

# CRMSurv

## An extension for survey archaeology

58th joint meeting of the CIDOC CRM SIG and ISO/TC46/SC4/WG9

---

Denitsa Nenova [Takin.solutions] 21/03/2024  
denitsa@takin.solutions





# Contents

1. Context
2. Classes and Properties
3. Sources
4. Further Proposal



# Context

## Semafora 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)
- 2022-2023: finalized CRM extension (**CRMSurv**) under the "SEMAFORA project" funded by NWO Open Science Fund





## 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:

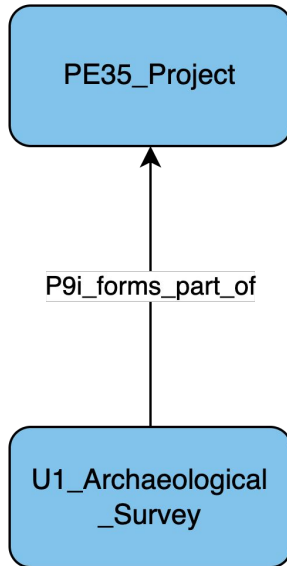
The archaeological **survey is a different process** and cannot be sufficiently documented using the existing extensions.

# 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.

### 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).*

# New classes:

## U4: Survey Surface Unit

[ corresponds to **A2** Stratigraphic Volume Unit ]

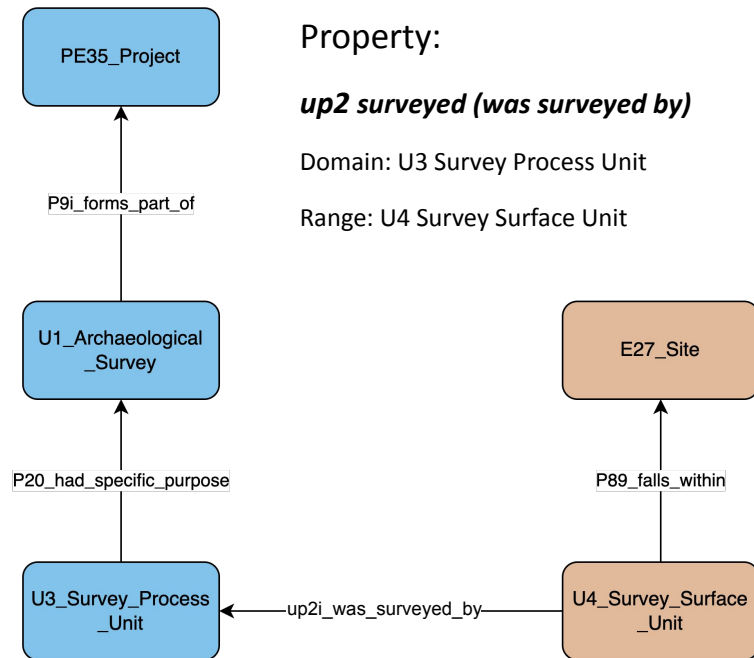
### Subclass of: S20 Rigid Physical Feature

