Proposal for New CRM Classes and Properties to Serve Archaeological Field Survey

SEMAFORA project

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Background of the project

- Desire to improve archiving practices and potential for comparing disparate survey datasets
- KNAW-DANS funded pilot project to draft a dedicated CRM extension (2016)
- Follow-up to further develop extension with domain specialists and CRM SIG experts: "FAIR surveys Project" (since 2017)
- 2022: finalize CRM extension and build tool to map survey datasets: the "SEMAFORA project" funded by NWO Open Science Fund (RUG/Takin.solutions/Delving.eu)

Why do we need it?

CRMarchaeo is designed to serve almost exclusively the **EXCAVATION** process

Other extensions add extra value when modelling different analyses and post-excavation work, but:
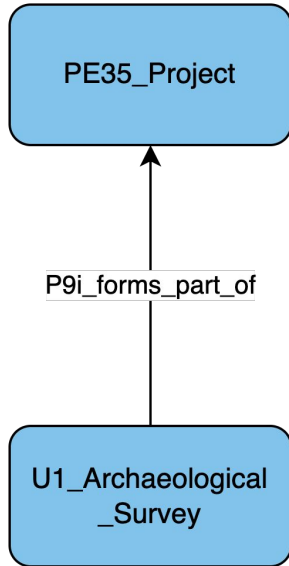
The archaeological **survey is a different process** and cannot be sufficiently documented using the existing extensions.

Proposed new classes:

U1: Archaeological Survey   [corresponds to **A9** Archaeological Excavation]

Subclass of: E7 Activity

This class describes the general concept of archaeological field survey intended as a coordinated set of survey activities performed on an area considered as part of a broader topographical context.

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│    PE35_Project     │
│                     │
└─────────────────────┘
          ▲
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   P9i_forms_part_of
          │
┌─────────────────────┐
│                     │
│  U1_Archaeological  │
│      _Survey        │
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Examples:

The survey (U1) of the small islands around Paros during 2019 as a part of the SCIP Project (PE35).

The survey (U1) of the Paleokastro area during 2017 as a part of the KIP Project (PE35).

Proposed new classes:

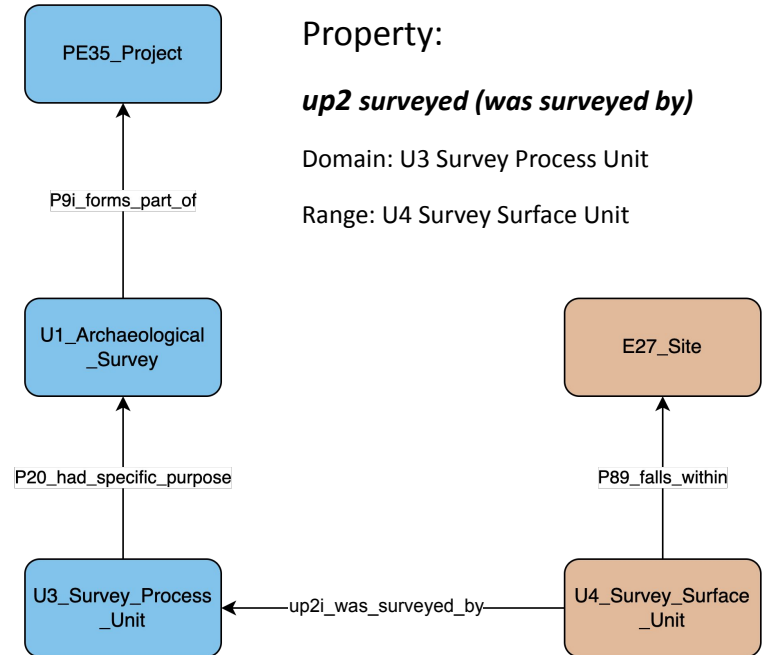## U4: Survey Surface Unit   【 corresponds to **A2** Stratigraphic Volume Unit 】

Subclass of: S20 Rigid Physical Feature

This class comprises single land plots with artificially or physically defined boundaries that are the object of investigation in an archaeological survey. Plots can be defined by imposing a geographical grid that ignores the landscape, or by making use of existing land use or land cover plots; their geometry can be point-, line, or polygon-based depending on the survey design. Typical nouns used to define this class are tracts, units, walker lines. The substance of a Survey Surface Unit is a material physical feature on the Earth with a specified boundary.

