Violence and the Sea:
A Digital Analysis of Maritime Acts of Violence Committed by Alcibiades as Described by Thucydides, Xenophon, and Plutarch[1]

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Abstract: In comparing the patterns of violence committed by Alcibiades in the works of Thucydides, Plutarch, and Xenophon, significant differences emerge in the focus of the three authors and can be represented visually by "Eris. The Hamburg Information System on the Representation of Greek and Roman Violence." The fact that the interpretation of graphic findings – that is, second-order categories – nevertheless leads to highly plausible results demonstrates that this proof of concept was successful. The plausible results also suggest that, by using Eris, we will find previously undiscovered patterns of violence in the investigation of the big data of ancient texts. Graphs will thus serve as sources of inspiration that will open up new questions that have not yet entered our thinking due to the vast volumes of data.

In a recent essay,[2] Christoph Schäfer demonstrated that Alcibiades was less concerned with conquering Sicily than with controlling the sea routes and that he therefore also pursued strategic economic interests off the coast of Sicily. Moreover, in contrast to the historian Thucydides, who essentially perceived of the world from the point of view of the land, Alcibiades also viewed the sea as a space for action. In this article, the violent acts committed by Alcibiades – especially those performed at sea – are dealt with more generally. For this purpose, it is essential to examine these maritime acts of violence in the context of all the acts of violence in which Alcibiades was involved as only this method enables us to reveal the discrepancy between his actions on land and at sea. The writings of Thucydides, Xenophon, and Plutarch serve as the main sources for this study. As will become clear, there are significant differences between the three authors due to the different source genres, the different contexts of the times of writing, and the authors' respective intentions.

Methodologically, this study was carried out with a digital information system that is currently being established at the University of Hamburg (Eris. Hamburg Information System on the Representation of Greek and Roman Violence),[3] and its performance was tested once again on this specific topic in the form of a proof of concept.[4] This feasibility study was based on a comparison of the descriptions of the acts of violence committed by Alcibiades as documented by the authors Thucydides, Xenophon, and

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2. Schäfer (2019).

3. Cf. the short description of *Eris* in Riess – Zerjadtke (2015).

4. *Proofs of concept* with the goal of discerning patterns are frequently used in business contexts and for intelligence purposes.

Plutarch. Methods of hermeneutic visualization were used to discern patterns of violence from among the three authors. As the feasibility study presented here confirmed known facts with a new method, it also demonstrated the method's sound functioning and applicability on a larger scale. The proof of concept is thus an instrument for securing methods. At the same time, however, Eris also offers possibilities of scalability: Sources beyond literary evidence may also be included, such as epigraphic, papyrological, numismatic, and iconographic material. Eris can furthermore include material from epochs other than ancient history. Two prerequisites are necessary for this endeavor: on the one hand, a solid IT foundation in the form of a sophisticated ontology that combines statistical and hermeneutic approaches, and on the other hand, transparent and verifiable scholarly foundations. Eris fulfills both requirements.

Before patterns of violent acts are digitally found and interpreted comparatively, it is first necessary to determine the scientific position of Eris. To this end, in this text, we first briefly examine sociological and anthropological research on violence (Chapter I) followed by research on violence in Classical Studies in order to articulate fundamental questions and desiderata of decidedly ancient historical research on violence (Chapter II). Chapter III describes the fields of Digital Humanities in which the Eris information system is situated in order to meet the requirements of the involved disciplines. The extent to which algorithm-based research and traditional hermeneutics (i.e., quantitative and qualitative approaches) must complement each other in order to arrive at meaningful conclusions is demonstrated. Eris is thus situated at the interface between ancient historical research on violence on the one hand and digital access to ancient sources on the other hand. As already demonstrated,[5] Eris enables feasibility studies that could also be conducted in other ways. The decisive point, however, is that Eris can help to unravel the big data of the ancient textual tradition (quantitative approach), thereby allowing us to thematically investigate large quantities of text (qualitative approach) that exceed an individual's reading limits. The overviews of sociological and ancient historical research on violence are kept cursory within the framework of this study. The listed studies do not aim at bibliographical completeness; rather, they are merely intended to serve as exempli gratia.

Chapter I: Basic Assumptions and Desiderata of Sociological and Anthropological Research on Violence

In every known society, be it historical or contemporary, violence has been and remains so ubiquitously exercised in the most diverse social contexts that it can operate as an intrinsic part of any human society, even if it is always culturally determined and modulated. The highly heterogeneous forms of exercising violence for various reasons and completely disparate purposes continue to render the phenomenon scientifically difficult to grasp, let alone to categorize. Therefore, unlike theories of deviant behavior[6] or international relations[7] – sub-disciplines of sociology or political science, respectively – there has been no development of a comprehensive "sociology of violence" that works with consistent terms or generally binding "theories of violence" since many disciplines of the humanities and natural sciences deal with violence.[8] Even handbooks on sociological research of violence – which shed light on the phenomenon from various perspectives – have not been able to remedy the fact that there is still no generally accepted definition of "violence."

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5   Cf. Riess (2020).

6   E.g., Lamnek (1996) and (1997).

7   Cf. e.g., Jetschke (2017).

8   Cf. von Trotha (1997), 9–19. Regarding the multitude of definitions of violence, cf. Reinhold – Lamnek – Recker (2000), 231–232. There are only a few studies that aim to lay the foundations for a veritable sociology of violence, e.g., Riches (1986); Mader – Eberwein – Vogt (2000); Kuchler (2013).

In a fundamental contribution, Trutz von Trotha summarizes this shortcoming.[9] According to him, sociology is mainly concerned with the causes of violence (with a more or less pronounced moral impetus to "improve" society) rather than with violence itself. Even the founding fathers of conflict sociology, including Georg Simmel, Émile Durkheim, and Ralf Dahrendorf, were no exception and did not establish a sociology of violence.[10] To remedy this situation, von Trotha makes the case for a thick description of violent processes in accordance with Clifford Geertz and thus promotes a strong inclusion of physicality. The path to be taken, which Trotha described as "conceptual coding" in 1997, comes so close to digital annotation (i.e., the addition of metadata in Eris) that it deserves to be cited in its entirety:

> The analysis of violence is based on conceptual coding, to build on a term from "grounded theory" (Strauss 1990: 27ff., 55ff.). I view this conceptual coding as a phenomenological–ethnographic analysis with the goal of discovering and naming sociological basic concepts (i.e., terms) that aim at a high degree of generality (while simultaneously being highly selective). [...] Without thick description, it is not possible to comprehend or understand something. Describing something, however, requires correctly labelling concepts, and 'correctly labelling' these concepts requires the real-life experience of describing the observed world in terms of its basic correlations with concepts, which means finding the appropriate terms for the given observations – terms that are suitable. Moreover, basic concept-led description (i.e., conceptual coding) requires an interpretive understanding of the relevant 'meaning' of the relevant connections between human actions. […] Conceptual coding is an 'inductive' process. [...] It [begins with] the detailed observation of empirical facts. The interpretation of reality by the actors lies at the central level of the analysis, which is why the theoretical concepts aim at achieving a close connection to the terminology of the actors. However, unlike classical ethnography and phenomenology, the goal of the analysis is neither to produce a thorough description nor to represent reality as interpreted by the actors. [...] [C]onceptual coding is instead focused on producing sociological basic concepts [...]. These concepts are able to render general ideas evident via specific contexts [...]. The concepts, typologies, and theoretical contexts that emerge and can be represented with such conceptual coding are 'explanations.' They guarantee the understanding and comprehension of the observed reality.[11]

There is no better way to describe the epistemic part of the annotation of ancient descriptions of violence in Eris (see below). Put simply, von Trotha's conceptual coding corresponds to the annotation that is performed digitally in Eris. Digital annotation can therefore be regarded as a form of thick description and is highly demanding in its cognitive components: The academic assistants sort and classify information, assign it to categories, and sensibly combine the processed data.

Von Trotha's wish for a sociology of violence per se has been taken up in many ways. Wolfgang Sofsky's famous treatise on violence[12] and the studies of Eastern European historian Jörg Baberowski – who, as a result of the *spatial turn*, applied the method of thick description to violent spaces[13] – are just two examples of many other works. The emphasis on the physical dimension of violence has also led to the scientific consideration of pain.[14] From an anthropological perspective, Lindenberger and Lüdtke

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9   Cf. von Trotha (1997), 9–56.

10   Reemtsma (2002) demonstrates in a broad cultural historical frame that violence – in contrast to power – is silent. This is also why it is difficult to approach the concept and discuss it.

11   Von Trotha (1997), 23–24.

12   Sofsky (1996).

13   Cf. Baberowski (2015). Although Baberowski is one of the leading representatives of a "spatial history," many others preceded him (especially in the context of violence), such as Bulst – Gilcher-Holtey – Haupt (2008), who, within the framework of New Political History, used case studies to examine violence in political space as it was perpetrated by both rulers and the ruled.

14   E.g., Scarry (1992).

developed a basal model to adequately describe violence:[15] Perpetrators and victims not only display ways of acting but also have a specific form of experience of violence, which they (re)construct ex-post, present in various media, and thus pass on to third parties. If we understand this media mediation of violence in cultural-historical terms to be part of a communication process – Peter Waldmann examines all parties involved in the communication process (i.e., perpetrators, victims, and others)[16] – the victims and uninvolved third parties also come under the focus of the investigation as addressees of the symbolic message of the act of violence. The emerging field of victimology has placed the victim at the very center of violence, especially in the last ten years.[17] However, perpetrators and victims do not perpetrate and suffer violence only as individuals, but also often in groups. The importance of groups in the narrower sense of non-state actors who act violently is emphasized, for example, by Schlichte based on examples from Africa and Latin America.[18] However, fluid "groups of violence" are by no means only a phenomenon of modernity; indeed, they are well documented, especially for pre-modern societies, such as in piracy, gangs on land, and mixed gentile groups of the so-called Migration Period (who performed violent acts together).

