Unlocking Strategies of Visual Communication in Zones of Cultural Interaction: Opportunities and Challenges in the Digital Age

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Abstract: *Sculptural works conveyed a wide range of meanings, including values, claims, attributions of status and identity, demarcations, and affiliations. The use of iconographic concepts in extensive networks beyond specific regions and political systems characterises sculpture as a medium of transcultural interaction. Consequently, researchers are required to overview a large amount of data. The present paper discusses the advantages and challenges encountered when using digital web-based data management platforms for analysing sculptural works. These platforms organise and structure data both spatially and chronologically, with the aim of contributing to open and fair research by making newly acquired data easily accessible to future research projects.*

Keywords: ancient sculpture, data-management, visualisation, spatial analysis, open and fair research

Ключови думи: антична скулптура, управление на данни, визуализация, пространствен анализ, достъпни и етични изследвания

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RESEARCH ON GREEK SCULPTURE BETWEEN TRADITION AND MODERNITY

The study of the origins and development of Greek sculpture has a long research history in Classical archaeology and the history of ancient art. In the established tradition of the field, sculpture has been approached almost exclusively by investigations of either specific material groups, regions, or functional classes. While undoubtedly an important, if not necessary step in research to narrow down the abundance of material and make objects accessible for further studies, this methodology has also contributed to a fragmentation of the material basis. This has, for instance, contributed to the assumption, that marble or bronze statues were more meaningful for the development of motifs than works of limestone or terracotta because of their

higher material value[1]. Furthermore, it reinforced consolidations of regional perspectives, including a still discernible Hellenocentrism[2]. Archaic sculptures discovered in and around the *apoikiai* at the coastline of the Bosporus and the Black Sea, such as the two torsi of draped *kouroi* from Bisanthe and Apollonia Pontica, were often approached, classified and dated against the background of Greek, specifically Ionian sculpture[3]. However, categorisations like imports or imitations dependent on innovations by Samian or Milesian workshops or 'schools' are problematic: firstly, they presuppose that 'innovative' works discovered in zones of cultural contact were not made in the contexts in which they were found. Secondly, such categorisations assume a certain degree of industrialisation in the production of sculpture in regionally based workshops. But there is still a paucity of information regarding the precise location of these purported eastern Ionian workshops, their organisational structure, the type of marble used, and the specific production stages conducted at each site. A significant number of archaic and classical eastern Greek sculptural works lack clear archaeological context, which would allow for a contextual dating[4]. Another key question concerns the mobility of sculptors and stoneworkers evidenced in inscriptions and its consequences for the organisation of workshops[5]. Consequently, the classification of sculpture continues to rely heavily on established methods, namely analyses of form and style, which, to date, not only presuppose connoisseurship, but also an assumption of stylistic and formal development (e.g. from less naturalistic to naturalistic) and of a divergence between centre and periphery[6]. These issues are known and some have been discussed in greater or lesser detail. The question is how to move on when working with sculpture, especially with finds from regions where sculpture is scarce?

RESEARCH ON SCULPTURE IN THE DIGITAL AGE: MANAGING, MAPPING, AND ANALYSING BEYOND LOCAL DATABASES

For research questions focusing on the distribution and transfers of images, motifs, and styles, it is first and foremost essential to organise the constantly growing material basis in an economical, sustainable, and open way. Given that it was specifically designed for the humanities and that it combines a relational database with tools for spatial and chronological analyses and visualisations, it was decided to test the nodegoat environment to ascertain its suitability for future larger projects on exploring transfers of images, including partial motifs and stylistic elements. Its developers describe nodegoat as "an object-oriented web-based research environment that allows researchers to create datasets based on their own data models and offers relational modes of analysis with spatial and chronological forms of contextualisation". They claim that by combining these elements within one environment, complex datasets can be instantly processed, analysed and visualised relationally, diachronically and spatially[7]. As nodegoat is object-based, data is organised by object types (e.g. ancient place, inscription, name, relief, statue, stele etc.), the specific objects (e.g. draped *kouros* from Atija/Antheia), sub-objects (e.g. findspot, location), and categories (e.g. material, size-type, posture, attributes, etc.), which can be related to each other. Sub-objects not only contextualise objects spatially, but