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 Zakyntos Survey.*



# 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

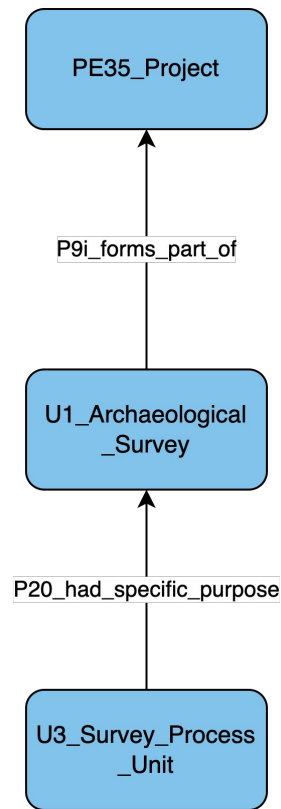
Range: U4 Survey Surface Unit

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.*





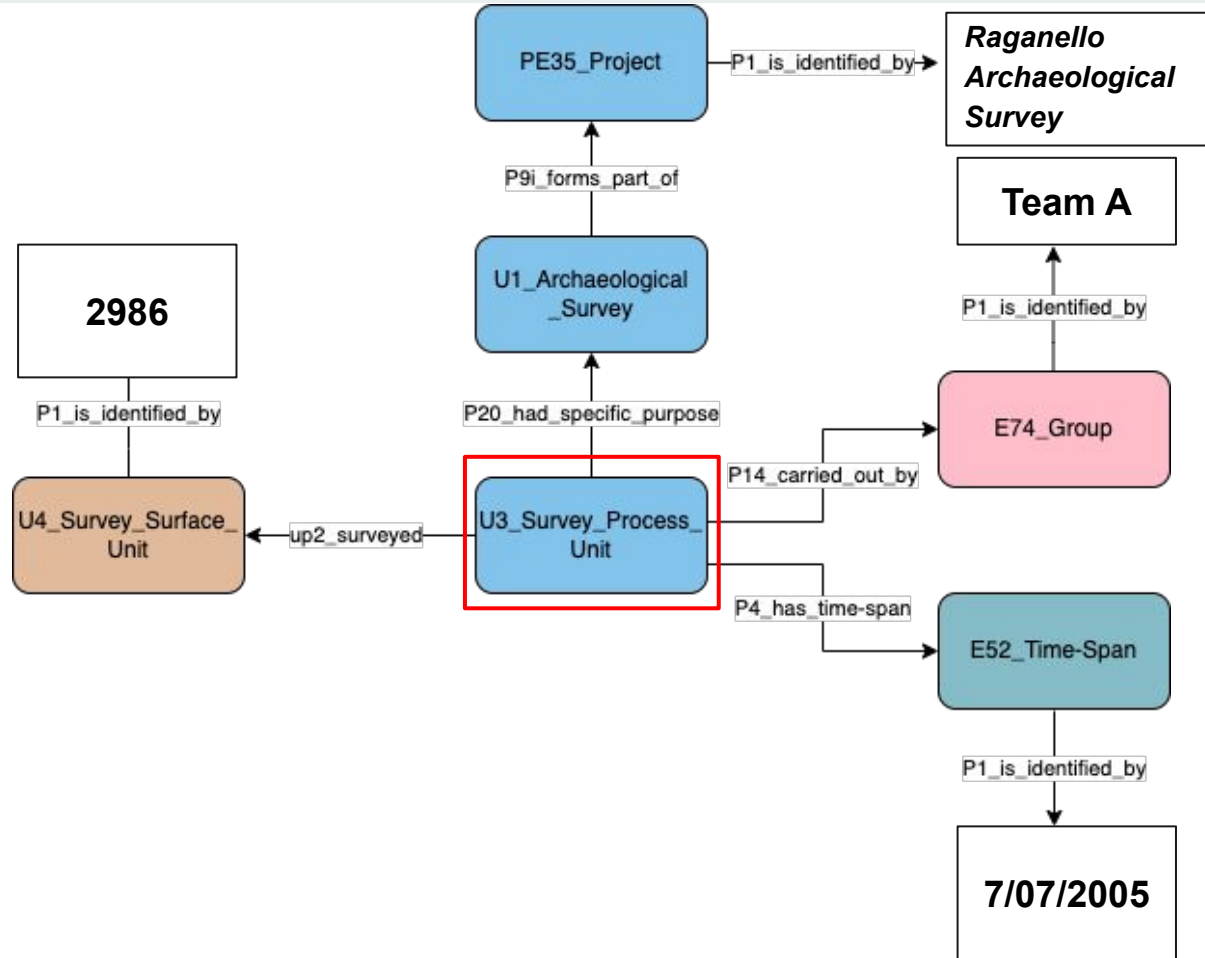
# New classes:

## 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.*



# New classes:

## U2: Survey Collection Activity

Property:

*up3 collected (was collected by)*

Domain: U2 Survey Collection Activity;

