

The Network of Subject Co-Popularity in Classical Archaeology

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Introduction

In this poster we map the co-popularity of specific subjects in Classical Archaeology, which is defined by the co-occurrence of classification criteria in publications as recorded since 1956 by *Archäologische Bibliographie* (still www.dyabola.de). As a spin off of the former *Subject Catalogue of the German Archaeological Institute in Rome* (now opac.dainst.org), which is run by *Stiftung Archäologie* (www.stiftung-archaeologie.de) the project catalogues new acquisitions of archaeological literature by the American, British, French, German and Spanish Institutes in Rome. It currently contains 426.108 titles of which 373.191 are connected to 45.924 classification criteria via 617.518 classification links. Currently the database grows by 25.000 titles a year, which is nearly eight times the growth rate it had in 1956 and two and a half times the rate it had in 2001, when it was still run by the *German Archaeological Institute*.

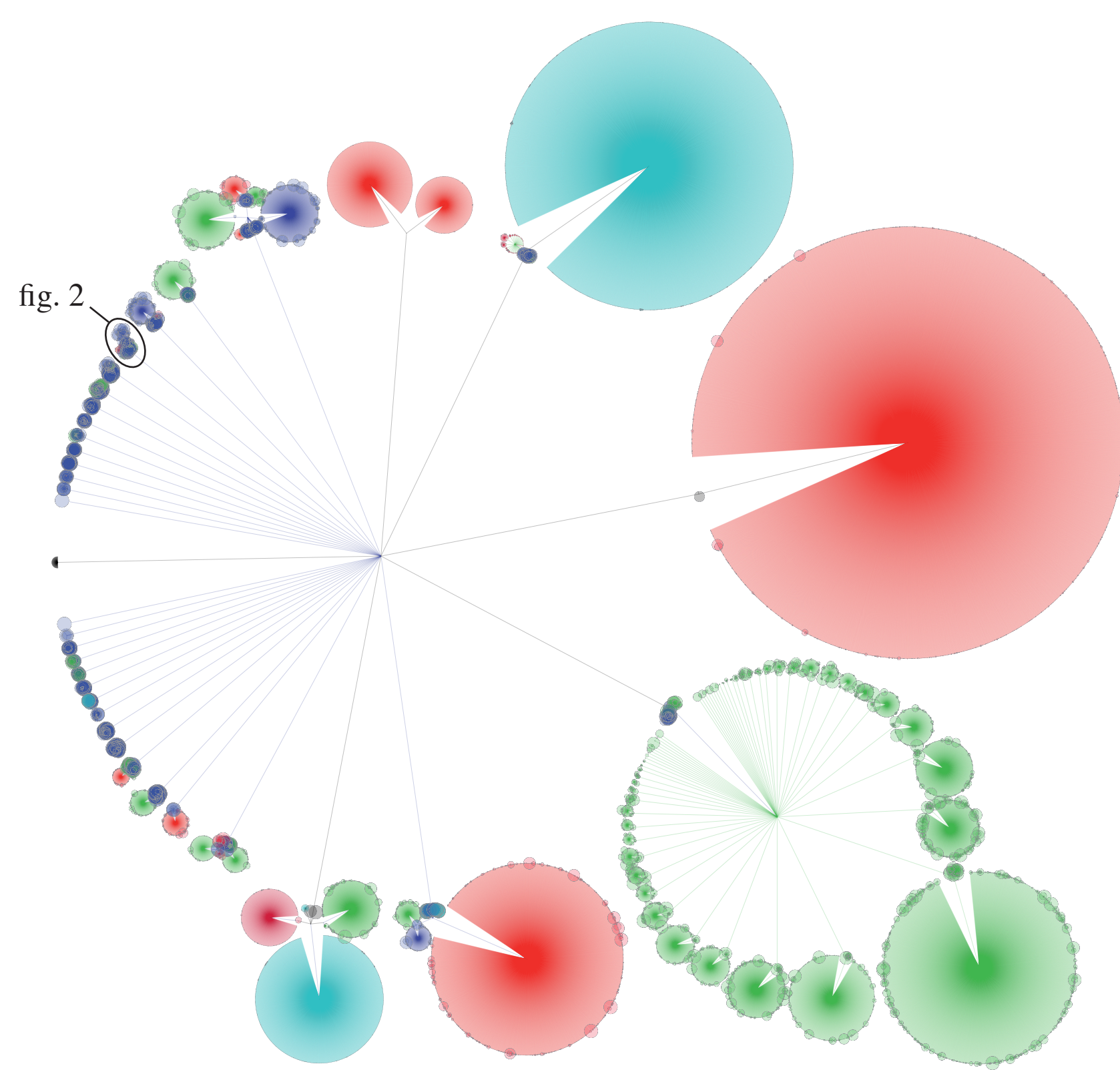


fig. 1: The tree of subject headings, i.e. classification criteria, as found in the dataset contains locations, persons and institutions, events as well as subject themes. There is a highly heterogeneous distribution in the number of subdivisions (lines) as well as in the number of publications attached (node size) to each classification criterium.