[1] Since sculptures were usually painted, this may, to a certain degree, be a modern perception.
[2] For few provocative attempts to shift the common perspective see *Morris* 1992 or *Bernal* 2001; *Bernal* 2020. For current efforts towards a broader archaeology of the Mediterranean see e.g. *Hodos* 2020. For Cyprus, see the works of Maria Iacovou, e.g. recently *Iacovou* 2021.
[3] Even in overview works, e.g. *Özgan* 1978: 52-53. 55-59. 66; *Langlotz* 1975: 108-109. 112. 114-115; *Floren* 1987: 379, 404, 408; *Barletta* 1987: 245, nos. 26-27.
[4] This is true, for instance, for most sculptures from the sanctuary of Apollo at Didyma (*Tuchelt* 1970), which were mostly discovered reused in the village.
[5] On this aspect recently *Sossau* 2024, esp. 6-8 with examples and further references.
[6] For a recent discussion (and defense) of traditional classification methods see e.g. *Hoff* 2022.
[7] *Bree, Kessels* 2013. Nodegoat can be set up as a web-application in a single user environment on nodegoat.net (for free) or run on institutional servers with multiple user accounts (with plans).

also chronologically. This allows visualisations of distributions, both in regard to findspots (for an example see **Fig. 1**, showing the distribution of the draped *kouroi* in eastern Ionian garments – chiton, himation draped over the left shoulder, not covering the left arm, sometimes including an ependytes) and the locations where archaeological artefacts are or were kept. Thus, the dimension of object biographies can be incorporated in the analysis, as shown on **Fig. 2:** the statue of a crouching lion was discovered in Olbia Pontica in the 1890-ies; its hind paw and tail were traded to Odessa Museum and were united with the main part of the lion in Kherson in 1924, where they were stored until the Russian occupation in 2022. The opportunity to filter data and immediately visualise search results spatially makes distribution maps an integral part of a dynamic working process rather than a static result of a study.

The sculptures analysed in the first pilot study belong to the group of draped *kouroi*, which are commonly regarded a characteristic element of south-eastern Ionian sculpture. Past studies of this group were primarily based on marble works, while examples made from limestone were only occasionally included when they were discovered in Ionia[8]. Being able to organise a large number of objects made it possible to expand both the regional scope of the analysis and the variety of image carriers. Thus, the data basis now covers sculptures from the Aegean, Cyprus, Ionia, the Levant, the Bosporus and the Black Sea and includes images made in marble, limestone, and terracotta (with the exception of serially produced terracottas). The motifs were described by a number of image categories such as postures, hairstyles, attributes, garments etc., which allowed studying and mapping distribution patterns of specific details in a wider geographical range. Using that methodology allowed visualising the complexity of inner- and intercultural transfers of these motifs and styles which contributed to a better understanding of the interregional relations involved in their production[9].

Figure 1. Distribution of draped *kouroi* in eastern Ionian garments. © Veronika Sossau.

[8] *Özgan* 1978: 42-69, 100-123; The most comprehensive study of the group is still *Barletta* 1987. New finds were added by *Bosnakis* 2012: esp. 183 (with a list of 40 representatives).

