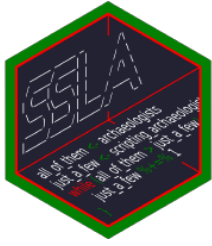


# W4 CAA Scripting Languages Hackathon I –



## Can you code this?

Clemens Schmid<sup>1</sup>, Martin Hinz<sup>2</sup>, Carolin Tietze<sup>3</sup>

<sup>1</sup> Römisch-Germanisches Zentralmuseum Leibniz-Forschungsinstitut für Archäologie: Mainz, Rheinland-Pfalz

<sup>2</sup> Institut für Archäologisches Wissenschaften, Universität Bern

<sup>3</sup> Institut für Klassische Altertumskunde, Christian-Albrechts-Universität zu Kiel

clemens@nevrone.de, martin.hinz@iaw.unibe.ch, ctietze1991@gmail.com



---

## 1. General Information

- 3 hours to work on all tasks, breaks can be taken as you wish.
- All results must be submitted in one html report with all code and plots. This can be rendered from IPython Notebook, Rmarkdown, Latex, etc. or compiled manually. See the submission example [here](#).
- The organizers of this workshop are available for questions and advice. They are able to assist you with problems as far as they are familiar with your toolset.

---

## 2. Dataset

THE data for this exercise — `Michelsberg` — are be taken from the R package `archdata` (Carlson/Roth 2018).

---

## 3. Tasks

1. Counts and lists of unique values for `site_name` & `mbk_phases`
2. Column sums for material variables (`t03`, `f4`, ..., `t1a`)
3. Grouped counts of material by `site_name` & `mbk_phases` and further cross tables
4. Visualisation of grouped counts in plot matrizes. For `mbk_phases` these can be constructed as time series plots
5. Spatial map of sites with mapping of counts computed in task 3.
6. Correspondence Analysis (CA) of material variables
7. 2D and 3D Visualisation of CA results with mapping of `site_name` & `mbk_phases`
8. Mapping of CA axis rank on spatial map
9. **Bonus** Chi-square distance between all material variables and network visualisation and analysis