Range: U6 Material Sample

Subclass of :S19 Encounter Event

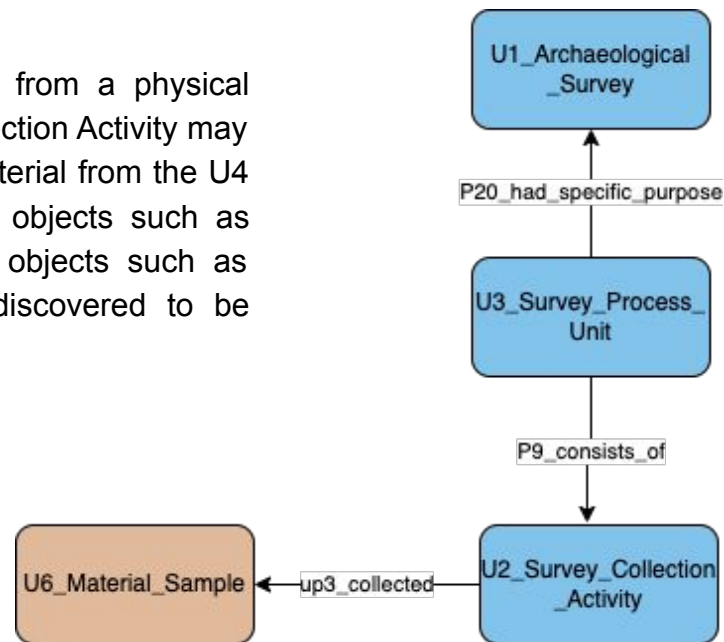
Subclass of: S2 Sample Taking

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.*



# 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.

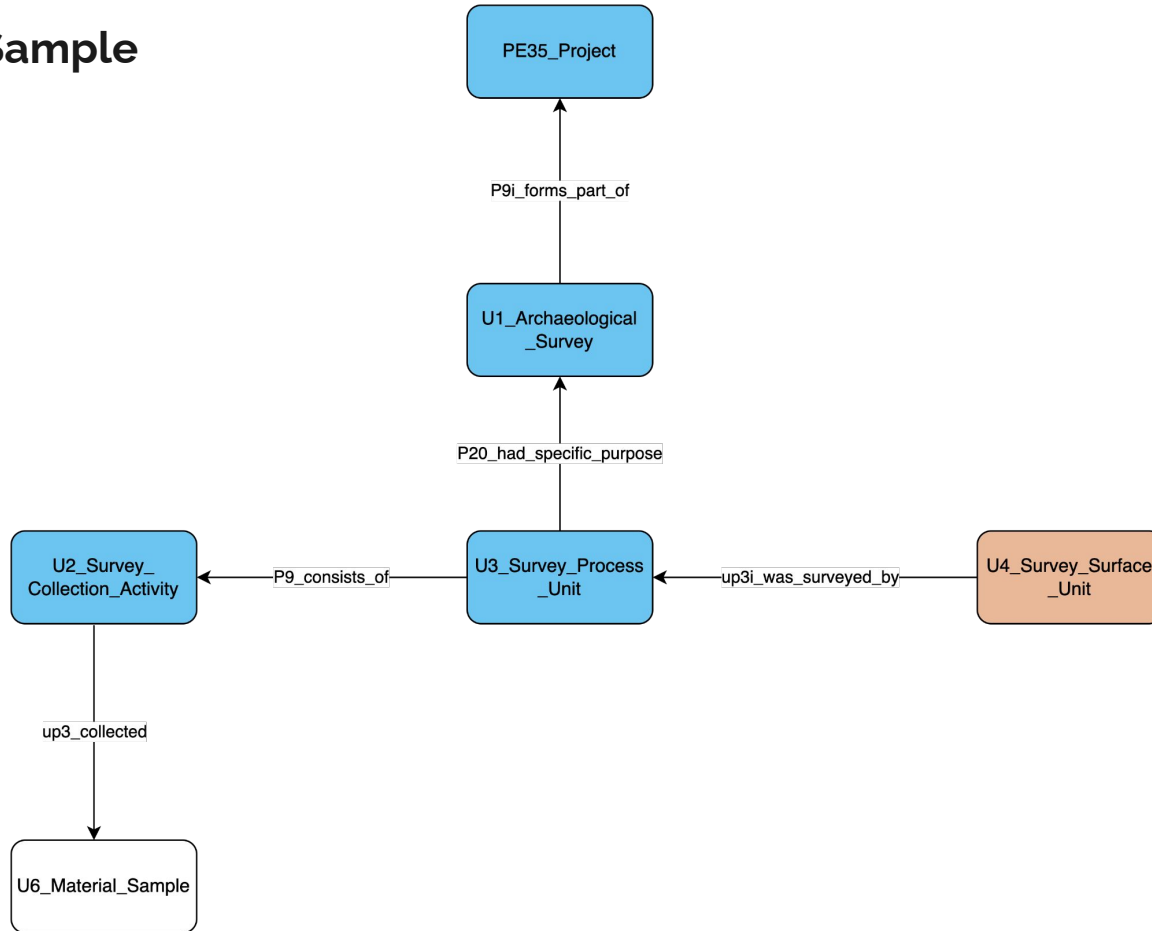