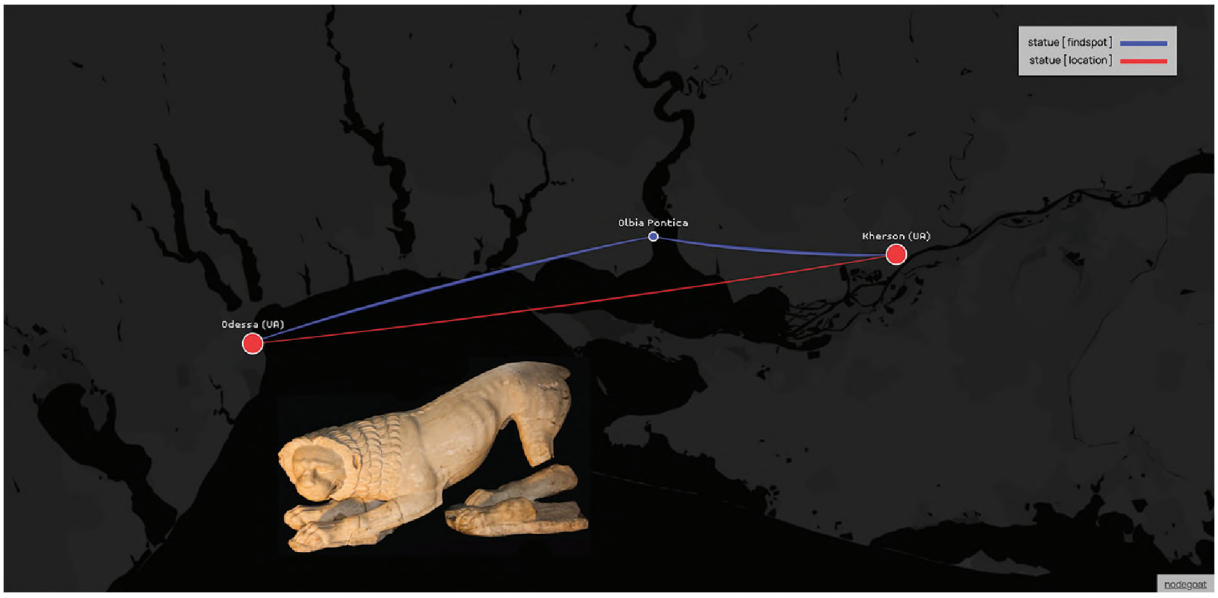

Figure 2. Visualising object biographies: a hind paw and the tail of a crouching lion from Olbia Pontica were first traded to Odessa Museum and later united with the body of the lion in Kherson.
© Veronika Sossau, based on nodegoat.net and https://sanctions.nazk.gov.ua/en/art/stolen/1556/> (25.01.2024).

The analysis can be expanded any time, for instance by systematically including additional object types like serially produced terracottas. Thus, the objective moves away from merely producing a book or a specific study; rather, it is to establish an environment in which data can be continuously expanded and re-examined in novel ways, thereby contributing to the advancement of sustainable and open research.

OPPORTUNITIES AND CHALLENGES IN ENGAGING IN AN OPEN AND FAIR RESEARCH COMMUNITY

A primary objective of sustainable, open and thus fair research is to facilitate the accessibility of data for future research. Therefore, it is crucial to ensure that the utilisation of data is not constrained to a specific software. The nodegoat environment meets this requirement. Conversely, open software often facilitates the integration of existing data. The initial pilot study of draped *kouroi* has drawn upon data from previous own works (tables and sheets), as well as from open research platforms established in the field, including idai.world (in particular, basic object data from iDAI.objects arachne and geographical data from iDAI.gazetteer)[10], pleiades (geographical data and site names)[11], iconographical, especially mythological descriptive categories from digital LIMC (Lexicon Iconographicum Mytholigiae)[12]. Epigraphical data and names are linked to the respective entries in the IG (Inscriptions Graecae)[13], the LGPN (Lexicon of Greek Personal Names)[14], and also to Lexica as the SEG (Supplementum Epigraphicum Graecum[15], and the New Overbeck, a Lexicon of artist's names[16]. To a smaller account, as it focuses on Graeco-Roman Egypt,

[9] For some results of this pilot study see *Sossau* 2022; *Sossau* 2024; *Sossau* forthcoming. The dataset is going to be published on Zenodo: https://zenodo.org/ (accessed 28.06.2024) upon publication of *Sossau* forthcoming.
[10] German Archaeological Institute (ed.), iDAI world portal for digital knowledge: https://idai.world/ (accessed 28.06.2024).
[11] Pleiades (community-built gazetteer and graph of ancient places): https://pleiades.stoa.org/ (accessed 28.06.2024).
[12] WebLIMC: https://weblimc.org/ (accessed 28.06.2024).
[13] Berlin-Brandenburgische Akademie der Wissenschaften (ed.), Digital edition of Inscriptiones Graecae: http://telota.bbaw.de/ig/ (accessed 28.06.2024).
[14] Lexicon of Greek Personal Names: https://www.lgpn.ox.ac.uk/ (accessed 28.06.2024).
[15] Supplementum Epigraphicum Graecum Online: https://scholarlyeditions.brill.com/sego/ (accessed 28.06.2024).
[16] The New Overbeck: Ancient Textual Sources on Greek Visual Arts: https://doi.org/10.1515/overbeck (accessed 28.06.2024). For the printed edition see *Kansteiner et al.* 2014.

Trismegistos (geographical and epigraphical data) was consulted[17]. In turn, newly retrieved data can be made accessible for future research at the end of each project, as nodegoat now also generates web-accessible and downloadable data publications, which can be published in repositories such as zenodo.org[18].