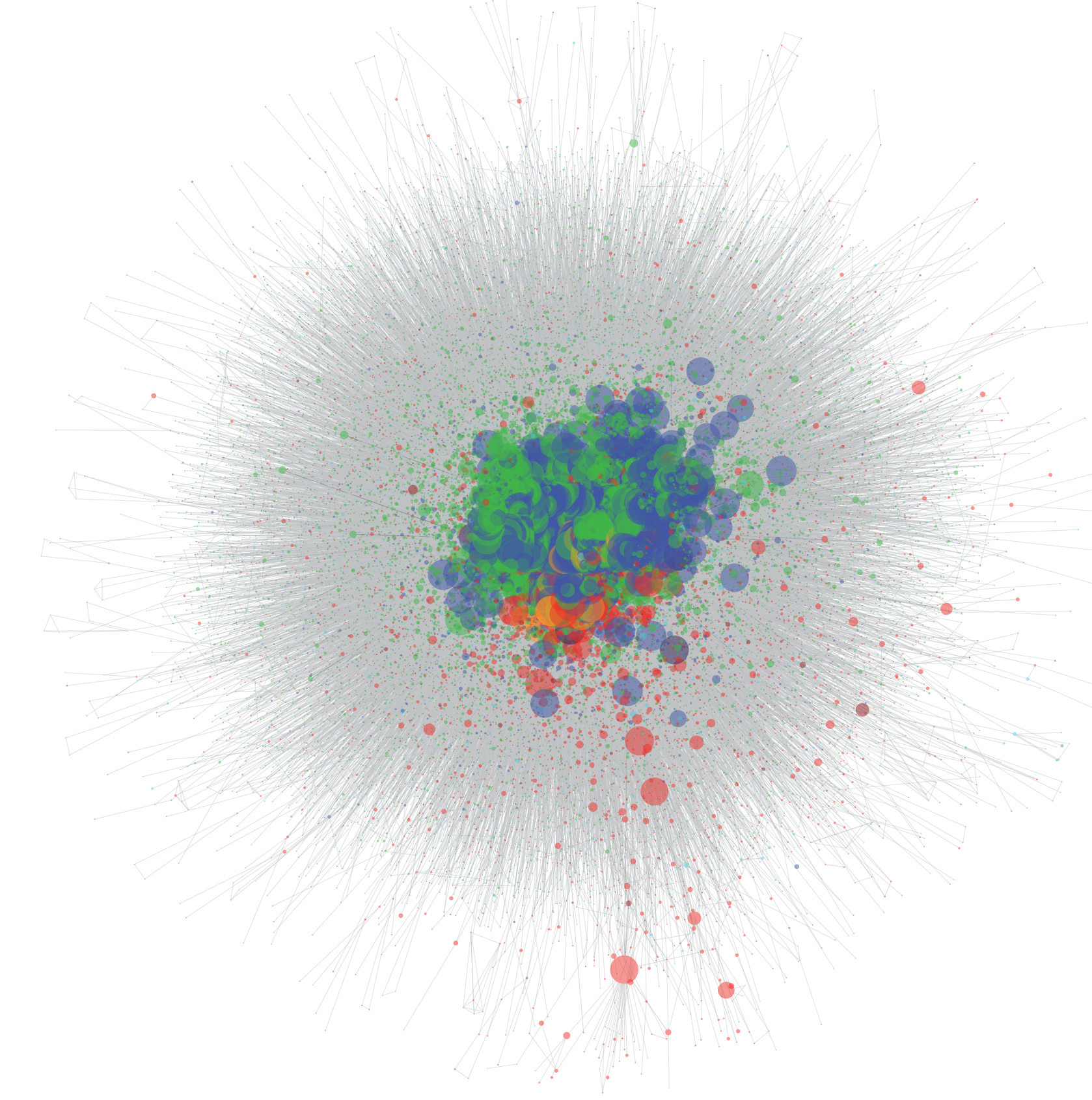


fig. 3: In the network of co-popularity two classification criteria are connected if they share at least one publication. Mapping this network reveals a giant hairball in which almost every criterium is indirectly connected to all others. In our case it is interesting to note that the hairball contains a superdense core in which the subject themes and some locations form the glue that holds all other criteria together. Note that the node size is again scaled logarithmically according to the number of publications attached - large nodes are way larger in reality than they appear. What is true for the number of publications overall is also true for persistence in time: Only a very few criteria stay relevant for the last 50 years, most locations, persons and events are only used in one or a few years.