Examples:

Unit 2986 of the Raganello Archaeological Survey project.

Tract 148 of the Zakynthos Survey.

Property:

up2 surveyed (was surveyed by)

Domain: U3 Survey Process Unit

Range: U4 Survey Surface Unit

Proposed new classes:

U3: Survey Process Unit 　　[corresponds to **A1** Excavation Process Unit]

Subclass of: S19 Encounter Event

Property:*up2 surveyed (was surveyed by)*

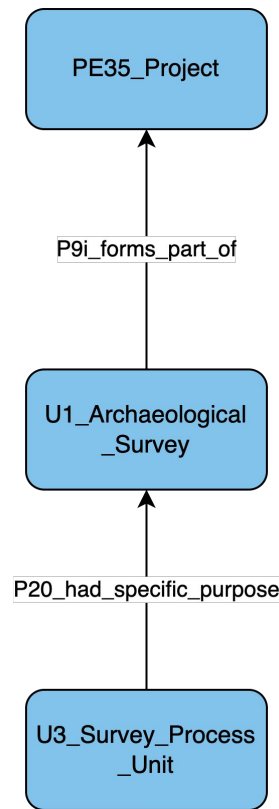Domain: U3 Survey Process Unit

Range: U4 Survey Surface Unit

This class comprises acts of investigation, as part of an Archaeological Survey, of a single, discrete unit of land during a single continuous time period or 'visit', according to an established protocol. This may include the recording of Survey Surface Unit (U4) properties and physical features and the making of observations by field walkers.

Examples:

The surveying, by team A on 7 juli 2005, of unit 2986 of the Raganello Archaeological Survey project, carried out according to /// protocol.

*The visit of the Lower Town near the Palace of Nestor on 13th May 1967 by the Pylos Survey Project.*

PE35_Project

↑
P9i_forms_part_of

U1_Archaeological_Survey

↑
P20_had_specific_purpose

U3_Survey_Process_Unit

Proposed new classes:

U3: Survey Process Unit

Subclass of: S19 Encounter Event

Example:

The surveying, by team A on 7 july 2005, of unit 2986 of the Raganello Archaeological Survey project.
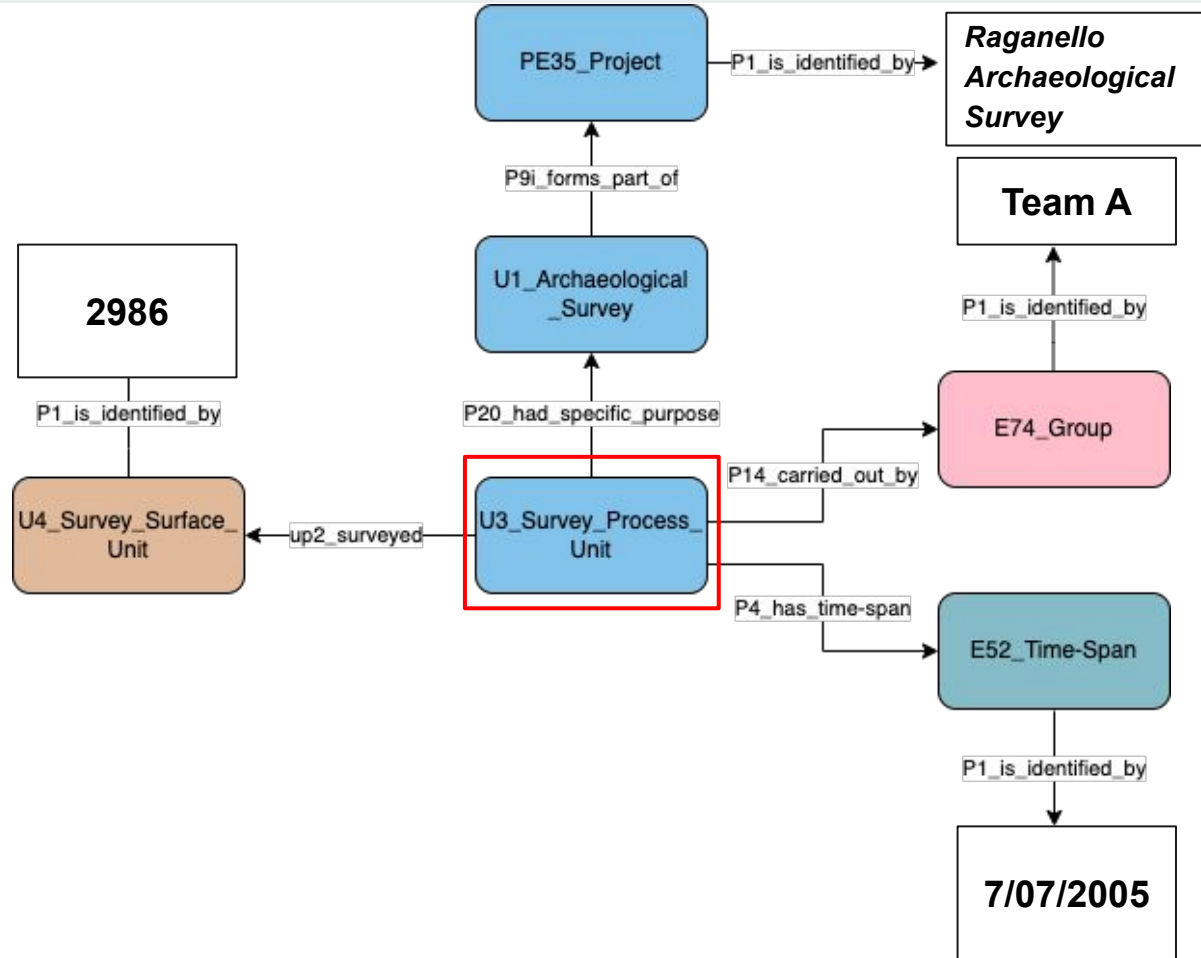
Proposed new classes:

U2: Survey Collection Activity

Subclass of :S19 Encounter Event

Subclass of: S2 Sample Taking

Property:

up3 collected (was collected by)
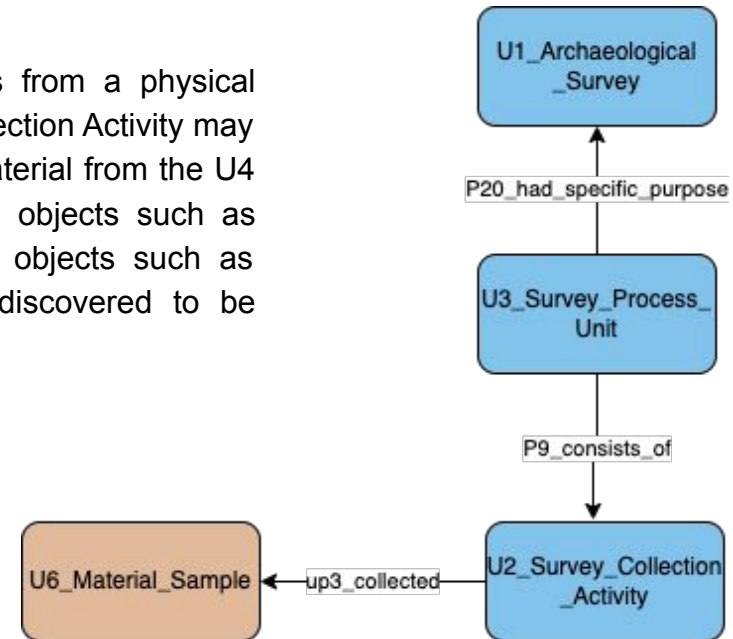
Domain: U2 Survey Collection Activity;

Range: U6 Material Sample

This class comprises the collection of archaeologically relevant objects from a physical surface. In the context of certain survey practices, instances of Survey Collection Activity may take place as part of an instance of U3 Survey Process Unit, removing material from the U4 Surface Survey Unit. It typically involves the collection of human-made objects such as pottery, metal objects, lithics etc. but and can also include physical objects such as unworked stones without any specific analytical value that are later discovered to be irrelevant and typically discarded from the collection.