### ***Examples:***

*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*

# New classes:

## U6: Material Sample



# 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.

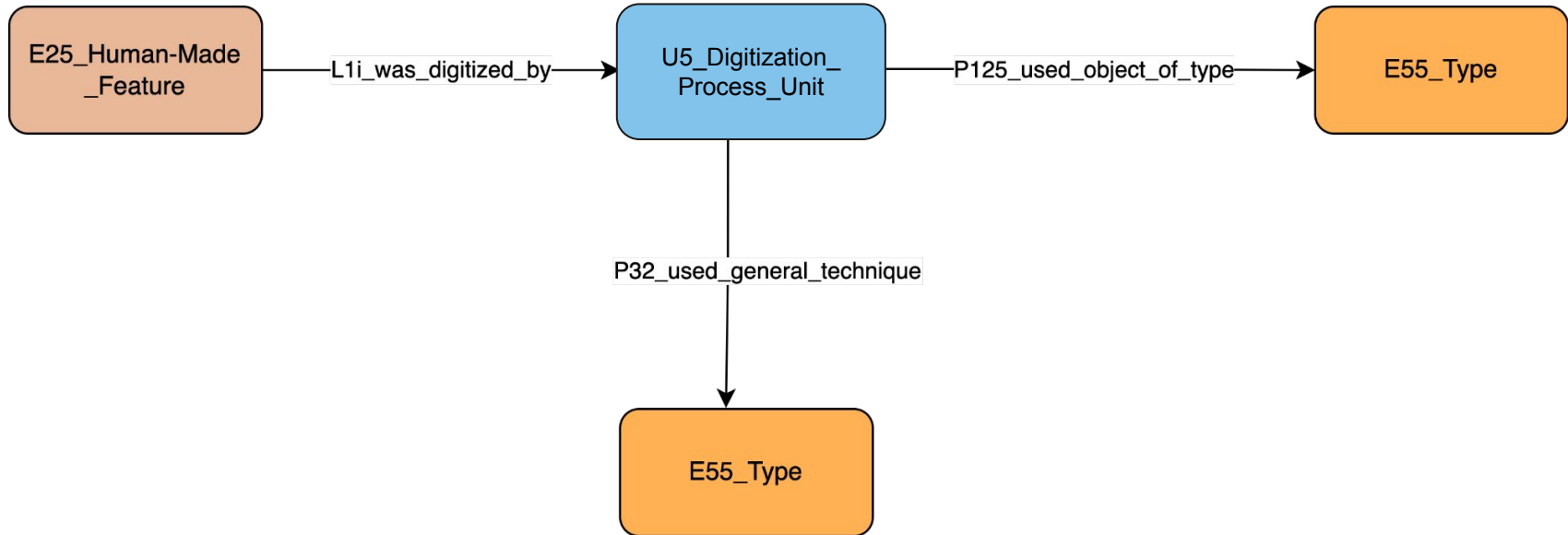
### Examples:

*The spatial recording of Early Byzantine masonry using DGPS.*

*The LIDAR scanning of the surface of the area chosen for surveying.*

# New classes:

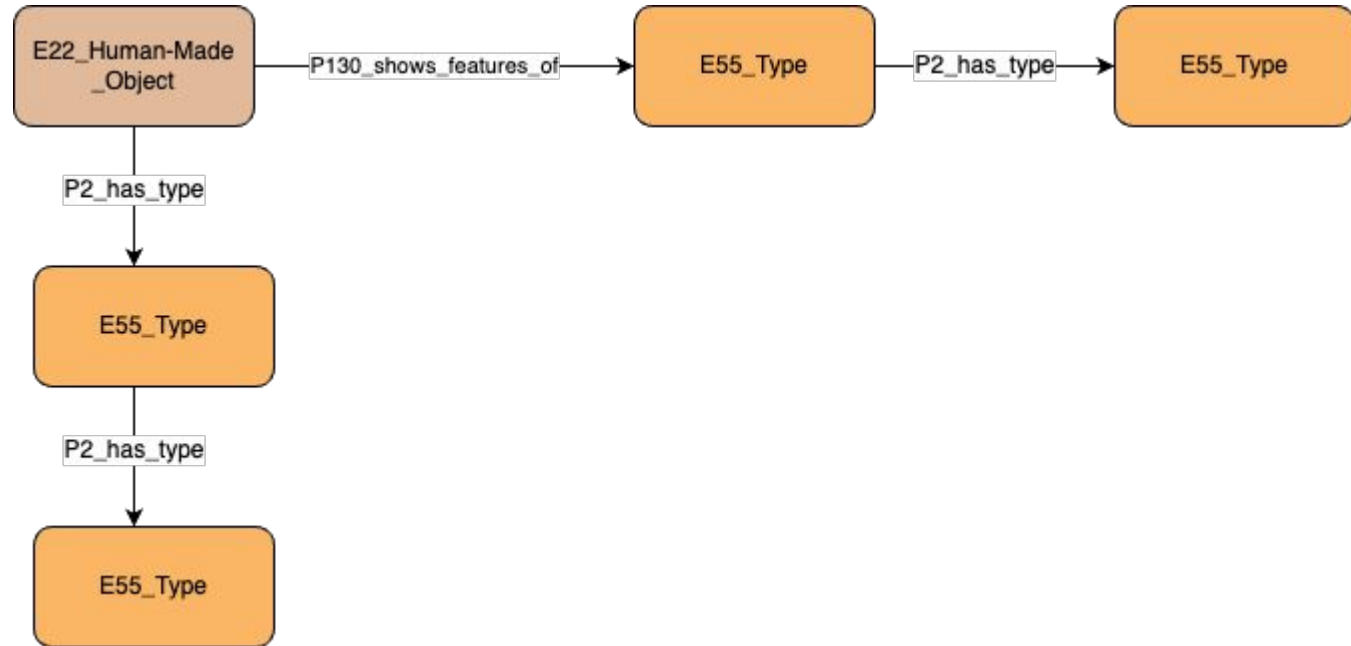
## U5: Digitization Process Unit



# New classes:

Frequently used 'types' in archaeological processing:

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



# 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.

### Examples:

*Segni survey fabric 18*

*Campanian 'Black Sand' fabric*

*([https://archaeologydataservice.ac.uk/archives/view/amphora\\_ahrb\\_2005/cat\\_fab.cfm](https://archaeologydataservice.ac.uk/archives/view/amphora_ahrb_2005/cat_fab.cfm))*

Property:

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

Domain: E18 Physical Thing;

Range: U7 Fabric



# 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.*

# 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)

### Examples:

*African red slip ware.*

*Internal slipped ware (a subgroup of coarse wares).*

Property:

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

Domain: E18 Physical Thing;

Range: U9 Ware

# 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.

### Examples:

*The only 3 fragments from SU 1124 belong to amphorae.*

*13% of sample 115 are cup rims.*

Property:

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

Domain: E18 Physical Thing;

Range: U10 Shape

# 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)

### Examples:

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

Property:

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

Domain: E18 Physical Thing;

Range: U11 Vessel Type

# Additional new properties:

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

**Domain: S4 Observation**

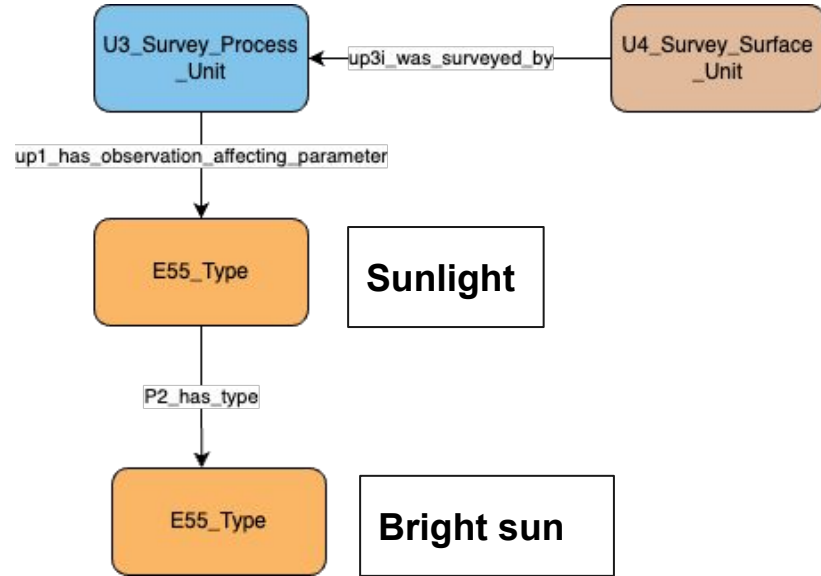
**Range: E55 Type**

## 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.*



---

# Sources

[CRMSurv Ontology Specification](#)

[CRMSurv Ontology RDF](#)

Authors: **Denitsa Nenova, George Bruseker, Tymon de Haas, Martijn van Leusen**

# Further Proposal

Incorporation into CRMarchaeo

?