```

The result of an observation of the sunspot number is available a few minutes
after the phenomenon time, due to the light travel duration.

```
<Observation/7536> rdf:type sosa:Observation ;
sosa:observedProperty <Sun#sunspotNumber> ;
sosa:hasSimpleResult 66 ;
sosa:phenomenonTime [
  rdf:type time:Instant ;
  time:inXSDDateTimeStamp "2017-03-31T11:51:42+00:00"^^xsd:dateTimeStamp ] ;
sosa:resultTime "2017-03-31T12:00:00+00:00"^^xsd:dateTimeStamp .
```

C.7 Wind sensor spinning cups

ObsProps Fol Specific

Not sure this is a good example to explain Stimulus vs. ObsProp. In this example:

- Stimulus is observation/147#spinningCupsMovement,
- ObsProp is location/4687#windSpeed

Trying to find a more graspable example, wondering if we couldn't do something where a rainfall event is the stimulus for flooding

[\[Show only core SOSA terms\]](#)

An RDF file containing a [graph corresponding to this example is available](#).

Example 16

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@base <http://example.org/data/> .
```

movements of spinning cups on wind sensor #14 serves as proxies for the wind speed
at the location of the wind sensor.

```
<windSensor/14> rdf:type sosa:Sensor ;
```

sosa:observes <location/4687#windSpeed> .

wind sensor #14 detected some movement of spinning cups, from which originated the
observations #147 and #148.

```
<windSensor/14> rdf:type sosa:Sensor ;  
  sosa:madeObservation <observation/147> , <observation/148> ;  
  sosa:detects <observation/147#spinningCupsMovement> ,  
<observation/148#spinningCupsMovement> .
```

observation #147 was originated by the movement of the spinning cups of sensor #14.
the result of observations #147 and #148 is using some custom datatype that encodes the
unit of measure.

```
<observation/147> rdf:type sosa:Observation ;  
  sosa:observedProperty <location/4687#windSpeed> ;  
  sosa:madeBySensor <windSensor/14> ;  
  sosa:wasOriginatedBy <observation/147#spinningCupsMovement> ;  
  sosa:resultTime "2017-04-12T12:00:00Z"^^xsd:dateTime ;  
  sosa:hasSimpleResult "47 km/h"^^<speed> .
```

```
<observation/147#spinningCupsMovement> rdf:type sosa:Stimulus ;  
  sosa:isProxyFor <location/4687#windSpeed> .
```

```
<observation/148> rdf:type sosa:Observation ;  
  sosa:observedProperty <location/4687#windSpeed> ;  
  sosa:madeBySensor <windSensor/14> ;  
  sosa:wasOriginatedBy <observation/148#spinningCupsMovement> ;  
  sosa:resultTime "2017-04-12T12:01:00Z"^^xsd:dateTime ;  
  sosa:hasSimpleResult "43 km/h"^^<speed> .
```

```
<observation/148#spinningCupsMovement> rdf:type sosa:Stimulus ;  
  sosa:isProxyFor <location/4687#windSpeed> .
```

[\[Show only core SOSA terms\]](#)

C.8 Ice Core

ObsProps Fol Specific

First example where this is explicitly described

```
<iceCore/12#CO2> sosa:isPropertyOf <iceCore/12> .
```

Question: is it possible to also align the Property iceCore/12#CO2 with a more generic CO2
Property?

Add pfoi and ufoi?

[\[Show only core SOSA terms\]](#)

In order to characterize a thing with a large extent, or which is not directly accessible, the usual observational strategy is to obtain one or more samples. Observations can then be made more conveniently on the samples, with the intention of characterizing the larger thing. This intentionality is captured using the property `sosa:isSampleOf`.

In the following example, the ice core is a sample of the Antarctic ice sheet, and observations are made on the ice core.

A convenient side effect of this feature is that all observations related to the larger thing (the ice sheet) can be found, and then potentially joined together in a meta-analysis in order to characterize that.

An RDF file containing a [graph corresponding to this example is available](#).