The extremely complex relationship between power and violence has been the subject of numerous sociological and philosophical studies and cannot be adequately recapitulated here. While to Hannah Arendt, violence primarily comes into play when power is gained,[19] it instead appears to Niklas Luhmann to be a sanctioning power[20] – that is, a means of maintaining power. Reemtsma views violence as a constant, silent companion to power, whereby the sanction potential of violence consists not only in damaging but also in taking away gratuities.[21] Finally, Popitz always interprets the exercise of violence as an act of power, be it in the narrow sense of violence as intentional physical injury (power of action) or in the sense of the threat of violence with the aim of permanent submission (as a binding power of action).[22] Popitz and Sofsky impressively point out again and again that violence is not an exceptional phenomenon in any society and that, as true as it is that social orders contain violence, this violence is also inherent in every order and culture and can even guarantee their continued existence.[23]

Beyond the gaining and maintenance of power, the manifold goals and sources of motivation that are pursued by exercising violence should also be considered in the investigation of the phenomena of violence, including – speaking from a traditionally historical perspective – their triggers and deeper causes.[24]

Finally, the question of definitions poses special challenges for researchers on violence. Michel Wieviorka goes so far as to distinguish an objective from a subjective definition of violence: While an objectifying point of view adopts a universalist perspective (empirical manifestations), the subjectifying point of view is relativistic in the sense that the individual or collective subjectivity of the perpetrator, victim, and observer is considered, whereby this subjectivity strongly depends on space and time.[25]

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15 Lindenberger – Lüdtke (1995).

16 Waldmann (2012).

17 Hassemer – Reemtsma (2002), speak throughout their contribution not only of a reversal, but even of a paradigm shift, which has taken place in the research on violence.

18 Schlichte (2009).

19 Arendt (1993).

20 Luhmann (1988).

21 Cf. Reemtsma (2002), 25–30, with a good visualization of his model on p. 29.

22 Cf. Popitz (1986), 73. Canetti (1960), 313–315, delimits violence and power from each other by describing the latter as spatially broader and temporally longer lasting than the former.

23 According to Popitz (1986), 83, 89; Sofsky (1996), 10, 209–226, esp. 217 and 224: "Violence is the fate of the species. What is changing are its forms, its places and times, its technical efficiency, its institutional framework, and its legitimatory meaning."

24 Cf. Waldmann (2012), 58–61.

25 Cf. Wieviorka (2006), 11.

Consequently, the victim emerges clearly in this form of approach.[26] Wieviorka finally formulates his take on violence as a new paradigm that can also claim validity for an ancient historical information system:

> Violence changes from one period to another in terms of its concrete forms – which define a "repertoire" for each historical epoch – as well as its representations. This still elementary thought is most fully expressed when it is possible to associate both violence as defined in a particular epoch and the general characteristics of the context in which this violence occurs […]. In this perspective, conceptualization must deal with the tangible manifestations of violence, its actors, its interventions, the discourses in public opinion and the media that concern it, the political responses to it, and the law that relates to it […].[27]

Hoebel and Knöbl have recently begun to formulate their ideas similarly:

> This context includes – inter alia – the specific location at which the statements in question were made and the actions taken, their specific time of occurrence, the external conditions, a limited set of speaking or acting individuals, and a specific target audience for the statements and actions.[28]

If these postulates are taken together, as some voices of sociological research on violence do, the following specifications for a digital modeling of violent phenomena emerge, independent of an epochal classification: To enable the thickest possible description of violent occurrences, they must be conceptually coded – that is, references in the sources must be abstracted and described with metadata (i.e., annotated). Perpetrators, victims, and more or less involved third parties must be considered as individuals and groups, and space (by means of adequate maps) and time must also be taken into account. The forms of the use of violence and the motives on which it is based are just as important as its media representation in various (source) genres. For a deeper understanding of violence, the entire political, social, religious, economic, and cultural context must be taken into account, as must the reactions of those involved as well as the direct and indirect consequences of the act of violence.

With this abundance of parameters, which must potentially be considered for thousands of references to violence in ancient sources, a narrow definition of violence is clearly most appropriate for Eris and to keep the digital system functioning. Violence is thus defined as a process by which people physically wound, kill, or otherwise physically impair or harm others or themselves.[29] Metaphors of violence are not considered. Verbal and structural violence are also excluded as these phenomena would lead too far astray from the scope of this investigation. The duality of objective and subjective definitions of violence, as postulated by Wieviorka, cannot be modeled in a virtual research environment that deals with ancient narratives of violence. The sources report from very different perspectives, as evidenced, for example, by Caesar's perpetrator report in his *De bello Gallico* and the visionary report of a victim of violence – the Christian woman Perpetua – who died of martyrdom in Carthage at the beginning of the 2nd century AD. All users of Eris must therefore continue to decide for themselves on the perspective from which an act of violence is reported by using traditional source criticism.

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26 Cf. ibid. 79–108.

27 Ibid. 13.

28 Hoebel – Knöbl (2019), 173.

29 In alignment with the definitions by Fuchs-Heinritz – Lautmann – Rammstedt – Wienold (1994), 247 and Hillmann (1972), 264.

Chapter II: Basic Assumptions and Desiderata of Ancient Violence Research

At this point, it is impossible to sketch even the basic outlines of the diversity of ancient historical studies of violence. One example can be found in an anthology from 2017 that successfully probes the economic reasons for acts of violence in antiquity;[30] another example exists in the excellent research overview by Lennart Gilhaus in H-Soz-Kult. This overview is available under the title "Physische Gewalt in der griechisch-römischen Antike – ein Forschungsbericht" ("Physical Violence in Graeco–Roman Antiquity – A Research Report"). In this work, Gilhaus divides his presentation into the sections of "Violence: Definitions, Representations, and Narrations," "Violence in War," "Social Order, Political Violence, and Crime," "Religion and Violence," "Violence in Everyday Life," and "Ancient Violence in a Universal Historical Perspective." Gilhaus formulates a series of research desiderata: Everyday acts of violence remain under-researched, but this fact can also be attributed to the difficult source situation. One summary excerpt each on the first and last page of the report can be taken up as a cornerstone for future research on violence in ancient history:

> Thus far, however, only a few attempts have been made to systematically investigate the connections between depictions, discourses, and practices of violence.

and:

> The use of violence was therefore partly demanded, accepted, tolerated, rejected, or demonized according to the circumstances and status of the perpetrator and victim. The limits of the legitimate use of force were continuously negotiated. The task of future research is thus to more closely investigate these topics.

These two excerpts concisely describe the challenges that ancient historians will have to face in the future. This task is challenging indeed:

Depictions of violence refer to the narratives of descriptions of violence, their entire semantics, the philological depth of their structure, their motifs, their topics, and their rhetorical patterns as well as to the iconography of acts of violence. The elaboration of discourses on violence requires a comparison between the modes of representation of different genres of Greek and Roman literature as well as other source genres. The most difficult part, however, is exploring the practices of violence – that is, the concrete acts of violence that appear historically plausible and physiologically possible. In recent years, Martin Zimmermann and Dirk Rohmann have been able to show how problematic, for example, the "truth content" of descriptions of extreme violence is.[31] More than ever, the relevant passages of ancient literature demonstrate that the representation of violence is also a cultural product that must be analyzed in each given specific context. This analysis requires the consideration of the time circumstances not only of the act of violence itself but also those of the author concerned, whose work is also influenced by his or her presuppositions and intentions.

The research program set out in the final sentence of the overview is no less ambitious: Negotiating the limits of the legitimate use of force is the crucial point that often decides whether an action is included in a source at all, for violence against subordinates in antiquity was widely regarded as so normal and self-evident that it did not need to be mentioned. Only when exaggerated cruelty was practiced or social conventions or taboos were violated did the act appear unusual and therefore worthy of being reporting on. The way in which two different Mediterranean cultures negotiated the legitimacy of the use of violence around 2000 years ago determines to a high degree their alterity or proximity to our Western culture. It is possible to situate violence more precisely on an imaginary scale of foreignness

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30   Gilhaus – Stracke – Weigel (2017).

31   Zimmermann (2009); Rohmann (2006).

and familiarity and thus to more precisely determine the extent to which ancient worlds of thought still form blueprints for our thoughts and actions today, especially in interaction with other factors that we know well, such as the political, social, economic, and religious systems of the Greeks and Romans. More than in the case of the more general sociological desiderata, in these concrete ancient historical goals of knowledge, the limits as well as the opportunities of a digital information system become apparent: In principle, Eris can only basally depict the pluralization of research approaches and knowledge-guiding questions because it is impossible to predict new trends. Including as many methodological directions as possible would not be wise because this process would shorten the half-life of Eris. Rather, it is more scientifically sound to meaningfully exploit as many "violent data" as possible via annotated terms that are so abstract in the sense meant by von Trotha – and thus meaningful – that even questions that we do not yet know today will be workable in the future.

The research endeavors outlined above are considerably facilitated by Eris in their implementation since a much larger volume of data can be accessed than with individual reading. The depiction of violence is easier to grasp if a wealth of descriptions on a certain topic (e.g., the motif of the battle description in Latin historiography) that interpreters can use as a basis to make their philological and historical observations can appear with a mouse click. Discourses on violence are easier to elicit if the same motif of violence can be understood in different literary genres. Violent practices are the most difficult to elicit. The assessment of the expressive and historical value of each source passage still requires traditional historical source criticism and thus the interpretive hand of the scholar. While the circumstances of an act of violence as well as the social status of the perpetrator and victim can be easily inserted as metadata, negotiating the limits of the legitimate use of force can hardly be modeled. Indirectly, however, even such negotiation processes can be traced via reactions to an act of violence and its longer-term consequences, which can be depicted very well digitally. The evaluation of the information that Eris can provide thus remains dependent on the methods of traditional hermeneutics and the historical-critical method. Making material available does not relieve the user of his or her own critical thinking, but it does allow him or her to think about the topic in a new and different way and – above all – based on a much larger dataset.

