## 57 SIG - Issue 609; Interfacing the closed-world assumption of NTPs with CRMinf

The SIG went through MD’s HW on defining the conditions for an investigation to be considered complete -i.e., one that justifies the lack of observations for a given feature to be considered valid and trustworthy.

**Proposal**: Proofread and enrich the document (**HW by MD**) with links to ([Velios et al. 2023](https://cidoc-crm.org/Resources/typed-and-negative-typed-properties-multiple-individuals-and-negation-in-the-cidoc-crm)),[[1]](#footnote-1) and elaborate the set of properties necessary to express the three conditions identified therein, based on archaeological data and conservation data.

**Decisions**:

The document should serve as a guideline or comment on the use and meaning of NTPs (to be consulted in combination with Velios et al., 2023). It should also appear on the CRM website.

**HW**: SdS to proofread the text; link to Velios et al., 2023

**HW**: SdS, GH, MD, TV to elaborate the properties needed to express the temporal validity of the lack of observations for a given feature, based on data from archaeology (GH to provide datasets on prehistoric surveys, SdS to provide datasets from archaeological excavations) and conservation (TV to provide them).

### HW by MD

I have promised to present some ideas we had discussed in the past in the context of biodiversity, about observation proving that some species is extinct, or in archaeology, about the absence of some phenomenon.

Typical examples are the **unnoticed survival** of the sea otter in the Monterey area of California in a small bay, and the so far **unique find** of gears from whole antiquity in the Antikythera Mechanism - people would not have put such things in graves.

Another example is the lack of fish bones in Minoan culture - they are simply not preserved in the Cretan climate. The Negative Typed Property states that the domain has no relation to **any instance** of the referred **type**.

We can argue, that a reasonable assessment of non-existence should imply:

**A)** the respective potential instances must have a reasonable likelihood to be **preserved** to the time of observation at least in traces.

**B)** the applied method of observation must be suitable to **detect** them, in particular traces.

**C)** the domain instance, the one lacking the relation, must be observed with sufficient **density and coverage**.

**C1)** In case of species, there are arguments about minimal populations and the areas they would roam about, so that the observation density needs not be complete coverage. Similar arguments may apply to archaeological object types.

The issue second to be discussed is the time of validity.

**A)** Eternal:

 **A1)** The domain object under investigation has never had such a relation since its beginning of existence. This is a question of temporal coverage, or of proof that traces would still exist, or that that the object had not the possibility until the end of observation. These senses produce a sort of being "current", up to the time of last observation.

 **A2)** The domain object under investigation has never had such a relation since its begin of existence and will not have until its end, such as putting wheels on a piece of cloth, or putting leaf markers in ancient books in a museum, or in investigating remains of past objects or a past activity/ extinct culture, or the **instances of the related type** do no more exist.

B) From some time on: The domain object under investigation has lost such a relation. This is characteristic for extinction. The species cannot be recreated. Similarly, for any type with instances that do no more exist after the referred time of loss and end of observation.

**C)** For the period of observation only.

For the time being, we can state that the meaning is always at least C), and there may be arguments for more.

If a negative property held before some time, we have to think more about it.

Probably, a good practice will be to associate an observation with the negative property.

It appears that an observation of “nothing” needs an area of coverage, the intended kind to be found, and the “scanning method”. The inferred time beyond that of observing seems to be an additional inference making with background knowledge. A set of “non’-observations may be associated with an inference about a likelihood of non-existence, as in biodiversity.

1. Velios, A., Meghini, C., Doerr, M. and Stead, S., 2023. Typed properties and negative typed properties: Dealing with type observations and negative statements in the CIDOC CRM. *Semantic Web*, (Preprint), pp.1-21. [↑](#footnote-ref-1)