Examples:

The systematic collection, on 20 June 2016, of all artefacts from 20% of the surface area of unit 1011 of the Raganello Basin Survey.

The systematic collection, on 22 June 2016, of 'diagnostic materials' or 'feature sherds' from the surface area of unit 1011 of the Raganello Basin Survey.

Proposed new classes:

U6: Material Sample

Subclass: S13 Sample

Subclass: E18 Physical Object

Property:

up3 collected (was collected by)

Domain: U2 Survey Collection Activity;

Range: U6 Material Sample

This class comprises one or more archaeologically relevant objects, such as fragments of pottery, lithics, etcetera, collected from a site (E27) or a Survey Surface Unit (U4). The same class can be used as a part of archaeological excavations too. that have been collected typically in an instance of U2 Survey Collection Activity. The material sample is considered potentially indicative of aspects of the identified material substantial survey surface units (or stratigraphic units) and sites from which they have been removed, providing information regarding its past use, material makeup etc. The substance of the material sample is one or more material objects that have a designated provenience from a particular physical area.
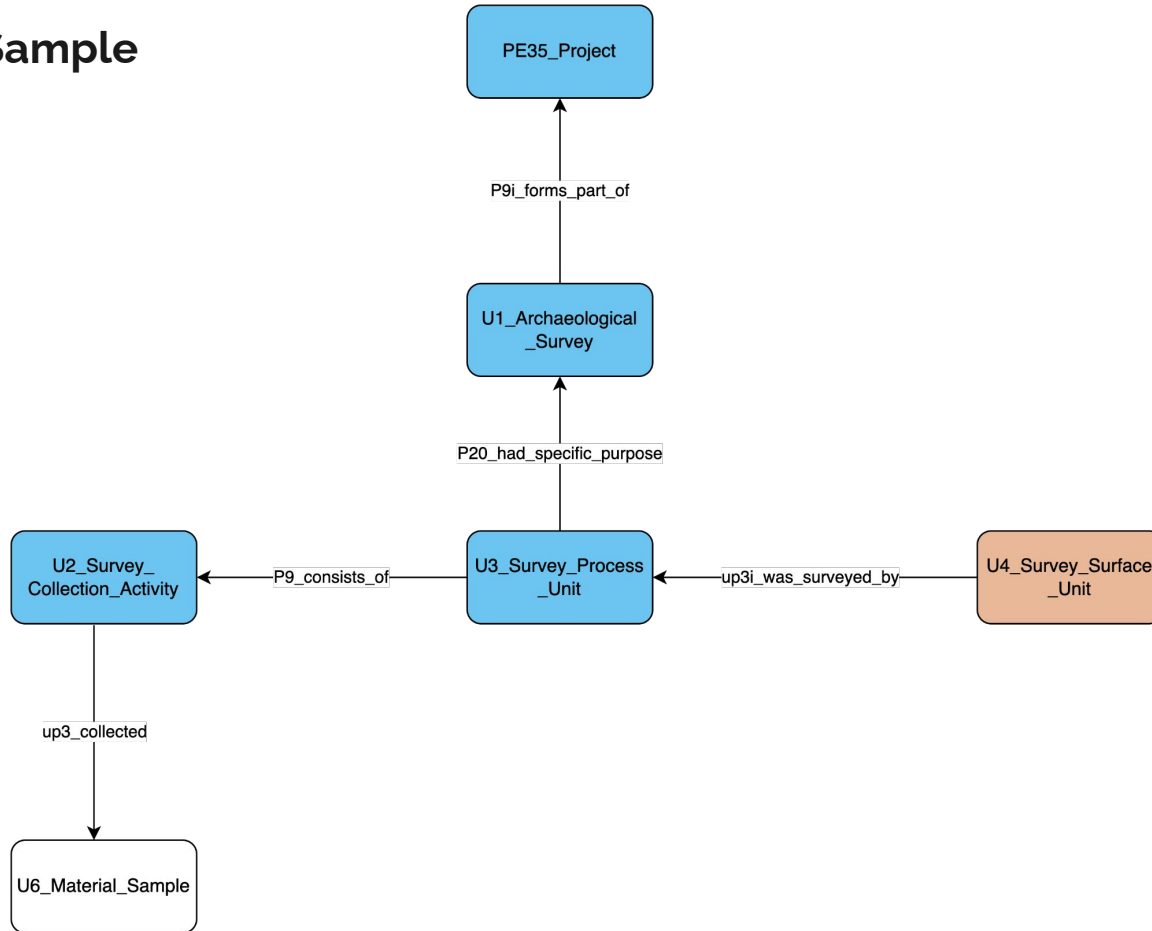
Examples:

A bag containing the feature sherds from sample 1011.01 from the Raganello Basin Survey

The African Red Slip ware objects contained in sample 1011.01 from the Raganello Basin Survey

Proposed new classes:

U6: Material Sample

Proposed new classes:

U5: Digitization Process Unit

Subclass of: D2 Digitization Process

Subclass of: S19 Encounter Event

This class comprises digital registration activities of properties of physical things using specialised equipment designed to capture physical signals from objects using sensors and record them as usable / interpretable digital outputs with specific set parameters, which typically affect the output and the interpretation of the results of the digital recording. The objects of investigation typically include, and may involve anthropogenic or natural objects, standing features, and features of the earth's surface. An instance of digital registration involves the interaction of a sensor in the digital device, a physical thing measured and a digital object output which registers certain properties of that object at the time of registration.
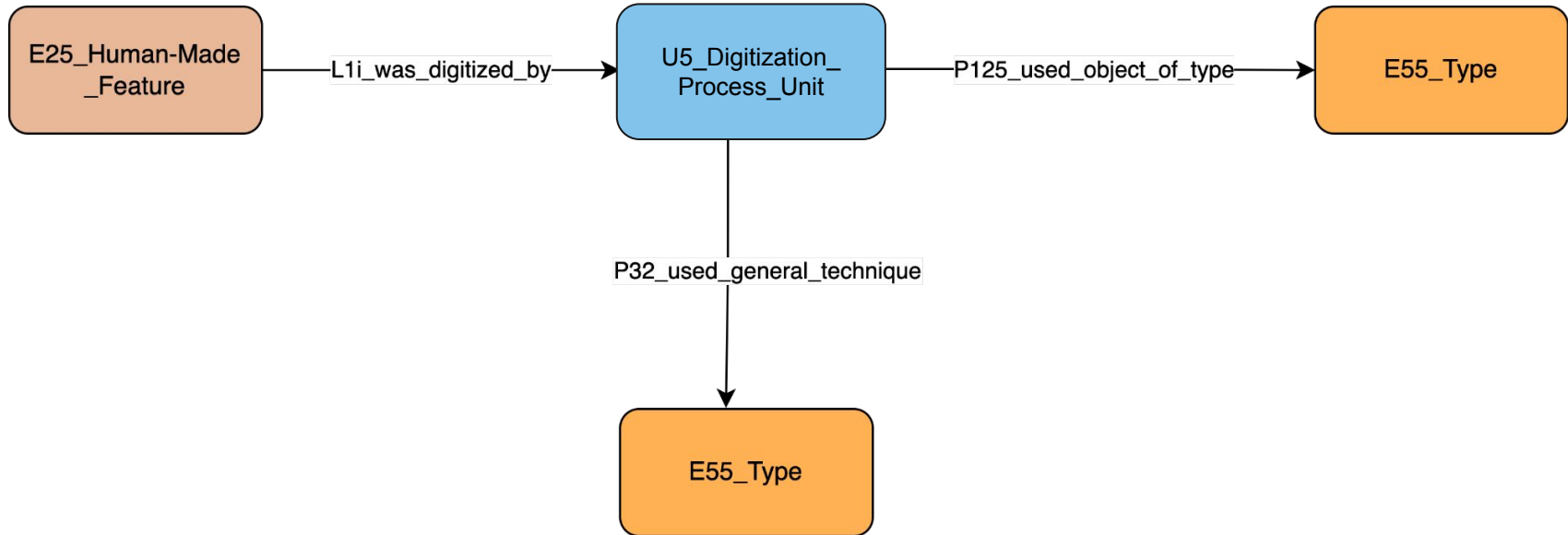
Examples:
The spatial recording of Early Byzantine masonry using DGPS.