Chapter III: Fields of Digital Humanities in Eris as Responses to Sociological and Ancient Historical Desiderata

By calling upon various fields of the Digital Humanities, Eris meets the scholarly needs of sociological and ancient historical violent research. The specific type of temporal, spatial, and content-related relational metadata on selected literary sources in the form of manual, verbal annotations forms an ontology with a very specific type of information retrieval.[32] By integrating data via linkages to personal databases, geodata from the Barrington Atlas of the Greek and Roman World (spatial digitality), and online full-text databases (Perseus,[33] texts with CTS URNs[34]), Eris is a system of Linked Open Data. As such, Eris can also be described as a semantic web technology that furthermore includes network research, which is conducted graphically via Gephi. Eris thus also includes visualization techniques. However, before these fields of digital humanities are explained in greater detail in the context of Eris, it is necessary to briefly introduce the information system.

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32   For more details on information technology and information retrieval, especially in connection with forms of artificial intelligence, cf. Jarosch (2007); Henrich (2009).

33   http://www.perseus.tufts.edu.

34   http://cts-altegeschichte-leipzig.de.

Eris is based on the free content management software MyCoRe,[35] which is implemented in Java and XML and maintains the goal of flexible data modelling.[36] The possibility of linking data multirelationally is of central importance to Eris, which is technically able to make its own data available via the OAI-MPH and REST interfaces. The system is currently protected by a password (http://www.ancientviolence. uni-hamburg.de); in the future, it will be made available to the public with a CC BY-NC-SA 3.0 DE license via open access. Eris was successively enriched with first metadata in a programming and data input process lasting several years and is now in the status of a prototype application. With nine works (vitae) by the ancient author Plutarch (Alexander, Alcibiades, Arat, Demetrios, Demosthenes, Pericles, Pyrrhos, Solon, and Timoleon) and selected sources for Alcibiades in Thucydides and Xenophon, Eris is already equipped with a considerable volume of datasets (approx. 1,200 individual datasets), which enables an evaluation and discussion of a plethora of topics from the field of Greek and Roman violence. The quality assurance of the entered data is carried out by a two-stage workflow: In the first stage, the metadata are entered by a qualified assistant but are not yet finally included in Eris. Only in the second stage – after validation by an expert – are the data finally transferred to Eris.

Eris aims to create a thematically annotated and virtual corpus of ancient historiography and biography in which the source passages that describe or mention violence are annotated in a multi-perspective manner and are thus meaningfully opened up. The annotation (semantic enrichment) is carried out according to the parameters suggested by sociology and ancient historical research on violence (see Chapters I and II above).[37] Since the metadata are sociological criteria, they are semantic and subject-specific annotations. These metadata are linked multirelationally via hierarchically structured objects and categories (filters, drop-down menus). Because these objects and categories are visible, both the annotation and the search process are transparent and intersubjectively traceable at any time.[38] What is clear is that annotation work represents a hermeneutic analysis process that is rich in prerequisites, which represents both the "result of a content analysis" and an "intermediate step or intermediate result in the scientific process [...] and a prerequisite for evaluations […]."[39]

The challenge in programming was to abstract complex social realities such that they could be represented by information technology in the form of an ontology that can only take shape through the annotation work mentioned above. Like any representation of knowledge, Eris also relies on modelling: From an information-technical perspective, our objects are "classes," and the categories are "attributes" or characteristics of these classes. It should be noted, "that an ontology describes a reality of how the modeler(s) – influenced by subjective worldviews – view this reality and that ontologies (like any model) reduce a complex, even contradictory world to selected properties."[40] While Application Ontology can be called Heavyweight Ontology in our case due to the many formalizations that are given,[41] Eris can also be viewed as part of the Semantic Web, which is based on the Open World Assumption, an approach "that is tracked in the Semantic Web [and that] is intended to create the possibility of closing knowledge gaps by linking with other methods of documenting knowledge [personal databases, geodata, text databases]."[42]

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35   www.mycore.de.

36   Cf. Kupferschmidt (2016), 30–31.

37   This is a highly cognitive process that the inputters perform in the form of sorting, assigning, and categorizing.

38   The importance of intersubjective traceability is emphasized by Jannidis – Kohle – Rehbein (2017), 256.

39   Ibid. 254.

40   Ibid. 174.

41   For more information on terminology, cf. ibd. 166.

42   Ibid. 168. Addition in brackets by author.

A simplified data model (see figure 1) illustrates the structure of Eris,[43] which includes seven independent objects (black boxes), namely acts of violence, conflict, person, group, topography, author, and work. These objects are described via a multitude of attributes – so-called categories (blue boxes) – that are technically realized in the form of drop-down menus. The entire information retrieval is thus carried out via the linked metadata, whose specific arrangement allows for knowledge to be generated from data.[44] All search options are available on the "Extended Search" interface on one page. In the search result, all annotations are presented on one page. The dataset can be exported as a PDF file and thus printed. Search lists can also be created in this manner.
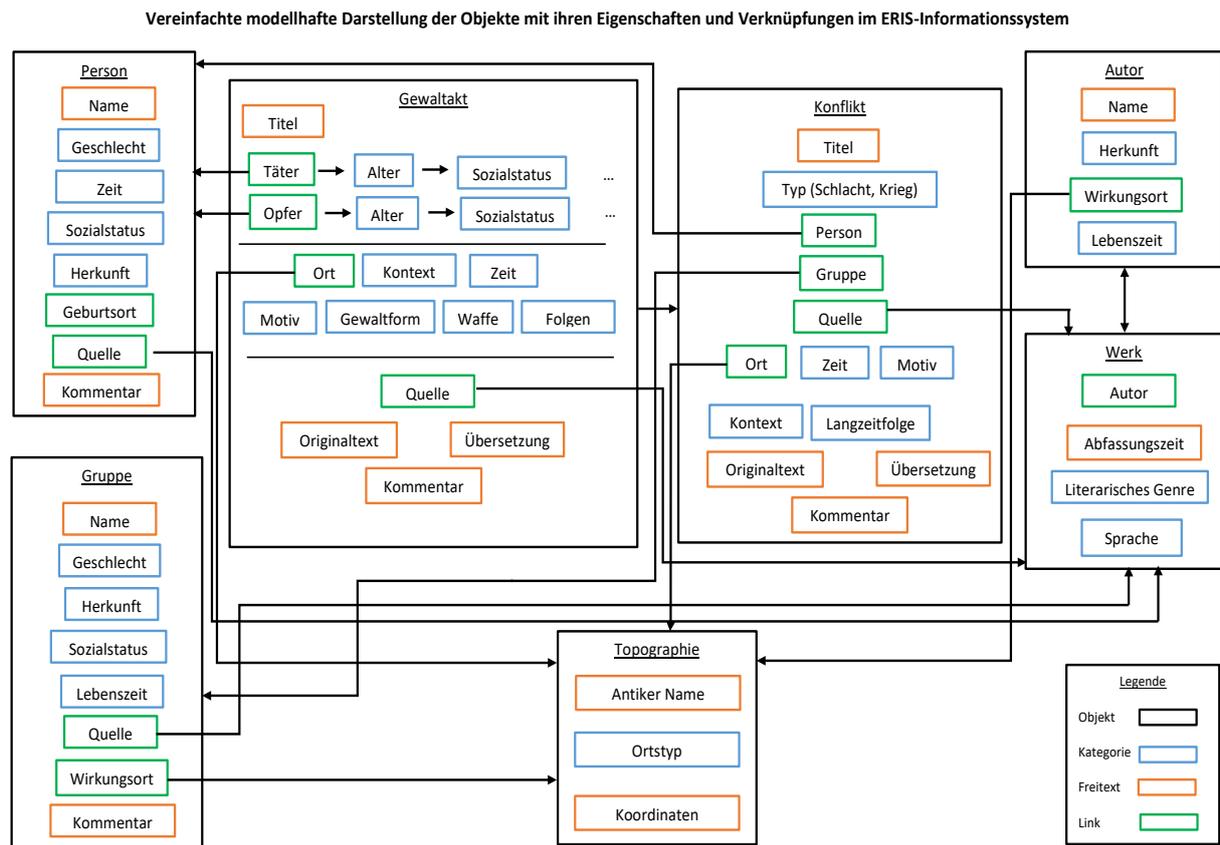
Vereinfachte modellhafte Darstellung der Objekte mit ihren Eigenschaften und Verknüpfungen im ERIS-Informationssystem

Fig. 1: Simplified data tree (model), representing objects with some of their characteristics (categories) within the Eris information system.

As an example, the central object of "violent act" is explained in more detail here. The act of violence is characterized by the categories of, for example, context, location, time (epoch, century, year), motif, the form of violence,[45] weapon,[46] and long-term sequence. Context and motif are strongly abstracted. For example, an execution in the category of "context" falls under "jurisdictional."[47] Goals of violence – to which Waldmann attaches great importance (see above)[48] – fall under "motives," as does the exercise

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43   A short description of Eris can be found in Riess – Zerjadtke (2015) (with screenshots).

44   Jannidids – Kohle – Rehbein (2017), 278: "The digital humanities are concerned with the processing of data into knowledge. The increasing volume of data thus presents an opportunity for all fields [within the humanities] if it can be effectively tapped. Information retrieval is therefore of great importance in this context [...]. This makes it all the more important to formulate the requirements for such systems from a scientific point of view and to develop them together with computer science."

45   Torture is one of Eris's forms of violence ("applications"). For more information on torture, cf. Sofsky (1996), 83–100.

46   For more information on the functions and characteristics of weapons, cf. ibid. 27–44.

47   The massacre, which Sofsky (1996), 173–190, deals with in detail, is modeled as "sack" or "plunder" under "contexts."

48   Cf. Waldmann (2012), 58–61.

of violence for the pursuit of power or the maintenance of power, which is subsumed under the generic term of "political." Strong passions also belong to the motifs in the category of "emotional."[49]
The following fields of Digital Humanities (henceforth DH) are called upon by Eris:

Personal databases: Perpetrators and victims (as well as more or less involved third parties[50]) figure centrally in the object of "act of violence." Each person is linked to the person or group object, which in turn is characterized by further characteristics. Known ancient people are linked to the New Pauly Online. In a future stage, links will also be established to SNAP (Standards for Networking in Ancient Person Data).[51] The file of each person recorded in the act of violence can be supplemented with information on their social status, their origin,[52] their age, their activity, as well as their reactions[53] and the direct consequences they had to face from the act of violence.