Example 18

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix time: <http://www.w3.org/2006/time#>.
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#>.
@base <http://example.org/data/> .
```

```
# The CO2 level observed in an ice core is 240 parts per million.
# the ice core is a sample of the polar ice sheet of Antarctica.
```

```
<http://dbpedia.org/resource/Antarctic_ice_sheet> a sosa:FeatureOfInterest ;
  sosa:hasSample <iceCore/12>, <iceCore/13>, <iceCore/14> .
```

```
<iceCore/12> rdf:type sosa:Sample ;
  sosa:isSampleOf <http://dbpedia.org/resource/Antarctic_ice_sheet> ;
  sosa:isResultOf <WellDrilling/4578> ;
  sosa:madeBySampler <thermalDrill/2> .
```

```
<WellDrilling/4578> a sosa:Sampling ;
  geo:lat -73.35 ;
  geo:long 9.32 ;
  sosa:hasResult <iceCore/12> ;
  sosa:madeBySampler <thermalDrill/2> ;
  sosa:resultTime "2017-04-03T11:12:00Z"^^xsd:dateTime ;
  sosa:hasFeatureOfInterest <http://dbpedia.org/resource/Antarctic_ice_sheet> .
```

```
<iceCore/12#observation> a sosa:Observation ;
  sosa:observedProperty <iceCore/12#CO2> ;
  sosa:hasSimpleResult 240 .
```

```
# using SSN one can explicitly state that <iceCore/12#CO2> is the property of <iceCore/12>
```

