

Markus Asper

Introduction

Coming to Terms: Approaching (Ancient) Terminologies

Every scholar who works on ancient Greek science writing soon stumbles upon problems of expert communication and how it works practically as a form of boundary work. Often the first impression of any ancient piece of science writing upon the modern reader, say, the Hippocratic *Epidemics*, Biton's ballistic works or Archimedes' *Method to Eratosthenes* is that she is confronted with a set of words that are new and problematic. The obvious reason for this effect is that groups of experts come into being and sustain themselves by, among other means, communication. One part of expert communication is terminology, that is, the use of words in a way specific to this group, as their sociolect or, perhaps, technoelect or 'lingo'. As an act of communication, such a sociolect exhibits linguistic features serving certain functions, but it also has a certain social impact on how the group locates itself in the wider fabric of discourse and, in the end, of society. Since terminology is still one of the significant features of modern science and its communication, it provides an obvious choice for a testing ground in a multidisciplinary dialogue on the history of knowledge.

In any case, ancient terminologies seem to invite not only linguistic but also social-historical approaches. They also lead to comparisons with terminological practices from other cultures and epochs. With this spectrum of possibilities in mind, the reader will find in this volume a selection of articles that focus more on cultural comparison than on linguistics-oriented approaches. It is clear that in order to understand the emergence and workings of terminology in ancient (or any) science, one needs to look at terminology in other fields of knowledge, whether ancient or modern. As is commonly accepted by now, we have to allow for some fuzziness with respect to the term 'science', especially with respect to ancient cultures.¹ Historians of knowledge who use the method of comparison need to determine a common ground adequately covering the spectrum of knowledge-forms extending from the ill-defined fields of ancient sciences and related systems of knowledge to the relatively clear concept of modern science. Terminology and its uses certainly belong to that common ground.

What aspects of terminology and terminologies can we study in these ancient fields? What can we do with terminology? The following list of aspects perhaps provides a notion of possible approaches.²

¹ For a good recent discussion see Lloyd 2009, 153–171.

² For the approach known as “traditional terminology” and its mostly descriptive approach, see Temmerman 2000, 2–15.

First, one can simply try to identify certain elements of a given text or discourse as ‘terminological’ and then try to establish their precise meaning, that is, adopt the stance of the lexicographer of a given corpus. This is far from trivial when complicated topics such as Greek pharmacology or Roman surveying are concerned. Ideally, we would arrive at an expert’s lexicon.

Second, one can ask what the more general *differences* are between terminological and ordinary discourse. It might seem that with respect to historical material, this leads almost automatically to questions of either a linguistic-synchronic (in a given discourse, what qualifies as ‘terminological’?) or linguistic-diachronic, viz. historical, nature (in a given discourse, how did terminology emerge and develop?). In many of the fields of the papers that follow, the uncomfortable impression emerges that the difference between terminological and non-terminological is not always clear and sometimes difficult to determine (e.g., in Aristotle). Sooner rather than later, one would run into questions of how terminology is created in a linguistic sense. In that respect, the only systematic approach I can think of is to be found in investigations of metaphor. The role of metaphor in the emergence of terminology has often been in the focus of research with respect to both Greek science, especially the Presocratics, and modern science, especially physics, with a focus on it as a conceptual tool.³

Third, one can study certain *features* of any given terminology, such as its tendencies toward neologisms or certain aesthetics. Today, across the many different terminological areas we all participate in, acronyms and ‘-isms’ are both very popular for reasons that are not exclusively attributable to linguistic motives. Very simply, neologisms can point us to changes in any traditional body of knowledge. For example, Ps.-Aristotle’s *Mechanics* perhaps introduces a new term, σταθμός, for ‘abstract weight’ as opposed to σταθμόν for ‘any given actual weight’. Obviously, such coinage indicates a new need for more precise terms and corresponds to new insights into the laws of mechanics. Here, some features of terminology may indicate progress or, at least, change within and differentiation of a certain field.⁴

Features of terminology might also tell us something about the aesthetic expectations of a ‘scientific’ term. Comparisons with modern expert groups could easily follow from this. Everybody knows that Greek and Latin, the source of many terminologies in European academia for so long, is currently being succeeded by English, which has, of course, its own share of Latin roots. Medical experts, probably varying by field, still tend to cling to Greco-Roman roots when coining new terms, whereas economists, sociologists, or engineers, I guess, come up with terminologies based on English. Any need for a new term has to answer to these expectations, too. Thus, closer study of any expert group’s terminology could possibly reveal some elements of an implied ‘poetics of ter-

³ See, e.g., my paper on metaphors in Hellenistic literature (2015a; some literature at p. 54, n. 47).

⁴ Provided the phenomenon truly exists and it is not just some scribal decision (see Joyce van Leeuwen by e-mail, Feb. 5, 2014).

minology', that is, some implicit normative concepts (rules) of how terminology should look like to be effective, or, perhaps even 'beautiful'. By 'poetics of terminology' I mean some shared assumptions about what constitutes a useful, adequate or even elegant term. In other words, we could arrive at an aesthetics of terminology, always related to a group of users.