Geodata: Violence is situated not only in time but above all in space, and Eris thus has a natural interest in spatial humanities. The place in which the violence was perpetrated is linked to the topology object and thus to the electronic version of the Barrington Atlas of the Greek and Roman World provided that it can be assigned to a toponym (the geodata of approx. 450 places and cities are already contained in Eris). This means that Eris obtains the map data from the Ancient World Mapping Center[54] of the University of North Carolina at Chapel Hill (Digital Barrington Data) via the AWMC API (Application Programming Interface). What Bubenhofer does for modern linguistic corpora with GeoCollocations – "exemplary attributions to georeferenced locations [are] calculated and graphically prepared for visual analysis"[55] – is already realized in Eris: The interactive map (it can also be converted to a Modern Street Map or Modern Satellite) enables the search for acts of violence in any geographical region. If a region is marked with the cursor, all acts of violence that took place there will be listed by Eris. By setting the appropriate thematic filters, this technology allows the diachronic and thematic writing of the history of violence of certain regions.

Links to full-text databases: The category of "source," which characterizes the objects of "person," "group," "act of violence," and "conflict" in greater detail, is linked to the object of "work" and offers the Greek or Latin original text, if possible with an English translation. Eris now links to two full-text databases: the Perseus project, which provides a large number of Latin and Greek sources in the original language with a free English translation (http://www.perseus.tufts.edu/hopper/collection?collection=Perseus:collection:Greco-Roman), and a password-protected connection to the server of the University of Leipzig, which contains the CTS-referenced texts of the BTL (Bibliotheca Teubneriana Latina) Online and the TLG (Thesaurus Linguae Graecae). These texts are stable with the protocol Canonical Text Service (CTS: http://cite-architecture.org/cts/ [password required]) and can be permanently referenced down to the individual word level. By connecting Eris to the Leipzig server, electronic text editions can now also be accessed via Eris in their original Greek and Latin languages. By providing digital access to the big data of ancient texts, Eris is now latched on to the diverse methods of text mining. What distinguishes Eris, however, are the historical questions that this system can answer by offering *thematic and content-based access*, which these texts have thus far lacked and urgently need.

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49   For more information on the connection between violence and passion, cf. Sofsky (1996), 45–63.

50   Completely following the postulates of victimology and Sofsky's consideration of the "spectator" in his study (1996), 101–118.

51   Cf. the introduction to this project by Bodard – Cayless – Depauw – Isaksen – Laurence – Rahtz (2017).

52   The category of "origin" will soon be expanded with the inclusion of over 600 ethnic groups.

53   Escape – also during chivy hunts – is integrated under the "reactions" of those involved. For more information on hunting and escape, cf. Sofsky (1996), 160–171.

54   http://awmc.unc.edu/wordpress/.

55   Bubenhofer (2014), 46.

<u>Information Visualization/Visual Analytics</u> via network analysis: The visualization of data obtained from information retrieval and thus the visual representation of patterns that could not be generated in an analogous manner are among the core capabilities of DH. It is crucial that the visual processing of the data not only be of an illustrative character but also have an analytical purpose (visual analytics).[56] As is demonstrated in the use case below, the network visualization provided by Eris via the Gephi program is strictly explorative rather than confirmatory: "In contrast [to confirmatory analysis], explorative analysis is not hypothesis-driven. Its starting point is the data and the search for inherent latent structures, patterns, trends, singularities, or other conspicuous features. Information visualization also serves as an interactive tool that generates views on the data, which should then lead to the formulation of research hypotheses on the basis of the observations made on the data."[57]

The cognitive and epistemic wealth of prerequisites for graphs (and for other visual modes of representation) has been increasingly addressed in recent years in the DH. In contrast to the traditional philological *close reading* of sources, which is often accompanied by an analysis of style, Franco Moretti's quantitative approach of purely electronic access to the big data of Western national literatures has coined the concept of *distant reading,*[58] which has been criticized from the outset. As early as in 2009, Kaden argued for supplementing traditional hermeneutics with the possibilities of DH,[59] an opinion to which many Digital Humanists have now adhered.

Corpus linguistics initially practiced methods of distant reading and often advanced to successful discourse analyses via quantification. Determining the discourse frequencies alone, however, is not enough to conduct qualitatively founded historical-sociological research on violence. Thick descriptions in the sense of those by C. Geertz remain the means of choice for the historical analysis of past phenomena of violence, as demonstrated above. Procedures of traditional *close reading* must therefore also be brought together theoretically and practically with the digital possibilities of *distant reading* in this concrete case of application.[60] The use of Eris actually combines both approaches: In their annotation work, the staff members conduct an intensive close reading of ancient descriptions of violence. The Eris user – who can make very different requests to the system and search the vast database of ancient texts within seconds – then carries out a *distant reading*. As soon as the user has a hit list and has more closely examined it, he or she applies *blended reading*, the combination of *distant* and *close reading* that defines a hermeneutic cognitive process.

Recent research by Lev Manovich[61] and Sybille Krämer[62] has rendered the dichotomy between *close reading* and *distant reading* nearly obsolete. In their efforts to theorize the DH, these scientists also subjected the visualization strategies to stringent methodological reflections. Schaal and Lancaster have also formulated a high level of methodological reflection.[63] As Roxana Kath emphasizes,[64] graphs are extremely rich in prerequisites. This finding is reiterated in introductions and overview presentations on the DH, as is the case in Jannidis – Kohle – Rehbein: "Visual graphs should provide an overview of the

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56　Cf. Jannidids – Kohle – Rehbein (2017), 328. The authors define (330) the term as follows: "Visual analytics can be regarded as a functional extension of pure information visualization. It can be an interdisciplinary science that supports logical–analytical thinking through interactive, visual interfaces with data and information [...]. Visual analytics thus embeds information visualization into the research process."

57　Ibid. 332. Addition in brackets by author.

58　Moretti (2005/7).

59　Cf. Kaden (2009).

60　Jänicke – Franzini – Cheema – Scheuermann (2015) define the terms close reading and distant reading yet again and list digital techniques for distant reading (structures, heat maps, tag clouds, maps, timelines, graphs). They are also in favor of a combination of both methods.

61　Manovich (2001), (2010), (2013), sheds light on the "language of the new media" – i.e., its diverse forms of expression – in a culture-critical manner.

62　Cf. Krämer (2009), (2014), (2015), (2018); Krämer – Ljungberg (2017).

63　Cf. Schaal – Lancaster (2016), 15–16.

64　Cf. Kath (2014).

properties of the network as a whole as well as of the location of individual nodes or their relationship to each other or to groups of nodes [...]. A multitude of such visualization algorithms have been developed for different purposes [...]. Their selection has a decisive influence on the appearance of the visualization and its expressiveness."[65] Now that all the steps of the work – from the creation of an ontology and the annotation work to the setting of the search parameters and finally, the interpretation of the obtained results and the selected type of visualization – have proven to take an eminently hermeneutic approach, the individual steps of the research process must be explained:

> […] [I]t must also be possible to critically question the methodology – that is, the question of *how* a visualization came about, which is why all steps leading to a visualization must be made transparent. In particular, it should be clear that information visualizations do not provide us with a direct image of the reality of the systems we are investigating. Instead, several filters [...] lie between us and our object of investigation. For use in research, it is fundamental that all filters be made transparent and thus intersubjectively verifiable and that we be aware of what they mean for the critical interpretation of visualization.[66]

Within Visual Analytics, the highly reflexive approach of New Visual Hermeneutics has been developed in recent years and seeks to theoretically substantiate the visualization potential of the DH.[67] The founders of this programmatic approach – Kath, Schaal, and Dumm – distinguish four analytical steps in the course of processing knowledge from the recording of the material to the interpretation of a graphic. The detailed description of the implementation of these distinct hermeneutic cognitive steps in the concrete case of Eris can be found elsewhere;[68] here, a brief recap may suffice to demonstrate the wealth of prerequisites of the three graphs based on the network visualization software Gephi, which forms the basis of the comparison between the three works below.

Kath, Schaal, and Dumm describe the first analysis step as Acquisition/Repository/Semantic Enrichment.[69] For Eris, this step corresponds to the presupposition-rich annotation work performed by scholarly staff. Following the postulates of DH, the knowledge-guiding parameters in Eris are made clear by the fact that they are already represented intersubjectively for each user in the search mask. In monographs and essays, by contrast, the multiple premises of content and methodology are often assumed tacitly. The second step is text mining and information retrieval.[70] For Eris, this step is a "search." The seven objects and many filters provide Eris users with a multitude of search options. The user has to make conscious preliminary decisions in a selection process. The third analysis step consists of visualizing the data.[71] Since there is still no direct link between Eris and Gephi, this connection must be created manually (in Eris, there are also currently no heat maps, tag clouds, or timelines).[72] In the context of this paper, the three parameters of the violent act, location, and context were selected for the visual representation (see below). The final step in the analysis is a hermeneutic analysis of the visualization itself [73] – that is, the interpretation of the findings by a human being, which will always remain necessary because "[c]orrelations or coincidences, which may be discernible in the data, do not indicate causality, and a

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65   Jannidids – Kohle – Rehbein (2017), 338.