```
.
```

<iceCore/12#CO2> sosa:isPropertyOf <iceCore/12> .

[\[Show only core SOSA terms\]](#)

C.9 DHT22 Description

DHT22 Sensor is composed of 2 subsystems. However, all System relations applied to main Sensor, not the individual subsystems Humidity and Temp

[\[Show only core SOSA terms\]](#)

An RDF file containing a [graph corresponding to this example is available](#).

[Example 20](#)

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .

@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

@prefix qudt: <http://qudt.org/schema/qudt/> .

@prefix unit: <http://qudt.org/vocab/unit/> .

@prefix schema: <http://schema.org/> .

@prefix ex: <http://example.org/> .

@prefix sosa: <http://www.w3.org/ns/sosa/> .

@prefix ssn-system: <http://www.w3.org/ns/ssn/systems/> .

@prefix rdfp: <https://w3id.org/rdfp/> .

@base <http://example.org/data/> .

<DHT22#Procedure> a sosa:Procedure ;
sosa:hasOutput <DHT22#output> .

<DHT22#output> a sosa:Output , rdfp:GraphDescription ;
rdfs:comment "The output is a RDF Graph that describes both the temperature and the humidity. It can be validated by a SHACL shapes graph."@en ;
rdfp:presentedBy [
a rdfp:GraphDescription ;
rdfp:validationRule <shacl_shapes_graph> ;
] .

<DHT22/4578> a sosa:System ;
rdfs:comment "DHT22 sensor #4578 contains a humidity and a temperature sensor."@en ;
rdfs:seeAlso <https://www.sparkfun.com/datasheets/Sensors/Temperature/DHT22.pdf> ;
sosa:hasSubSystem <DHT22/4578#TemperatureSensor> ,
<DHT22/4578#HumiditySensor> .

<DHT22/4578#TemperatureSensor> a sosa:Sensor , sosa:System ;
 rdfs:comment "The embedded temperature sensor, a specific instance of temperature sensor."@en ;
 ssn-system:hasOperatingRange <DHT22/4578#TemperatureSensorOperatingRange> ;
 ssn-system:hasSystemCapability <DHT22/4578#TemperatureSensorCapability> ;
 sosa:implements <DHT22#Procedure> .

<DHT22/4578#HumiditySensor> a sosa:Sensor , sosa:System ;
 rdfs:comment "The embedded humidity sensor, a specific instance of humidity sensor."@en ;
 ;
 ssn-system:hasOperatingRange <DHT22/4578#HumiditySensorOperatingRange> ;
 sosa:implements <DHT22#Procedure> .

<DHT22/4578#TemperatureSensorOperatingRange> a ssn-system:OperatingRange ;
 rdfs:comment "The conditions in which the DHT22 temperature sensor is expected to operate."@en ;
 ssn-system:inCondition <NormalTemperatureCondition> , <NormalHumidityCondition> .

<DHT22/4578#HumiditySensorOperatingRange> a ssn-system:OperatingRange ;
 rdfs:comment "The conditions in which the DHT22 humidity sensor is expected to operate."@en ;
 ssn-system:inCondition <NormalTemperatureCondition> , <NormalHumidityCondition> .

<NormalOperatingCondition> a ssn-system:Condition , schema:PropertyValue ;
 rdfs:comment "A temperature range of -40 to 80 Celsius."@en ;
 schema:minValue -40.0 ;
 schema:maxValue 80.0 ;
 schema:unitCode unit:DegreeCelsius .

<NormalHumidityCondition> a ssn-system:Condition , schema:PropertyValue ;
 rdfs:comment "A relative humidity range of 5 to 85 %."@en ;
 schema:minValue 5.0 ;
 schema:maxValue 85.0 ;
 schema:unitCode unit:PERCENT .

<DHT22/4578#TemperatureSensorCapability> a sosa:Property ,
 ssn-system:SystemCapability , schema:PropertyValue ;
 rdfs:comment "The capabilities of the temperature sensor in normal temperature and humidity conditions." ;
 ssn-system:inCondition <NormalTemperatureCondition> , <NormalHumidityCondition> ;

ssn-system:hasSystemProperty <DHT22/4578#TemperatureSensorAccuracy> ,
<DHT22/4578#TemperatureSensorSensitivity> ,
<DHT22/4578#TemperatureSensorRepeatability> ,
<DHT22/4578#TemperatureSensorFrequency> .

<DHT22/4578#TemperatureSensorAccuracy> a sosa:Property , ssn-system:Accuracy ,
schema:PropertyValue ;
rdfs:comment "The accuracy of the temperature sensor is ± 0.5 °C in normal temperature
and humidity conditions."@en ;
schema:minValue -0.5 ;
schema:maxValue 0.5 ;
schema:unitCode unit:DegreeCelsius .

<DHT22/4578#TemperatureSensorSensitivity> a sosa:Property , ssn-system:Sensitivity ,
ssn-system:Resolution , schema:PropertyValue ;
rdfs:comment "The sensitivity and resolution of the temperature sensor is 0.1 °C in normal
temperature and humidity conditions."@en ;
schema:value 0.1 ;
schema:unitCode unit:DegreeCelsius .

<DHT22/4578#TemperatureSensorPrecision> a sosa:Property , ssn-system:Precision ,
schema:PropertyValue ;
rdfs:comment "The precision (= repeatability) of the temperature sensor is ± 0.2 °C in
normal temperature and humidity conditions."@en ;
schema:minValue 0.2 ;
schema:maxValue 0.2 ;
schema:unitCode unit:DegreeCelsius .

<DHT22/4578#TemperatureSensorFrequency> a sosa:Property , ssn-system:Frequency ,
schema:PropertyValue ;
rdfs:comment "The smallest possible time between one observation and the next is 2 s on
average."@en ;
schema:value 2 ;
schema:unitCode unit:Second .

<observation/1087> rdf:type sosa:Observation ;
sosa:madeBySensor <DHT22/4578#TemperatureSensor> ;
sosa:usedProcedure <DHT22#Procedure> ;
ssn-system:qualityOfObservation <observation/1087#quality> .

one may classify the quality of observation using some class:

<observation/1087#quality> rdf:type ex:FairQuality .

one may use some other ontology to further qualify this quality.

```
<observation/1087#quality>
  ex:evaluatedBy <Tom> ;
  ex:confidenceValue "6"^^xsd:integer;
  rdfs:comment ""Tom gave a confidence value of 6 out of 10 on this observation.""@en .
```

one may use some quantity ontology.