Future work

The current results are a proof of concept for ongoing work. Further efforts include dealing with the redundancy of classification criteria and the bi-partite nature of the publication-classification network. In addition we will come up with ways to break the superconnected core of co-popularity in order to draw a new big picture of the discipline of Classical Archaeology. Our work will provide the base for an intelligent evolution of *Archäologische Bibliographie*. The resulting methods can also be used to explore the emerging structure of other cultural heritage databases beyond their given definition of data. Within project evaluation, this will help with the future allocation of funds.

Acknowledgements

We'd like to thank Prof. Dr. Vinzenz Brinkmann and Dr. Ralf Biering of *Stiftung Archäologie* for providing the data. Special thanks go to Prof. Albert-László Barabási for making this investigation possible.

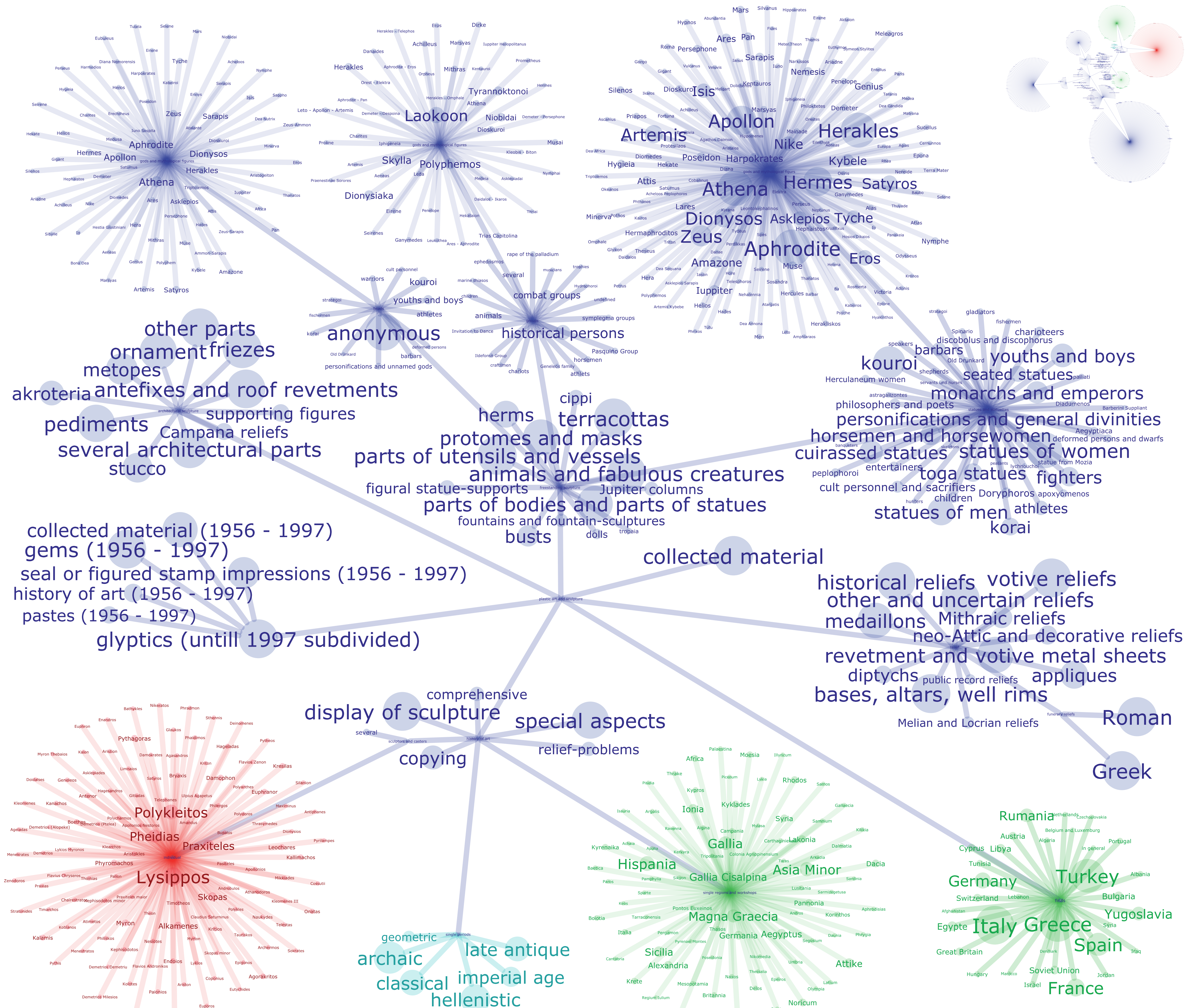
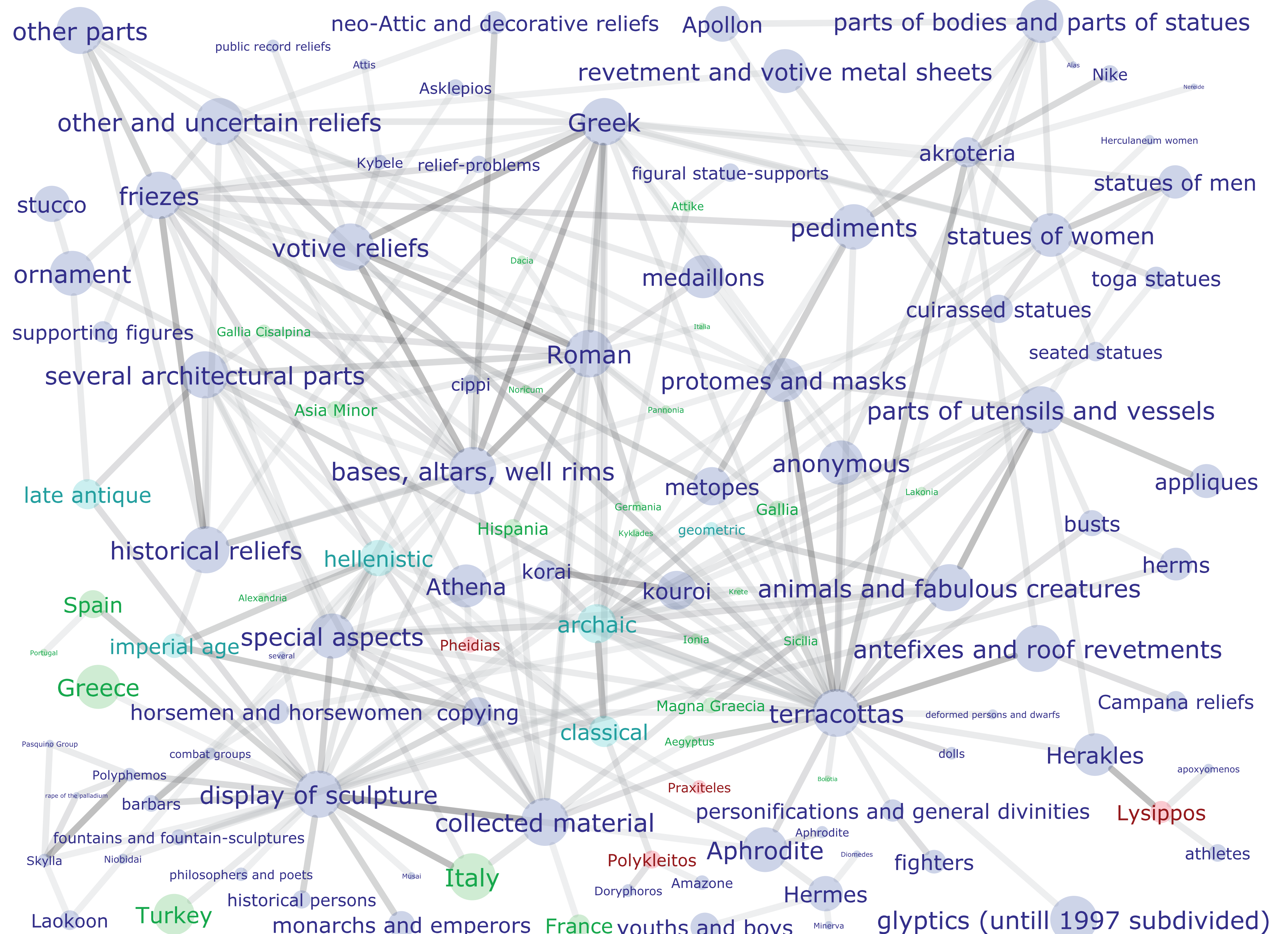


fig. 2: The branch plastic art and sculpture contains a tiny fraction of the tree of subject headings. However, as the tree is self similar we find the same distributions of subdivisions and number of publications attached. Note that the scaling of the node and font size is logarithmic - large criteria are way more popular in reality than smaller criteria.

fig. 4: The network of co-popularity in the plastic art and sculpture branch with a threshold of at least four shared publications is still superdensely connected. Note how subject themes hold the network together and define each other by co-occurrence: Hellenistic Alexandria, Classical Polykleitos...



References

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