The LIDAR scanning of the surface of the area chosen for surveying.
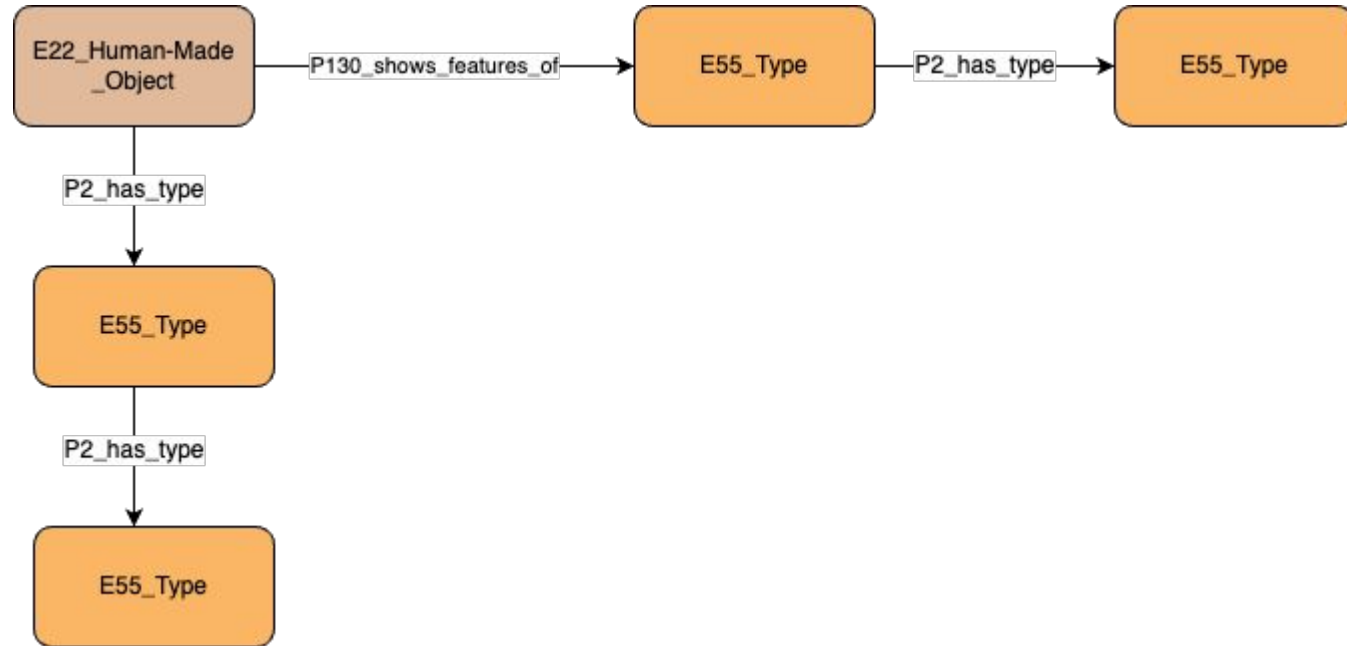
Proposed new classes:

U5: Digitization Process Unit

Proposed new classes:

Frequently used 'types' in archaeological processing:

- **Fabric**
- **Function**
- **Ware**
- **Shape**
- **Vessel Part**

Proposed new classes:

U7: Fabric

Superclass E55 - - - - - - - - Type

This class comprises groupings of pottery as established by appropriate experts on the basis of visual macro- and/or microscopic inspection of the clay matrix and inclusions. Fabric groups reflect characteristics of the raw materials used and the manufacturing procedures, and are therefore often tied to specific production locations.

Property:

***up4 contains part of type fabric
(part of type fabric is contained by)***

Domain: E18 Physical Thing;

Range: U7 Fabric

Examples:

Segni survey fabric 18

*Campanian 'Black Sand' fabric
(https://archaeologydataservice.ac.uk/archives/view/amphora_ahrb_2005/cat_fab.cfm)*

Proposed new classes:

U8: Function

Superclass E55 - - - - - - - - Type

This class comprises groupings of objects according to their presumed function as determined by appropriate experts on the basis of the object's shape and other properties and/or on historical and ethnographic parallels.