```
@prefix qudt: <http://qudt.org/schema/qudt/> .
@prefix unit: <http://qudt.org/vocab/unit/> .
```

```
<observation/1087#quality> rdf:type qudt:Quantity ;
  qudt:quantityValue [
    rdf:type qudt:QuantityValue ;
    qudt:numericValue "98.4"^^xsd:double ;
    qudt:hasUnit unit:PERCENT ] .
```

[\[Show only core SOSA terms\]](#)

C.10 DHT22 Deployment

[\[Show only core SOSA terms\]](#)

This example shows how the conditions (temperature and humidity) in a room can be measured using one or more sensors. Each sensor observes the conditions in its immediate vicinity, and the values are then used to characterize the room.

In Room 145 one of the walls is external in the building, so there is expected to be a temperature gradient across the room, and there are two sensors on different walls. In room 245 there is one sensor on the south wall. Each of these locations corresponds to a **sosa:Sample** of the entire room. The wall also serves as a **sosa:Platform** on which the sensors are mounted.

An RDF file containing a [graph corresponding to this example is available](#).

[Example 22](#)

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix qudt: <http://qudt.org/schema/qudt/> .
@prefix unit: <http://qudt.org/vocab/unit/> .
@prefix schema: <http://schema.org/> .
```

```
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix ssn-system: <http://www.w3.org/ns/ssn/systems/> .
```

```
@base <http://example.org/data/> .
```

```
<Room145> a sosa:FeatureOfInterest ;
```

rdfs:label "Room #145"@en ;
sosa:hasSample <Room145/east> ;
sosa:hasSample <Room145/south> .

<Room145/east> a sosa:Sample , sosa:FeatureOfInterest , sosa:Platform ;
rdfs:label "East wall of room #145."@en ;
rdfs:comment "This wall hosts PCB Board 1 with DHT22 temperature and humidity sensor #4578."@en ;
sosa:hosts <PCBBoard1> .

<Room145/south> a sosa:Sample , sosa:FeatureOfInterest , sosa:Platform ;
rdfs:label "South wall of room #145."@en ;
rdfs:comment "This wall hosts PCB Board 2 with DHT22 temperature and humidity sensor #4579."@en ;
sosa:hosts <PCBBoard2> .

<Room245> a sosa:FeatureOfInterest ;
rdfs:label "Room #245"@en ;
sosa:hasProperty <Room245#temperature> , <Room245#humidity> ;
sosa:hasSample <Room245/south> .

<Room245/south> a sosa:Sample , sosa:FeatureOfInterest , sosa:Platform ;
rdfs:label "South wall of room #245."@en ;
sosa:hosts <PCBBoard3> .

<PCBBoard1> a sosa:System , sosa:Platform ;
rdfs:label "PCB Board 1"@en ;
rdfs:comment "PCB Board 1 hosts DHT22 temperature and humidity sensor #4578 permanently, one can say it has it as one of its subsystems."@en ;
sosa:hosts <DHT22/4578> ;
sosa:hasSubSystem <DHT22/4578> .

<DHT22/4578> a sosa:System ;
rdfs:label "DHT22 sensor #4578"@en ;
sosa:isHostedBy <PCBBoard1> .