66   Ibid. 341.

67   Cf. Kath – Schaal – Dumm (2015), esp. 30, esp. fn. 9, which builds on the studies by Don Ihde (1998) and presents an analogy to the American New Criticism, whose main characteristic is *close reading.*

68   Cf. Riess (2020).

69   Cf. Kath – Schaal – Dumm (2015), 35–38.

70   Cf. ibid. 38–40.

71   Cf. ibid. 40–43.

72   Pending appropriate financial support for the project, such visualization tools must of course be installed.

73   Cf. Kath – Schaal – Dumm (2015), 43–47.

recurrence does not indicate a rule. Explanations can only be concluded by interpreting the visualizations, often with reference to other data, sources, or methods by the researcher."[74]

With the DH fields that Eris currently calls for (as outlined here), the future potential of the system has not yet been exhausted. Although the data provided by ancient literature cannot claim to be representative due to the highly incomplete state of their transmission, it is legitimate to work with the data we have at our disposal, to quantify them, and to use them for statistical purposes. Quantitative analysis, in particular, can lead to qualitative questions and their answers,[75] which is exactly where information visualization comes into play. Information visualization can be defined as "the use of computer supported, interactive, visual representations of abstract data to amplify cognition."[76] Visualizations should no longer only involve the differences in the size of nodes at Gephi and should also be possible, for example, via column- and cake diagrams. Visually representing space-time correlations using Barrington maps and timelines – for example, for representing acts of violence during the so-called Migration Period of Late Antiquity – would be even more advanced. This process would allow Eris to enter the field of computer-aided simulation.[77] A further vision for the future involves linking Eris to archaeological information systems,[78] including the presentation modes of virtual reality, to fully exploit the possibilities of the Semantic Web. In a virtual research environment, acts of violence could be precisely localized, for example, in the Forum Romanum, and acts of violence could be understood in their spatial development in a diachronic longitudinal section (frequencies, clusters).

At the end of this chapter, a fundamental objection on the part of the skeptics of annotation systems must be countered. Although it is true that the detailed qualitative analysis (annotation) of literary big data – which must first precede a *distant reading* of the content – requires a great deal of effort, this objection is not justified for historically oriented, content-based digital research. Since the days of historicism in the 19th century, corpora have been and continue to be compiled with a high expenditure of resources, mostly in academy projects. These corpora maintain a wide variety of source genres, which contain far fewer metadata than Eris and do not connect them as multi-relationally as a digital information system can. However, people have become accustomed to this effort, and it is now accepted as "basic research." As necessary and justified as these large-scale research endeavors are, it is nevertheless time to understand corpus work differently in the 21st century – or, more cautiously, to expand it via digitalized methods of knowledge-generation and knowledge-promotion. Digitization in the 21st century not only means remaining at the surface of discourse analysis and carrying out quantitative investigations (which are then criticized by the "traditionalists," often with good reason);[79] rather, the historical sciences, in particular, work on specific topics and need content that can be linked multi-relationally. French economist and social scientist Thomas Piketty, who has published a monumental work based on the big data provided by the World Inequality Database (http://WID.world) on the unequal distribution of wealth across all epochs and regions of the world, presents the new possibilities in an exemplary fashion.[80] The task now is to enrich the big data of our texts and source holdings (which often already exist electronically) with content in the form of metadata and thus to make them not only accessible but also ready for content-based analyses. This is the inevitable corpus work of the future.

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74   Jannidis – Kohle – Rehbein (2017), 342.

75   Cf. ibid. 279 on the method of quantitative analysis.

76   Card – MacKinlay – Shneiderman (1999), 7.

77   Cf. Jannidis – Kohle – Rehbein (2017), 323, 329.

78   Cf. ibid. 300.

79   In her rebuke of the methods used by the DH, which she seems to equate with purely quantitative analyses, Da (2019) ignores the possibility of a qualitative analysis through the use of annotations.

80   Piketty (2019); cf. Blume (2019) on this topic and also on Piketty's method. Cf. also the efforts of Harvard economist Raj Chetty, who intends to combat social inequality with the help of insights gained from big data; cf. von Cranach (2019).

Chapter IV: Use Case and Feasibility Study (*Proof of Concept*)

The aim of the feasibility study to which we now turn our attention was to digitally discover and compare patterns in the exercise of violence committed by Alcibiades in Thucydides' *Peloponnesian War*, in Xenophon's *Hellenica*, as well as in Plutarch's *Life of Alcibiades*.[81] Data were not only collected but also visually represented in the form of Gephi graphs following the premises of the DH. The significant differences that emerged between the works are literally "eye-catching" and were interpreted contrastively. If the insights gained on this basis can be added seamlessly to our existing knowledge on the intentions of Thucydides, Xenophon, and Plutarch as authors as well as to other information about the historical *persona* of Alcibiades, the proof of concept will have been provided that Eris can digitally deliver and visually present data that lead to valid hypotheses in the hermeneutic process of *blended reading*. If this hypothesis is proven for this rather manageable amount of text, the heuristic added value of Eris will have been shown in its entirety, especially when the big data of the ancient texts exceed the reading performance of an individual.

The three works together result in a rather manageable database of 51 datasets, which is ideally suited for a proof of concept. Another preliminary decision concerned the *tertia comparationis*: Only the contexts and locations of the use of violence were to be searched for. The three search parameters of "act of violence," "context," and "topography" are readily representable in Gephi, and differences should be clearly visible as patterns.

In a first step, the data were extracted from Eris in a manually built filter, reduced, and converted into a csv-format (comma-separated value). These data in csv-format, which were obtained semi-automatically, represent the prototype for the visualization, which was carried out in a next step by the Gephi program.[82] The network analysis with Gephi showed the objects and categories of Eris in the form of nodes and connections. The nodes and connections were imported into Gephi and visualized there. The acts of violence (orange) were logically linked to the contexts (blue) and locations (purple) due to the programming of Eris. As can be seen from the data model (see Plate 1), "context" is a category of the act of violence itself, which in turn is linked to the object of "topography."

In the Eris system, the locations, contexts, and specific types of acts of violence in the three works can be searched for in a matter of minutes. The size of the nodes indicates their importance.

What can we see in the graphic representation of the findings in Thucydides (see figure 2)? The finding first appeared surprising: We actually found only seven acts of violence, which Alcibiades either committed (5) or suffered (2) in Thucydides.[83] None of these acts concerned a naval battle. There is only one act of maritime violence (Thuc. 8.14.1).[84] This finding is, of course, due to historical contingency: Before the Sicilian expedition, the Peloponnesian war was mainly a land war. A few maritime actions were launched by Athens, and Phormio defeated a Peloponnesian fleet in the Gulf of Corinth in the year 429 B.C.[85] In the year 425 B.C., Demosthenes entered the Bay of Navarino with 40 triremes and occupied Pylos,[86] but Alcibiades did not take part in these actions. He began his military career as a simple hoplite at Poteidaia (432 B.C.)[87] and took part in the battle of Delion in 424 B.C. as a rider.[88] If

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81   Pelling's collection of essays (2002) is fundamental to Plutarch's techniques of character drawing and focusing.

82   Bastian – Heymann – Jacomy (2009) explain the functioning of Gephi in due brevity. Cf. Kuczera (2017) for other possibilities of visualizing graphs.

83   Alcibiades as the perpetrator (5.52.2; 5.55.4; 5.84.1; 6.52.2; 8.14.1); Alcibiades as a victim (8.26.3; 8.45.1).

84   For more information on the role of the sea during the Peloponnesian War, cf. Schulz (2005), 114–136, in general terms; for more information on Alcibiades, cf. ibid. 120–123, 138, 143.

85   Thuc. 2.84.

86   Thuc. 4.3–5.

87   Here, Alcibiades may have developed an understanding of the importance of the northern maritime route to the Black Sea region. Securing the Pontic granary for Athens was later always part of his strategic considerations; cf. Ziebarth (1929), 64.

88   Thuc. 4.89–101.

this picture is compared with Thucydides' narrative as a whole, it is immediately obvious that Alcibiades naturally played an important role, but not in relation to violent acts. In Thucydides' view, Alcibiades appeared more as an ambitious politician, a gifted speaker who could influence the People's Assembly,[89] and a diplomat and puppeteer behind many actions. In terms of violence, however, Alcibiades was one actor among many and apparently not the most important to the ancient historian. Clearly and unlike in Plutarch's biography, the focus of the presentation was not on the person of Alcibiades, but rather on warfare as a whole. Based on this notion, Herbert Heftner correctly concluded in his biography on Alcibiades that Alcibiades was anything but a daredevil and a gambler. He always made a careful cost-benefit analysis and calculated the precise risks he took in an armed confrontation with the enemy. If he became involved in combat action, he was usually well prepared and had a high chance of success and thus also of prestige.[90]
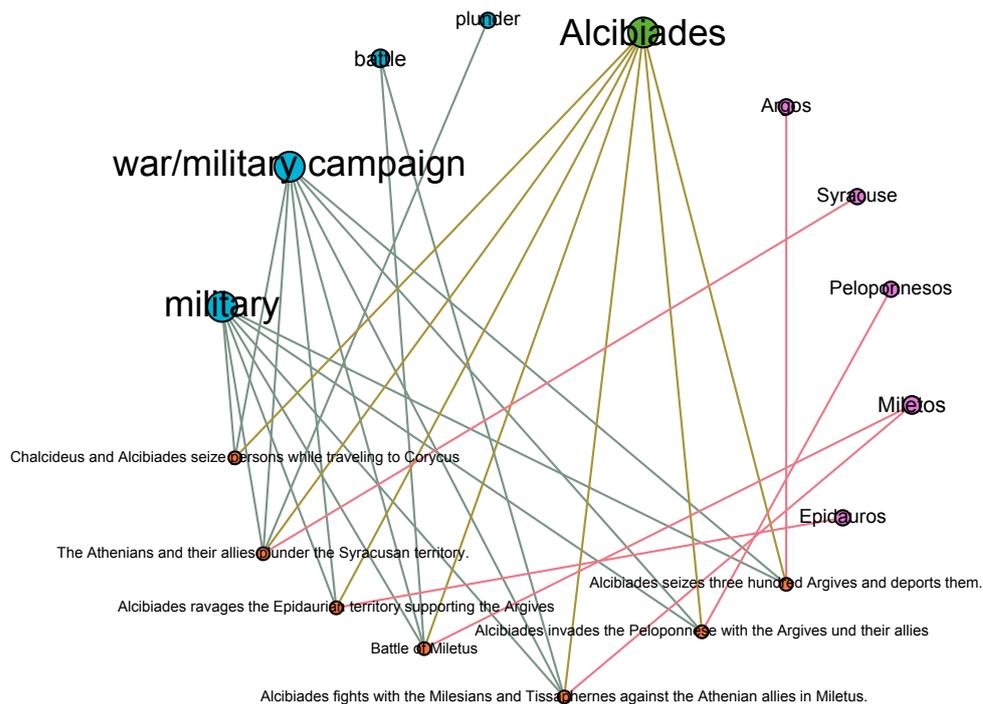

Fig. 2: Alcibiades' acts of violence as represented by Thucydides.