The most challenging aspect in large research portals is organising data, finding the right balance between detail, clarity, and consistency. To make data easily available for future research projects, it is important to use normative data provided by controlled vocabularies and thesauri established in the field as far as possible[19]. Since these thesauri do not always provide sufficient detail and classical archaeology is a discipline with a long multi-lingual tradition, this can be challenging, especially when it comes to hierarchising categories. Within the rather narrow scope of the pilot study, the categorisation of sculptures worked sufficiently. For larger platforms with more different types of objects and therefore greater complexity, however, it proved to be difficult to maintain a consistent and clear organisation of categories and tags[20]. Another problem of normative data is that it can reproduce stereotypes, which is why these categories should not be reproduced without careful reflection[21]. One potential solution to the issues under discussion would be to replace the text tags with graphical tags.

While the dataset of the first pilot study is prepared for publication, more objects, with a continued focus on sculpture from the eastern Mediterranean and the Black Sea, are now integrated into the project environment. At this stage, collaborating researchers are invited to use the platform to test strengths and weaknesses and work out ideas for an improved environment which can handle a larger number of object types and categories in a consistent and clear way, providing a solid basis for future studies.

FURTHER METHODOLOGIES IMPROVING RESEARCH ON SCULPTURE

A precisely structured database of finds is also going to be beneficial for selecting groups for further investigations on the organisation of workshops and the use of materials. There are several methods that have the potential to bring more light into research on sculpture and, above all, to move it to a slightly more objective level, away from its dependency on connoisseurship. More archaeometrical analyses could contribute to a better understanding of the specifics how raw materials were used and where they stem from. This would not only be an interesting information for sites without direct access to marble deposits, but also for the assumed centres of eastern Ionian sculptural production. Did they stick mainly to local marbles, as it, for instance, could be shown in case of a series of Late Classical to Early Hellenistic votives for Meter at Panayýrdap in Ephesos[22], or did they also work with imported marble? Nevertheless, despite the significant advances made in archaeometry over recent years, their application, particularly in marble sculpture, remains limited. Most attributions in publications are personal estimations, but especially calcite marbles can be challenging to distinguish even with scientific methods[23]. High-resolution 3D scan-

[17] Trismegistos. An interdisciplinary portal of the ancient world https://www.trismegistos.org/ (accessed 28.06.2024).

[18] New Data Publication Module, 06.06.2024: https://nodegoat.net/blog.s/74/new-data-publication-module (accessed 28.06.2024).

[19] For classical archaeology see the thesauri and controlled vocabularied by the German Archaeological Institute: https://idai.world/how/thesauri-and-controlled-vocabularies (accessed 28.06.2024). Other classification systems, are offered, e.g. by the Getty Research Portal https://www.getty.edu/research/tools/vocabularies/index.html (accessed 28.06.2024).

[20] For this aspect see *Tolle et al.* 2018.

[21] See, for instance, the dispute over Iconclass: https://iconclass.org/ (accessed 28.06.2024) referring to racial categories: *Kühnl* 2020 and *Sever* 2020.

[22] *Anevlavi, Ladstätter, Prochaska* 2021.

[23] For this reason, results of older marble analyses should not be approached uncritically. For recent efforts in this matter see *Prochaska, Athanasiou* 2021; 2022.

ning may also prove beneficial for future studies on style and craftsmanship, as it allows for the study and comparison of works from different locations under the same conditions (light, angle, surface texture, etc.)[24]. However, at present, they are mainly used for reconstructions[25].

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[24] For a pilot study see *Counts, Averett, Garstki* 2016: 209 f. For an attempt on master-hand attributions e.g. *Patay-Horváth* 2016a.

[25] E.g. *Patay-Horváth* 2016b.