<PCBBoard2> a sosa:System , sosa:Platform ;
rdfs:label "PCB Board 2"@en ;
rdfs:comment "PCB Board 2 hosts DHT22 temperature and humidity sensor #4579 permanently, one can say it has it as one of its subsystems."@en ;
sosa:hosts <DHT22/4578> ;
sosa:hasSubSystem <DHT22/4578> .

```
<DHT22/4579> a sosa:System ;  
  rdfs:label "DHT22 sensor #4579."@en ;  
  sosa:isHostedBy <PCBBoard2> .
```

```
<PCBBoard3> a sosa:System , sosa:Platform ;  
  rdfs:label "PCB Board 3"@en ;  
  rdfs:comment "PCB Board 3 hosts DHT22 temperature and humidity sensor #4580  
  permanently, one can say it has it as one of its subsystems."@en ;  
  sosa:hosts <DHT22/4578> ;  
  sosa:hasSubSystem <DHT22/4578> .
```

```
<DHT22/4580> a sosa:System ;  
  rdfs:label "DHT22 sensor #4580."@en ;  
  sosa:isHostedBy <PCBBoard3> .
```

```
<Room245Deployment> a sosa:Deployment ;  
  rdfs:comment "Deployment of PCB Board 3 on the south wall of room #245 for the purpose  
  of observing the temperature and humidity of room #245."@en ;  
  sosa:deployedOnPlatform <Room245/south> ;  
  sosa:deployedSystem <PCBBoard3> ;  
  sosa:forProperty <Room245#temperature> , <Room245#humidity> .
```

```
<Room145Deployment> a sosa:Deployment ;  
  rdfs:comment "Deployment of PCB Board 1 and 2 on the east and south wall of room #145,  
  respectively, for the purpose of observing the temperature and humidity of room #145."@en ;  
  sosa:deployedOnPlatform <Room245/east> , <Room245/south> ;  
  sosa:deployedSystem <PCBBoard1> , <PCBBoard2> ;  
  sosa:forProperty <Room145#temperature> , <Room145#humidity> .
```

C.11 IP68 Smart Sensor

This example describes the IP68 Smart Sensor that and some of its capabilities and operating ranges. A specific IP68 Smart Sensor observes the air temperature, and its own battery state.

An RDF file containing a [graph corresponding to this example is available](#).