The locations mentioned by Thucydides are also revealing. Alcibiades fought mainly on the Peloponnese and in Argos in the years 419–416 B.C., in which he tried unsuccessfully to forge an anti-Spartan coalition in an alliance with Argos, Mantineia, and Elis.[91] His engagement in Sicily[92] – before his defection to the Spartans – was limited to looting on land (near Syracuse). Land battles were also fought in the East (Miletus). The report of Thucydides came to an end in 411 B.C., and the sea battles of Abydos and Kyzikos – in which Alcibiades successfully fought – were thus no longer mentioned. The relocation of the Peloponnesian War to the Aegean Sea after the Sicilian catastrophe was no longer a topic taken up by Thucydides.

Xenophon (see figure 3) picked up the thread at 411 B.C. and sought to continue the work of Thucydides. We can clearly see from the locations that the focus of the war had shifted to the East through the commitment of the Persians on the Spartan side. It is immediately obvious that Alcibiades committed many more acts of violence between 411 B.C. and his death in 404 B.C. than he had before, revealing the difference in representation between Thucydides and Xenophon. While there are only five acts of violence in Thucydides, there are 16 in Xenophon,[93] four of which were in naval battles.[94] There are altogether eight scenes in Xenophon, and sea battles take place in two of them, namely Abydos and Kyzikos, which represent one-quarter of the stages of the war in the East. Plundering on land, raids, and even sieges remained important in Xenophon's work but became supplemented by larger military actions at sea, which also had to do with the fact that Sparta had now understood the strategic value of a fleet and had also advanced to a naval power.
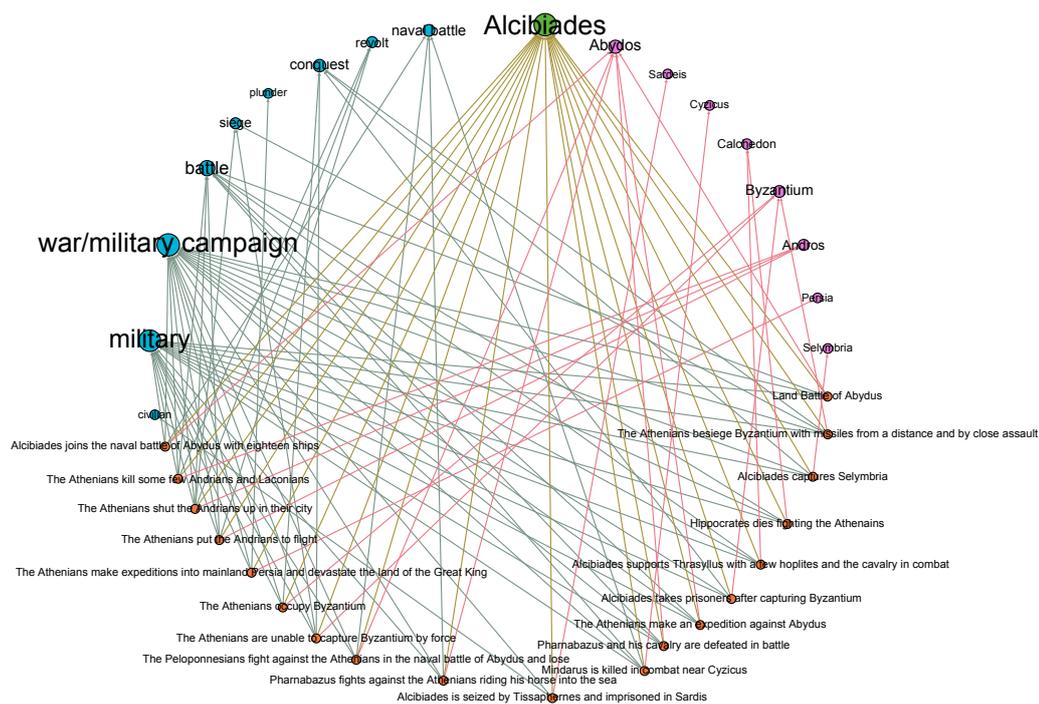

Fig. 3: Alcibiades' acts of violence as represented by Xenophon.

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91   Thuc. 5.52–84.

92   An impressive description of the Sicilian catastrophe from a maritime perspective can now be found in Hale (2009), 185–201.

93   Xen. hist. Gr. 1.1.5; 1.1.18; 1.2.16 (two acts of violence); 1.2.17 (two acts of violence); 1.3.6 (two acts of violence); 1.3.10; 1.3.14; 1.3.16; 1.3.21; 1.3.22; 1.4.22 (three acts of violence). In three passages, Alcibiades appears as a victim (1.1.6; 1.1.7; 1.1.9).

94   Xen. hist. Gr. 1.1.5; 1.1.18 (Alcibiades as the perpetrator), 1.1.6 and 1.1.7 (Alcibiades as a victim).

Athens did not play a role as the location of violent acts committed by Alcibiades for either historiographer, a point to which we return later.

In Plutarch (see figure 4), a much more complex pattern can be found than in Thucydides or Xenophon. Plutarch mentions 25 acts of violence committed by Alcibiades,[95] five of which concern maritime actions.[96] The locations involve a combination of those found in Thucydides and Xenophon and include not only large parts of Greece but also the Aegean islands as well as the coast of Asia Minor. The biographer Plutarch was able to look back at the beginning of the 2nd century A.D. and consider the entire life of Alcibiades – that is, before and after 411 B.C. This greater perspective led to an extension of the radius of violence in comparison with Plutarch's predecessors, who had worked historiographically. The contexts of violence in Plutarch are also more numerous. In addition to general acts of war, Plutarch depicted land battles and naval battles, looting and sieges, but – in its main difference to the two classical authors – a great deal of violence was also practiced in the civil (i.e., non-military) sphere (this context node is entirely missing in Thucydides). If we examine the topography nodes, it becomes evident that Athens represented a special hotspot for the use of violence by Alcibiades in the civilian sphere. In fact, with seven mentions in Plutarch, Athens was the largest hotspot for the use of violence by Alcibiades as a whole (in contrast, Athens is not mentioned once as a place of violence committed by Alcibiades in Thucydides or Xenophon).[97] In Plutarch, the civil area and Athens are related to each other in manifold ways. The quantities must be interpreted here: The fact that Athens appears larger than the island of Melos has to do with the fact that the destruction of Melos is mentioned only once in the Vita, while Athens is frequently mentioned as the scene of many, albeit more harmless acts of violence. Plutarch designed his biography around anecdotes that were designed to emphasize the characteristic qualities of the hero, such as when Alcibiades slapped his teacher because he did not have a copy of Homer on hand,[98] or when he bit his opponent in a wrestling match so as not to be tackled.[99] Alcibiades pulled his wife, Hipparete – who wanted to divorce him and was already on her way to the archon basileus' office – by her hair across the agora and back home.[100] This is a prime example for demonstrating that the IT-supported analysis of data naturally and always requires the interpretive hand of a human historian. However, the size of the nodes reveals that Plutarch was interested in showing not only the imperialist violence of Alcibiades abroad but also Alcibiades' arbitrary and willful actions at home. The anecdotal reports of Alcibiades' hybristic attacks on Athenian citizens and his wife contribute much to the liveliness of the text and its morality, which Plutarch wanted to convey to his readers. What remains shocking for us, of course, is that in purely quantitative terms, the relatively harmless episodes in Athens take up more space than does the destruction of the island state of Melos, where the Athenians – probably at the active instigation of Alcibiades – executed the entire male population and enslaved the women and children.

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95 Plut. Alc. 2.2.; 3.1.; 7.1; 7.2; 8.1; 8.4; 15.2; 16.4 (two acts of violence); 16.5.; 20.2; 24.1; 27.1; 27.2; 27.3; 27.4; 28.4; 28.5; 28.6; 29.2; 29.3; 30.1; 31.4; 35.1; 36.3.