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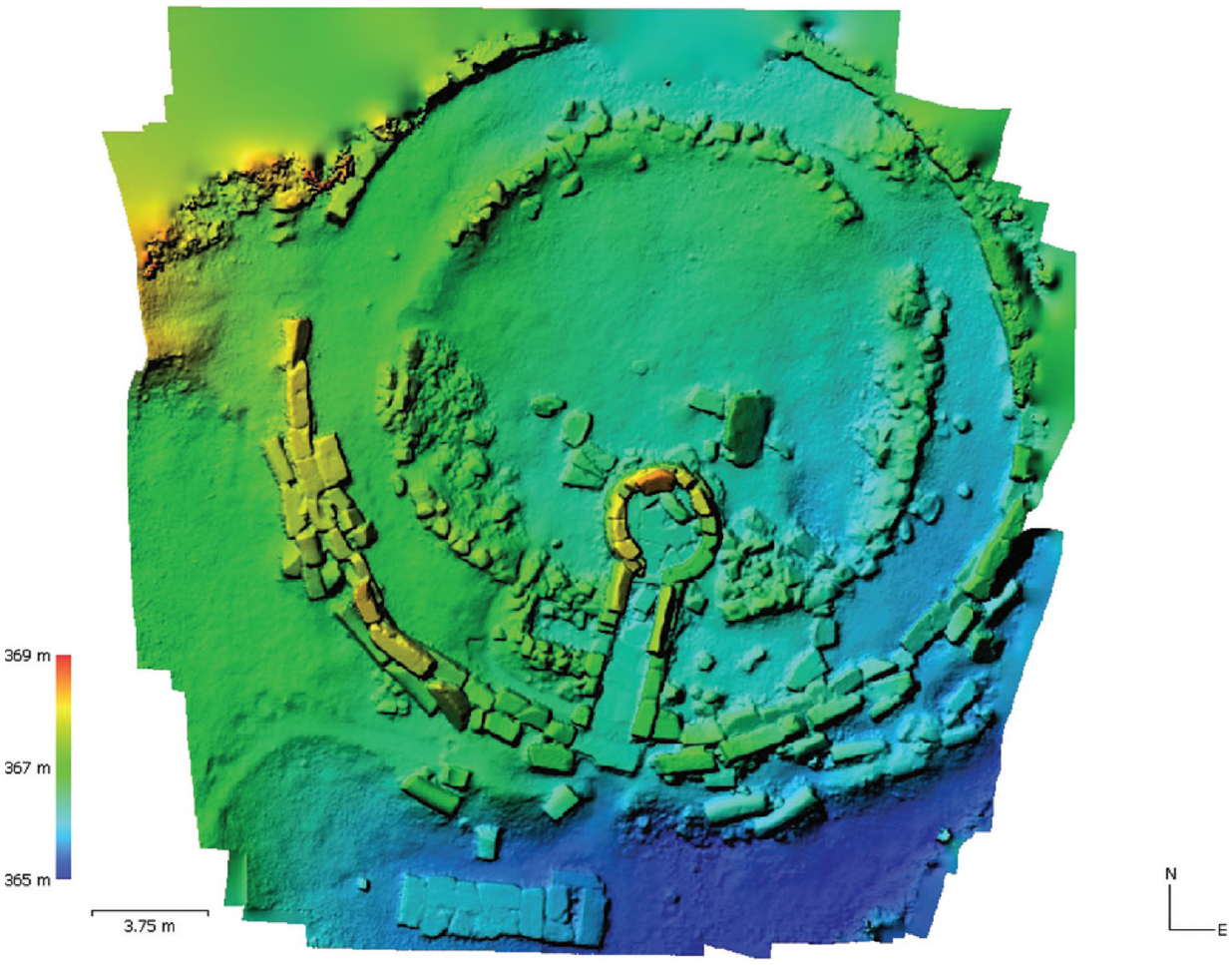
Разкриване на стратегии за визуална комуникация в зони на културно взаимодействие: Възможности и предизвикателства в дигиталната епоха

Вероника Сосау

Скулптурните произведения са сложни единици, състоящи се от множество елементи, които могат да предават широк спектър от значения. Иконографските характеристики, изборът на материали, техники, стилове и комбинации с други комуникативни елементи като надписи и дипинти допринасят за многостранния характер на тези произведения. Тъй като те са циркулирали в обширни мрежи извън определени региони и политически системи, те също така служели като медии на транскултурно взаимодействие. За да се справим с тази висока плътност на информация, е необходимо да се прилагат организационни системи, които могат да организират и анализират голямо количество данни с високо ниво на детайлност. В предварително изследване, което се фокусира върху драпирани куроси, използването на географски визуализации се оказа особено ефективно за изясняване на сложните взаимовръзки между скулптурите, покровителите и потребителите, свързани с тях, както в рамките на, така и извън регионалните граници. Резултатите от такива анализи могат да осигурят стабилна основа за по-нататъшни проучвания, например по отношение организацията на работилниците и използването на материали. Използването на установени нормативни речници и тезауруси, и осигуряването на достъп до данните чрез отворени хранилища гарантира, че те са лесно достъпни за по-нататъшни изследвания. Въпреки че е изключително ценно за анализа на специфични скулптурни групи, справянето с по-голяма сложност и по-голямо разнообразие от типове обекти и категории в обектно-базирани релационни бази данни, като същевременно поддържа последователна и ясна организация, може да създаде трудности. Те ще бъдат оценени на следващия етап от проекта.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