Example 24

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .  
@prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#> .  
@prefix gr: <http://purl.org/goodrelations/v1#> .  
@prefix org: <http://www.w3.org/ns/org#> .
```

@prefix schema: <http://schema.org/> .
@prefix sosa: <http://www.w3.org/ns/sosa/> .
@prefix ssn-system: <http://www.w3.org/ns/ssn/systems/> .
@prefix unit: <http://qudt.org/vocab/unit/> .
@prefix prov: <http://www.w3.org/ns/prov#> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix seas: <https://w3id.org/seas/> .
@prefix cdt: <http://w3id.org/lindt/custom_datatypes#> .

@base <https://data.grandlyon.com/> .

<Organization/1> a org:Organization ;
owl:sameAs <http://dbpedia.org/page/Metropolis_of_Lyon> .

<Air> a sosa:FeatureOfInterest ;
rdfs:label "The air."@en .

<IP68_Outdoor_Temperature_Sensor> a owl:Class , gr:ProductOrServiceModel ;
gr:name "IP68 Outdoor Temperature Sensor"@en ;
rdfs:label "IP68 Outdoor Temperature Sensor"@en ;
rdfs:subClassOf [
owl:onProperty ssn-system:hasOperatingRange ;
owl:hasValue <IP68_Outdoor_Temperature_Sensor#operatingRange>] ;
rdfs:subClassOf [
owl:onProperty ssn-system:hasSystemCapability ;
owl:hasValue <IP68_Outdoor_Temperature_Sensor#systemCapability>] .

<IP68_Outdoor_Temperature_Sensor#operatingRange> a ssn-system:OperatingRange ,
sosa:Property ;
ssn-system:inCondition <IP68_Outdoor_Temperature_Sensor#normalOperatingCondition>
.

<IP68_Outdoor_Temperature_Sensor#normalOperatingCondition> a ssn-system:Condition ,
schema:PropertyValue ;
rdfs:comment "A temperature range of -20 to 70 Celsius."@en ;
schema:minValue -20.0 ;
schema:maxValue 70.0 ;
schema:unitCode unit:DegreeCelsius .

<IP68_Outdoor_Temperature_Sensor#systemCapability> a sosa:Property ,
ssn-system:SystemCapability ;
rdfs:comment "The sensor capability in normal operating conditions."@en ;
ssn-system:hasSystemProperty <IP68_Outdoor_Temperature_Sensor#RFSensitivity> ,
<IP68_Outdoor_Temperature_Sensor#TemperatureAccuracy> ,
<IP68_Outdoor_Temperature_Sensor#TemperatureResolution> ,
<IP68_Outdoor_Temperature_Sensor#BatteryAccuracy> ,
<IP68_Outdoor_Temperature_Sensor#BatteryResolution> ;

ssn-system:inCondition <IP68_Outdoor_Temperature_Sensor#normalOperatingCondition>

<IP68_Outdoor_Temperature_Sensor#RFSensitivity> a sosa:Property ,
ssn-system:Sensitivity , schema:PropertyValue ;
schema:value -137 ;
schema:unitCode unit:DecibelReferredToOneMilliwatt .

<IP68_Outdoor_Temperature_Sensor#TemperatureAccuracy> a sosa:Property ,
ssn-system:Accuracy , schema:PropertyValue ;
sosa:forProperty <Air?lat=45.75&long=4.85#temperature> ;
schema:minValue -0.2 ;
schema:maxValue 0.2 ;
schema:unitCode unit:DegreeCelsius .

<IP68_Outdoor_Temperature_Sensor#TemperatureResolution> a sosa:Property ,
ssn-system:Resolution , schema:PropertyValue ;
sosa:forProperty <Air?lat=45.75&long=4.85#temperature> ;
schema:value 0.0625 ;
schema:unitCode unit:DegreeCelsius .

<IP68_Outdoor_Temperature_Sensor#BatteryResolution> a sosa:Property ,
ssn-system:Resolution , schema:PropertyValue ;
sosa:forProperty <Sensor/SL-T-P1#battery> ;
schema:value 3.937e-3 ;
schema:unitCode unit:PERCENT .

<Air?lat=45.75&long=4.85> a sosa:Sample ;
rdfs:label "The air at lat 45.75 and long 4.85."@en ;
sosa:isSampleOf <Air> ;
sosa:hasProperty <Air?lat=45.75&long=4.85#temperature> .

<Air?lat=45.75&long=4.85#temperature> a sosa:Property , sosa:ObservableProperty ;
sosa:isPropertyOf <Air?lat=45.75&long=4.85> .

<Sensor/SL-T-P1> a gr:ProductOrService, sosa:Sensor , seas:LoRaCommunicationDevice ,
<IP68_Outdoor_Temperature_Sensor> ;
gr:hasBrand [a gr:Brand ; gr:name "Sensing Labs"@en] ;
geo:alt 100.0 ;
geo:lat 45.75 ;
geo:lon 4.85 ;
sosa:implements <IP68_Outdoor_Temperature_Sensor#temperatureSensingProcedure> ;
sosa:implements <IP68_Outdoor_Temperature_Sensor#batterySensingProcedure> ;
sosa:observes <Sensor/SL-T-P1#battery> ;
sosa:observes <Air?lat=45.75&long=4.85#temperature> .

<Deployment/SL-T-P1/2017-06-06> a sosa:Deployment ;
sosa:deployedSystem <Sensor/SL-T-P1> ;

prov:startedAtTime "2017-06-06"^^xsd:date ;
prov:wasAssociatedWith <Organization/1> ;
sosa:deployedOnPlatform <Tree/1> .

<Observation/5872357#temperature> a sosa:Observation ;
sosa:hasSimpleResult "64.5244681928429 Cel"^^cdt:ucum ;
sosa:madeBySensor <Sensor/SL-T-P1> ;
sosa:hasFeatureOfInterest <Air?lat=45.75&long=4.85> ;
sosa:observedProperty <Air?lat=45.75&long=4.85#temperature> ;
sosa:resultTime "2017-06-20T21:49:18+00:00"^^xsd:dateTime .

<Observation/5872357#battery> a sosa:Observation ;
sosa:hasSimpleResult "73.2 %"^^cdt:ucum ;
sosa:madeBySensor <Sensor/SL-T-P1> ;
sosa:hasFeatureOfInterest <Sensor/SL-T-P1> ;
sosa:observedProperty <Sensor/SL-T-P1#battery> ;
sosa:resultTime "2017-06-20T21:49:18+00:00"^^xsd:dateTime .