96 Ibid. 27.2; 27.3; 27.4; 28.4; 28.5.

97 Acts of violence committed by Alcibiades in Athens: Plut. Alc. 2.2.; 7.1; 8.1; 8.4; 16.4 (two acts of violence); 27.1.
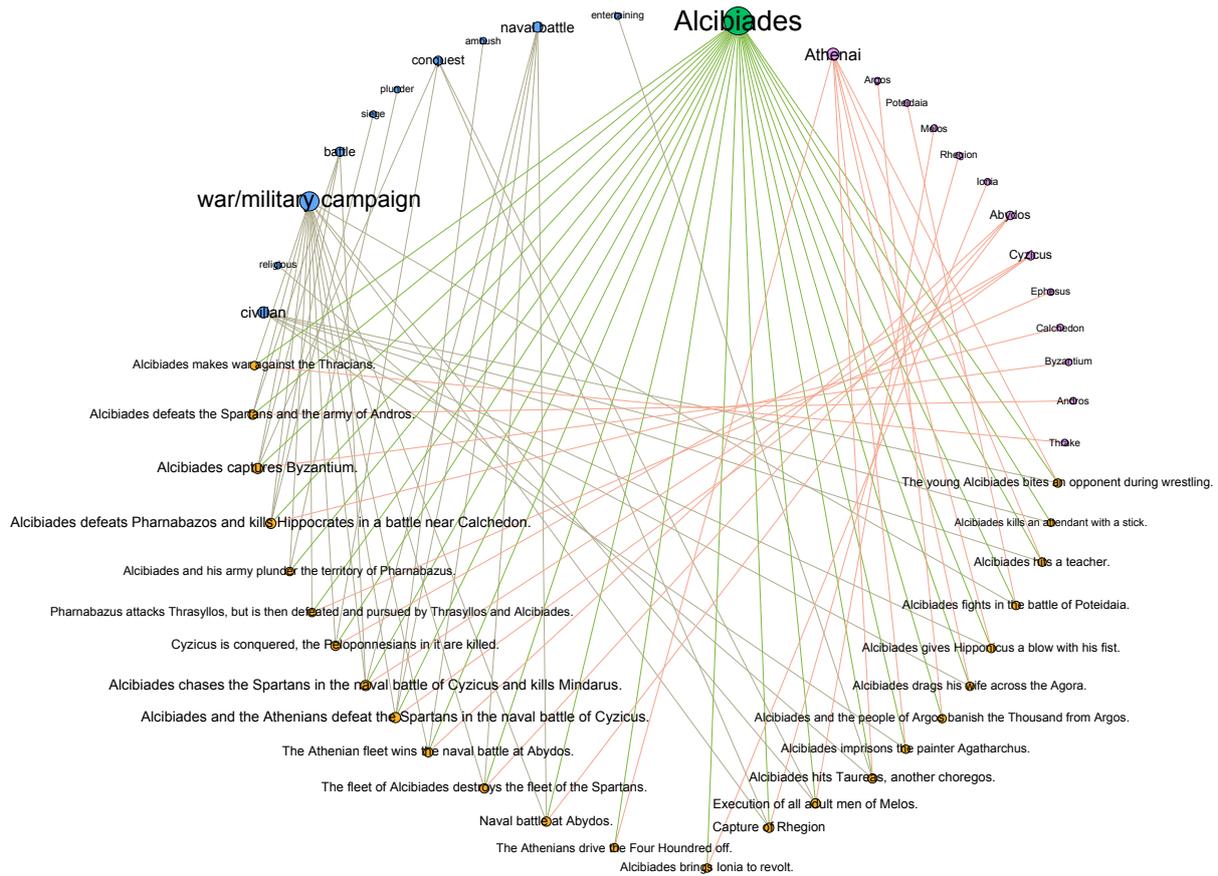
98 Ibid. 7.1.

99 Ibid. 2.2.

100 Ibid. 8.4.

Fig. 4: Alcibiades' acts of violence as represented by Plutarch.

The following hypotheses can be derived from the comparison of the three visualizations while also taking our knowledge of the authors and the respective historical circumstances into account:

1. Alcibiades perpetrated – purely quantitatively – about one-quarter of his acts of violence mentioned by Plutarch in Athens (7 out of 25 instances). Plutarch thereby characterizes Alcibiades as violent and even tyrannical because his acts of violence were usually perpetrated against Athenian citizens, which serves as an example of hubris. A tendency of Plutarch can also be seen: The violence outside Athens (battles) was fundamentally different from the violence inside the city, where it came to punches with fists and sticks. The number of violent anecdotes perpetrated inside of Athens is astonishing. For us, the extreme violence in foreign policy is more important than the actions in Athens because the acts of violence in the city pale in comparison with the military actions outside of Athens, such as the execution of all the men on Melos. Plutarch, however, left much room to these essentially harmless anecdotes. Alcibiades was thus deliberately characterized as a tyrant. Neither Thucydides nor Xenophon devoted a single word to violent acts of Alcibiades in Athens. For both authors, historiography was essentially about foreign policy, war, and battle history. The two historians were not interested in painting Alcibiades as a potential tyrant; indeed, he was not even the focus of their historiographical works.

2. According to Xenophon and Plutarch, Alcibiades lived out his wide-ranging geopolitical ambitions throughout the entire Eastern Aegean as well as in Asia Minor, Lower Italy, and even in Thrace. This narrative geographical expansion of the two authors is directly connected with the course of the Peloponnesian War and with the death of Thucydides around 411 B.C.

3. Since Plutarch examined the entire lifetime of Alcibiades, he is particularly valuable as a source: Only about half of Alcibiades' military actions are veritable battles in Plutarch's text, the other half being only skirmishes or military campaigns. In combination with the localities, this historical finding confirms Herbert Heftner's thesis that Alcibiades was not a gambler and daredevil, but rather that he precisely calculated the opportunities and risks of a direct military confrontation – that is, he did risk management. Alcibiades apparently only engaged in battles if they were either unavoidable or if he thought he had a good chance of winning.[101]

4. All three authors make it clear that Alcibiades hardly conquered any cities (conquests are not at all mentioned in Thucydides), indicating that he was less concerned with conquests than with his presence and with securing cities, territories, and trade routes on his behalf, which confirms Christoph Schäfer's theses.

How can the discrepancies between the works be explained? Alcibiades is clearly always one and the same historical figure. The discrepancies are thus essentially due to the respective source genres as well as to the specific presentation and narrative intentions of the authors and the chronological layout of their works. Indispensable questions of continuing importance and methods of traditional hermeneutics can and must be meaningfully supplemented by digital modelling so that distinct patterns of violence can be not only better recognized but also better explained in their specificity. Eris is thus able to meaningfully visualize significant differences in the focus of the authors. This visual insight into the respective focus of each author represents a considerable contribution to our understanding of genre poetry as well as to the methods of working and writing and the respective intentions of the authors. It seems evident that we remain at the outset of a development that promises to provide a new access to sources and to allow us an even better understanding of literary genres.

The findings presented here are not revolutionary in and of themselves, but they represent a small-scale example of how an IT-based data collection (i.e., a quantitative investigation) can be qualitatively interpreted. Eris becomes particularly interesting when the interpretation involves larger volumes of data, namely the big data of ancient sources, which we cannot manage merely with the naked eye.

Finally, we return to the sea: The sobering findings of Thucydides could lead to the postulation that he thought in terms of land strategy, that he conceived of the sea only as a space of perception and not as a space for action. However, Thucydides was an Athenian and was well aware of the importance of the sea for his native polis. The fact that he connected Alcibiades and the sea so rarely is due to two historical coincidences: On the one hand, Alcibiades had actually experienced hardly any maritime activity before 411 B.C., and on the other hand, Thucydides died in 411 B.C. before Alcibiades had fully taken up his maritime activities.

With Xenophon, the situation is somewhat different: Only four out of 16 acts of violence were maritime activities. Even in the active maritime phase, the land remained an important – if not the most important – area of action for Alcibiades (in Xenophon).

Plutarch knew of five maritime conflicts (out of 25 cases of violence in total). Here, the land lay even more strongly at the center of activities than with Xenophon. A certain discrepancy thereby exists between the historical Alcibiades and the authors who reported on him and who probably conceived of land and sea somewhat differently than did the Athenian politician and military leader. According to Schäfer, for the historical Alcibiades, the sea represented an important area of both perception and action, which of course always remained related to the coasts or the land. The authors, on the other hand, gave the sea a different weighting and generally viewed it more as a perceptual space than as an actual space for action. Xenophon is certainly the author with the greatest affinity for the sea, and in the rest of his significant work the *Hellenika*, he also displays a marked fondness for the portrayal of sea battles. In Plutarch's work, the sea loses its significance due to the anecdotal nature of his biography, in which Athens dominated as a space of perception and action following the interests of the Second Sophistic.

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101 Cf. Riess (2020) (in print).

V Conclusion:

In comparing the patterns of violence by Alcibiades in the works of Thucydides, Xenophon, and Plutarch, significant differences emerge in the focus of the three authors and can be represented visually. At first glance, it is evident, for example, that only Plutarch explicitly linked Alcibiades with the execution of all adult men on the island of Melos.[102] It is also striking that neither Thucydides nor Xenophon reported any violent acts of Alcibiades in Athens. The historians instead focused exclusively on the history of political events and battles.

If we learn to understand and read digital visualizations in terms of their manifold cognitive prerequisites, we can epistemically tread new paths for gaining knowledge, even if our questions remain the same. The New Visual Hermeneutics emphasizes that an image is based on multiple hermeneutic assumptions. The fact that the interpretation of graphic findings – that is, second-order categories – nevertheless leads to highly plausible results renders us confident in our approach and demonstrates that this proof of concept was successful. The plausible results also suggest that we will find previously undiscovered patterns in the investigation of the big data of ancient texts. Graphs will thus serve as sources of inspiration that will open up new questions that have not yet entered our thinking due to the vast volumes of data. As a thematically annotated corpus, Eris offers new forms of data analysis, data visualization, and data representation for historical research on violence that can address a broader public more visually than traditional methods of imparting knowledge have done. Digital Classics thus offers not only great potential for knowledge gain but also new opportunities for the contemporary didactics of history.

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102 Plut. Alc. 16.5.

VI List of Literature Cited

Arendt (1993): H. Arendt, Macht und Gewalt, Munich 1993 (first edition 1970).

Baberowski (2015): J. Baberowski, Räume der Gewalt, Frankfurt/M. 2015.

Bastian et al. (2009): M. Bastian – S. Heymann – M. Jacomy, Gephi, An Open Source Software for Exploring and Manipulating Networks, Proceedings of the Third International ICWSM Conference 2009, 361–362.

Blume (2019): G. Blume, Marx für den Kiosk, in: DIE ZEIT 38, 11.09.2019.

Bodard et al. (2017): G. Bodard – H. Cayless – M. Depauw – L. Isaksen, – K. F. Laurence – S. Rahtz, Standards for Networking in Ancient Person Data: Digital Approaches to Problems in Prosopographical Space, DCO 3,2, 2017, 28–43.

Bubenhofer (2014): N. Bubenhofer, GeoCollocations – Diskurse zu Orten: Visuelle Korpusanalyse, in: Sondernummer Mitteilungen des Deutschen Germanistenverbandes 1, 2014: Korpora in der Linguistik – Perspektiven und Positionen zu Daten und Datenerhebung, 45–59.

Bulst et al. (2008): N. Bulst – I. Gilcher-Holtey – H.-G. Haupt, (Eds.), Gewalt im politischen Raum. Fallanalysen vom Spätmittelalter bis ins 20. Jh., Frankfurt/M. – New York 2008.

