

## Semantic issues in describing the excavation domain

(for commenting and forwarding to SIGs)

Working document: *Draft version 0.6 [24/11/2022]*

Suggested issue format: **I:** (*issue description*), **E:** (*example*), **S:** (*suggested solution*), **C:** (*contributor/s*)

- **I:** Including somehow the notion of Archaeological Phase in the model. Archaeological phases are key to archaeological reasoning and are in essence the product of stratigraphic analysis connecting material manifestations, such as deposits (A2) and features (A3) with a certain temporal logic that may correspond with (or not) with other temporal primitives (e.g. E4).

**E:** S12 Observable Entity (all 3D material matrix of that phase IX at Knossos, e.g. A8s/A3s/E18 etc) -> P10 falls within -> E92 Space-Time Volume (Phase IX) ->P132 spatio-temporally corresponds with -> E4 Period (Early Neolithic)/->P160 has temporal projection->E52 Time-span (6500-6000 BC)

**S:** Could we use some kind of a concept that inherits the scope of E92 Space-Time volume and showcases this process?

**C:** Markos Katsianis

- **I:** In many cases the excavation process unit AP5 removes an A8. If however this A8 is a non-volumetric entity (a surface or the cutting of a pit), i.e. A3, how can it be removed?

**E:** a wall when revealed is a surface (E25/A3), but when removed to get further below is a volume (A2).

**S:** Could it be that the linkage should be between A1 and A2, not A1 and A8?

**C:** Markos Katsianis

- **I:** Excavation processing Units may also be designated to activities, such as trench cleaning or section cleaning/scraping, that do not entirely remove volumes (or at least they cannot be represented using volumetric entities). Of course, in the process of cleaning, one may collect artefacts (e.g. that fall from the section) and a certain (even if negligible) S11 amount of matter is removed.

S: Perhaps we could just make a mention that these type of activities are included in the scope note. → *This is already being dealt in the CRMarchaeo v1.5.1 draft*

C: Markos Katsianis

- I: The relationship between A2 and A8 needs some clarification as they are used frequently interchangeably.

E: e.g. Christaki *et al* 2016 directly model/connect A8s without using A2s, whereas Giagkoudi *et al* 2018, model A1->AP5->A8->P89->A2. I read the latter as having the A8 belonging to A2 and not the other way.

S: The concepts may be linked better in the following order: an A1 removes an A2 and reveals an A10 (which may or not correspond with an A3). This A2 forms part of an A8 and not the other way around. Perhaps the relationship between A1 and A2 needs to be clarified, especially if all A1s remove some kind of volume, even if this is part of a cleaning/surface scraping process.

C: Markos Katsianis

- I: In many cases what is perceived during excavation as a single layer, may in fact be multiple layers, mixed deposits or simply wrong. So, it is actually what an archaeologist designates as a stratigraphic unit of observation that gets documented and not actual reality (i.e. the result of depositional processes). In many cases, designated stratigraphic units may be combined or simply dismissed in later post-ex.

S: So perhaps a change in the scope note stating that what gets documented, is the "perceived" coherence of a stratigraphic unit and not its 1 to 1 correspondence with a single stratigraphic genesis event. This usually comes later and may in fact group or connect multiple A8 with a single A4.

C: Markos Katsianis

- I: How does a A10 connects with A3 when they correspond? This can be worthwhile to think as in many cases archaeologists document separately A10s and A3s.

E: E.g. a drawing of the surface A10 of a trench in 3/3/2022, may contain multiple exposed A3s.

S: ?

C: Markos Katsianis

- I: How can qualitative dimensions of archaeological material that have controlled term lists (types) be modelled?

E: texture or composition of a stratigraphic unit?

S: Use a type of a type on top of an E54 dimension. E.g. A2 Stratigraphic Volume Unit → P43 has dimension → E53 Dimension → P2 has type → E55 Type (Silt) → P2 has type E55 (Texture)

C: George Bruseker, Denitsa Nenova, Markos Katsianis

- I: How does an A8 removed during excavation link to its imprint exposed in the trench section?

E: E.g. The northern sections (A10) of trench A, i.e. the surface created during excavation following the cumulative activity of multiple A1s in the trench, contains or intersects stratigraphic layers (A8) that have been revealed during the excavation process.

S: A8→P198→A10? O7 does not seem to work as it connects S20 with S10. How does an S20 relate to another S20? Perhaps P157? e.g. A10→P157 provides reference space for → A8. Otherwise, use the full path, i.e. A10→P156 occupies→E53 Place→P157 is at rest relative to→A8?

C: Markos Katsianis