Property:

up5 contains part of type function (part of type function is contained by)

Domain: E18 Physical Thing;

Range: U8 Function

Examples:

All fragments in bag 113 belong to storage vessels.

Artefact 734 belongs to a cooking vessel.

Proposed new classes:

U9: Ware

Superclass E55 - - - - - - - - Type

This class comprises groupings of ceramic objects (pottery, terracottas and building materials) according to their visual characteristics as determined by appropriate experts on the basis of the object's combined compositional characteristics (U7 fabric), manufacturing techniques (slip, finish, use of potter's wheel)

Property:

up6 contains part of type ware (part of type ware is contained by)

Domain: E18 Physical Thing;

Range: U9 Ware

Examples:

African red slip ware.

Internal slipped ware (a subgroup of coarse wares).

Proposed new classes:

U10: Shape

Superclass E55 - - - - - - - - Type

This class comprises all instances of specific form types as (defined *and published)* assigned by appropriate experts to individual objects, fragmented or not. The type assignment is based on the morphological characteristics (curvature, thickness, surface finish) of that object and its similarities to (complete) objects of a 'known' shape.

Property:

up7 contains part of type shape (part of type shape is contained by)

Domain: E18 Physical Thing;

Range: U10 Shape

Examples:

The only 3 fragments from SU 1124 belong to amphorae.

13% of sample 115 are cup rims.

Proposed new classes:

U11: Vessel Part

Superclass E55 - - - - - - - - Type

This class comprises internationally agreed types of vessel parts assigned by appropriate experts to individual objects, fragmented or not. The type assignment is based on the morphological characteristics (curvature, thickness, surface finish) of that object and may aid in the identification of vessel shape (U10)

Property:

up8 contains part of type vessel part (part of type vessel part is contained by)

Domain: E18 Physical Thing;

Range: U11 Vessel Type

Examples:

This sample consists of 23% bases, 42% rims, 2% handles, and 33% body sherds.

Proposed new properties:

up1 has observation affecting parameter (is observation affecting parameter for)

Domain: S4 Observation

Range: E55 Type

Quantification:

Scope Note: This property describes the effects of an E55 Type on an S4 Observation. It describes how different parameters (such as vegetation cover, sunlight, ..) affect the quality of different kinds of observations made during an instance of U3 Survey Process Unit.

Examples:

- *The medium vegetation cover observed during the surveying of unit 2004 of the Nettuno Survey*
- *The overall visibility on the site of Ad Medias estimated at 90% during the initial survey by the PRP in 2012.*
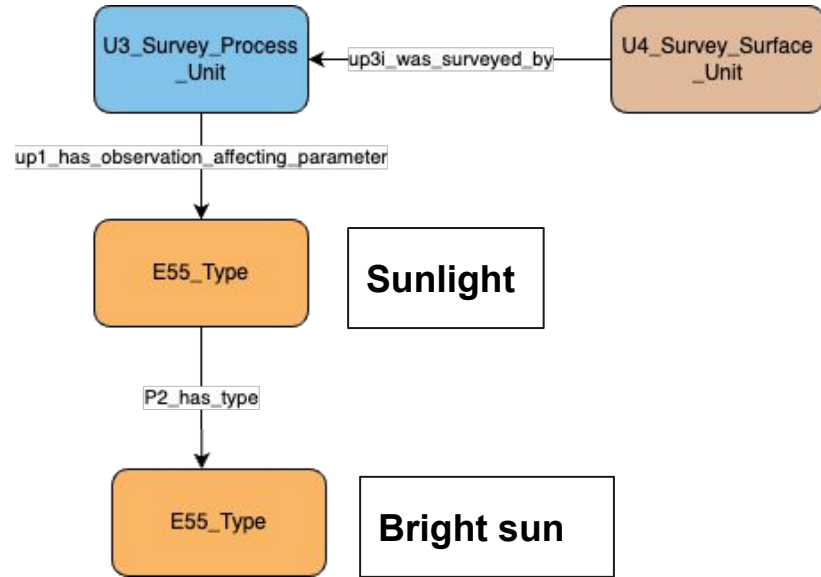
Where to Now?

Interest from SIG? SIG Member?

If yes,

- Potential to combine with CRMArchaeo?
- Stand alone extension?
- Review Process?