Canetti (1960): E. Canetti, Masse und Macht, Hamburg – Hildesheim 1960.

Card et al. (1999): S. Card – J. MacKinley – B. Shneiderman, Readings in Information Visualisation. Using Vision to Think, San Francisco 1999.

Da (2019): N. Z. Da, The Digital Humanities Debacle. Computational methods repeatedly come up short, in: The Chronicle of Higher Education, 27 March 2019, https://www.chronicle.com/article/The-Digital-Humanities-Debacle/245986 (accessed October 19, 2019).

Fuchs-Heinritz et al. (1994): W. Fuchs-Heinritz – R. Lautmann – O. Rammstedt – H. Wienold (Eds.), Lexikon zur Soziologie, Opladen ³1994.

Gilhaus et al. (2017): L. Gilhaus – J. Stracke – C. Weigel (Eds.), Gewalt und Wirtschaft in antiken Gesellschaften, Hamburg 2017.

Hale (2009): J. Hale, Lords of the Sea. The Epic Story of the Athenian Navy and the Birth of Democracy, London 2009.

Hassemer – Reemtsma (2002): W. Hassemer – J. P. Reemtsma, Verbrechensopfer. Gesetz und Gerechtigkeit, Munich 2002.

Heftner (2011): H. Heftner, Alcibiades: Staatsmann und Feldherr, Stuttgart 2011.

Henrich (2009): A. Henrich, Information Retrieval 1. Grundlagen, Modelle und Anwendungen, Bamberg 2009.

Hillmann (1972): K.-H. Hillmann, Wörterbuch der Soziologie, Stuttgart 1972.

Hoebel (2919): T. Hoebel – W. Knöbl, Gewalt erklären! Plädoyer für eine entdeckende Prozesssoziologie, Hamburg 2019.

Ihde (1998): D. Ihde, Expanding Hermeneutics. Visualism in Science, Evanston/IL 1998.

Jänicke et al. (2015): S. Jänicke – G. Franzini – M. F. Cheema – G. Scheuermann, On Close and Distance Reading in Digital Humanities: A Survey and Future Challenges, in: Eurographics Conference on Visualization 2015, https://www.informatik.uni-leipzig.de/~stjaenicke/Survey.pdf (accessed October 19, 2019).

Jannidis, et al. (2017): F. Jannidis – H. Kohle – M. Rehbein (Eds.), Digital Humanities. Eine Einführung, Stuttgart 2017.

Jarosch (2007): H. Jarosch, Information Retrieval und Künstliche Intelligenz, Wiesbaden 2007.

Jetschke (2017): A. Jetschke, Internationale Beziehungen. Eine Einführung (narr Bachelor-Wissen.de), Tübingen 2017.

Kaden (2009): B. Kaden, Alles auf eine Karte. Franco Morettis Modellvorschlag für die Literaturwissenschaft und was ihm folgen könnte. Review of: Franco Moretti: Kurven, Karten, Stammbäume. Abstrakte Modelle für die Literaturgeschichte, in: LIBREAS.LibraryIdeas 14 Frankfurt/M. 2009, https://libreas.eu/ausgabe14/013kad.htm (accessed January 7, 2020).

Kath et al. (2015): R. Kath – G. S. Schaal – S. Dumm, New Visual Hermeneutics, ZGL 43, 2015, 27–51.

Kath (2014): R. Kath, Aesthetics are (ir)relevant: Für eine neue visuelle Hermeneutik in den Geisteswissenschaften, ZPTh 5, 2014, 97–120.

Kopp (2017): H. Kopp, Das Meer als Versprechen. Bedeutung und Funktion von Seeherrschaft bei Thucydides, Göttingen 2017.

Krämer / Ljungberg (2017): S. Krämer – C. Ljungberg (Eds.), Thinking with Diagrams – The Semiotic Basis of Human Cognition, Berlin – Boston – Beijing 2017.

Krämer (2014): S. Krämer, Trace, Writing, Diagram: Reflections on Spatiality, Intuition, Graphical Practices and Thinking, in: A. Benedek – K. Nyiri (Eds.), The Power of the Image. Emotion, Expression, Explanation, Frankfurt/M. 2014, 3–22.

Krämer (2015): S. Krämer, Graphismus als Potenzial: Reflexionen über die epistemische Verschränkung von Räumlichkeit und Anschauung, in: F. Czolbe – D. Magnus (Eds.), Notationen in kreativen Prozessen, Würzburg 2015, 17–36.

Krämer (2018): S. Krämer, Der Stachel des Digitalen – ein Anreiz zur Selbstreflexion in den Geisteswissenschaften? Ein philosophischer Kommentar zu den Digital Humanities in neun Thesen, DCO 4,1, 2018, 5–11.

Krämer (2009): S. Krämer (Ed.), Medien, Computer, Realität. Wirklichkeitsvorstellungen und Neue Medien, Frankfurt/M. 2009 (1998).

Kuchler (2013): B. Kuchler, Kriege. Eine Gesellschaftstheorie gewaltsamer Konflikte, Frankfurt/M. – New York 2013.

Kuczera (2017): A. Kuczera, Graphentechnologien in den digitalen Geisteswissenschaften, ABI Technik 37, 2017, 179–196.

Kupferschmidt (2016): J. Kupferschmidt, Die Entwicklungsgeschichte von MyCoRe an der Universität Leipzig, DCO 2,2, 2016, 30–34.

Lamnek (1996): S. Lamnek, Theorien abweichenden Verhaltens, Munich 1996.

Lamnek (1997): S. Lamnek, Neue Theorien abweichenden Verhaltens, Munich 1997.

Lindenberger / Lüdkte (1995): T. Lindenberger – A. Lüdtke, Einleitung. Physische Gewalt – eine Kontinuität der Moderne, in: Idem. (Eds.), Physische Gewalt. Studien zur Geschichte der Neuzeit, Frankfurt/M. 1995, 7–38.

Luhmann (1988): N. Luhmann, Macht, Stuttgart 1988.

Mader et al. (2000): G. Mader – W.D. Eberwein – W. Vogt (Eds.), Konflikt und Gewalt. Ursachen – Entwicklungstendenzen – Perspektiven, Münster 2000.

Manovich (2001): L. Manovich, The Language of New Media, Cambridge/Mass. 2001.

Manovich (2010): L. Manovich, Software Culture, Milano 2010.

Manovich (2013): L. Manovich, Software Takes Command, New York 2013.

Moretti (2005/2007): F. Moretti, Graphs, Maps, Trees, London – New York 2005/2007 (dt.: Kurven, Karten, Stammbäume. Abstrakte Modelle für die Literaturgeschichte), Frankfurt/M. 2009).

Pelling (2002): C. Pelling, Plutarch and History, London – Swansea 2002.

Piketty (2019): T. Piketty, Capital et Idéologie, Paris 2019.

Popitz (1986): H. Popitz, Phänomene der Macht. Autorität – Herrschaft – Gewalt – Technik, Tübingen 1986.

Reemtsma (2002): J. P. Reemtsma, Die Gewalt spricht nicht. Drei Reden, Stuttgart 2002.

Reinhold et al. (2000): G. Reinhold – S. Lamnek – H. Recker (Eds.), Soziologie Lexikon, Munich - Vienna 2000.

Riches (1986): D. Riches (Ed.), The Anthropology of Violence, Oxford, New York 1986.

Riess / Zerjadtke (2015): W. Riess – M. Zerjadtke, Projektankündigung: ERIS: Hamburg Information System on Greek and Roman Violence, DCO 1, 1, 2015, 70–75.

Riess (2020): W. Riess, Prolegomena zu einer digitalen althistorischen Gewaltforschung: Gewaltmuster bei Solon, Alcibiades und Arat im Vergleich, in: KLIO 102.2 (2020) (in print).

Rohmann (2006): D. Rohmann, Gewalt und politischer Wandel im 1. Jh. n. Chr. (Münchner Studien zur Alten Welt 1), Munich 2006.

Scarry (1992): E. Scarry, Der Körper im Schmerz. Die Chiffren der Verletzlichkeit und die Erfindung der Kultur, Frankfurt/M. 1992.

Schaal et al (2016): G. Schaal – K. Lancaster, Ein Bild sagt mehr als tausend Worte? Visualisierungen in den Digital Humanities, DCO 2,3, 2016, 5–22.

Schäfer (2019): C. Schäfer, Die Kontrolle des Meeres, Alcibiades und die Sizilische Expedition, in: Digital Classics Online 5.1, 2019, 22–33.

Schlichte (2009): K. Schlichte, In the Shadow of Violence. The Politics of Armed Groups, Frankfurt/M. – New York 2009.

Schulz (2005): R. Schulz, Die Antike und das Meer, Darmstadt 2005.

Sofsky (1996): W. Sofsky, Traktat über die Gewalt, Frankfurt/M. 1996.

Trotha (1997): T. v. Trotha (Ed.), Soziologie der Gewalt, Wiesbaden 1997.

Von Cranach (2019): X. von Cranach, Er hat einen Traum. Der gefeierte Harvard-Ökonom Raj Chetty will mit Big Data soziale Ungleichheit bekämpfen, um den alten Mythos des „American Dream" wiederzubeleben, in: DIE ZEIT 45, 30.10.2019, 39–40.

Waldmann (2012): P. Waldmann, Terrorismus und Kommunikation, in: K. Weinhauer – J. Requate (Eds.), Gewalt ohne Ausweg? Terrorismus als Kommunikationsprozess in Europa seit dem 19. Jahrhundert, Frankfurt/M. – New York 2012, 49–61.

Wieviorka (2006): M. Wieviorka, Die Gewalt, Hamburg 2006.

Ziebarth (1929): E. Ziebarth, Beiträge zur Geschichte des Seeraubs und Seehandels im alten Griechenland, Hamburg 1929.

Zimmermann (2009): M. Zimmermann (Ed.), Extreme Formen von Gewalt in Bild und Text des Altertums, Munich 2009.

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