Fourth, one can ask what the *functions* of any given terminology are. Experts compete. We can assume, then, that their terminology is, to some degree, an index of such competition, both with other groups of experts and with non-experts. Terminologies, thus, could result from strategically motivated decisions or carry out certain strategies themselves. For example, the notorious terminological chaos of Hellenistic medicine and philosophy is usually conceived of as an indication of stiff competition among the participants of the game.⁵ Here, terminology becomes an actor's tool to place herself in a market and perhaps even secure her position for years to come. Therefore, for us, terminology offers itself as a tool to reconstruct such markets. Notation and its great varieties provide another direction for functional exploration of terminology. Within the history of science, terminology might even become the index of certain qualities of a specific discourse of experts (what Fleck called "thought style").⁶ Moreover, in these fields, meta-terminology emerges, that is, a discourse on how to choose terms (famous in our field is Galen's treatise *On Medical Terms* (*Über die medizinischen Namen*)).

Today, terminology studies, understood as a sub-discipline of *Fachsprachenforschung*, has become a field in itself, mostly concerned with linguistic aspects, more recently in the context of digital humanities research.⁷ I hope that it is fair to say that descriptive approaches have been far stronger in this field than interpretive ones. One aspect of the interpretation of terminologies, boundary work, has already been mentioned. Boundary work might, however, be only one among many functions of experts' terminologies. Most and perhaps all terminologies have something we might call a 'hidden agenda'. This means that they come with some additional associations and vague implications, which may add new layers of meaning to the disciplinary discourse. Let me give some examples of different aspects:

(a) As I have already mentioned, during some part of its history, some fields in modern physics preferred terms based on Presocratic terminology. Obviously, the primary claim of such a labeling practice is the claim of a continuity with or a reaching back to some

5 To my knowledge, Ludwig Edelstein was the first to identify this correlation, which has been made central to the analysis of Greek science by Geoffrey Lloyd and was then utilized by Netz for the analysis of the social field in which Greek mathematicians operated. See Lloyd 1983, 163 referring to Rufus, *Onom. med.*; sim. Lloyd 1996, 264; Netz 1999, 123; Netz 2009, 158 on Herophilus; cf. Edelstein 1963, 29.

6 Fleck 1979, 125–145 presents the example of an early nineteenth-century treatise on urine, which is largely opaque to the modern physician due to its terminology, which is steeped in Aristotelian and Galenian terms and concepts.

7 See the overview in Roelcke 2010, esp. 114–116, and L'Homme 2020.

charismatic past, that is, an unexpected form of classicism. Additionally, whoever tries to establish such terminology also attempts to make a statement about her own status, at least in terms of general education, probably even of constructing historical analogies.

(b) Sometimes terminology simply uses an individual's name, e.g., 'Grassmann's law' in optics or 'Graßmannsches Hauchdissimilations-Gesetz' in linguistics or 'Erlenmeyer flask' in chemistry. It is evident that such terminology adopts an ideology of monumentalization, which pays memorial tribute to a foundational figure. At the same time and similarly to what was stated in (a), everybody who uses the term constructs a certain analogical history; at the least, she provides historical perspective to her activities. In other words, such use of terminology tells us something about the ideological framework adopted by the group that uses such terms.⁸

(c) Modern science and administration sometimes adopt terminological acronyms that exhibit a certain playfulness. There are many examples, such as the device seductively named AMANDA (*Antarctic Muon and Neutrino Detector Array*, a kind of neutrino-based telescope)⁹ or the ironically termed institution SIESTA (*Spanish Initiative for Electronic Simulations with Thousands of Atoms*, a method and a software implementation for performing electronic structure calculations in quantum chemistry).¹⁰ Who gains here, and what? With such acronyms it seems that scientists display an ironic stance toward their work, a stance which is itself part of the performance and impacts the performer's status. While the playfulness here is obvious, its functions are not. It might be a move meant to distinguish oneself from competing actors as less ironically detached.

(d) Historians of science could mine terminologies for some facts about the communicating groups, e.g., about their internal structures or about cross-cultural transfers of knowledge. For example, if Greek medicine really did inherit some assumptions, arguments, concepts, treatments, and medicines from surrounding cultures, which at this point seems to be a commonly shared assumption, why are there so few medical loan-words? Compared to the fields of measurement and money, where loan-concepts and loan-words abound, this lack must highlight a certain difference in the manner of transmission of that knowledge.¹¹ More generally, the expert's lexicon will give us some information on how her group is structured: whether it's small or big, homo- or heterogeneous, how old its traditions are, and so on. For example, in comparison with other expert groups, a higher degree of institutionalization might be the reason for a more closely defined set of terms. For instance, early, viz. Hippocratic, Greek terms for disease include a remarkably high number of terms ending in *-itis* (*pleur-*

⁸ It seems that such approaches, even to names as starting points for constructing terminologies, have not played a significant role in terminology studies (see L'Homme 2020, 1–6).

⁹ www.nsf.gov/pubs/1996/nstc96rp/sb5.htm, last accessed on Feb. 22, 2023.

¹⁰ www.simuneatomistics.com/products/siesta-code/, last accessed on Jan. 21, 2023.

¹¹ See my 2015b, 29–31.

itis, *nephritis* (πλευρίτις, νεφρίτις)), some of them still in use today, thus betraying some desire for consistency and some interest in ‘scientific’ naming even before our earliest medical texts appear.¹² Another historical set of questions asks for when terminology became stable in Greek philosophy, in what fields, and why? It seems, for example, that while Aristotle has much to say on definition and its uses in apodeictic discourse, his own terms are not reliably stable, that is, are not really terminological (e.g., he uses *katholou* (καθόλου) differently in *Physics* I 1 and *Anal. Post.* II 19,¹³ which has caused much confusion). Whether viewed as a charming feature or as a professional shortcoming, it tells us something about the degree to which stable terminology is expected in Aristotelian discourse. At times, he polemicizes against pedantry and accuracy beyond a certain degree, because he thinks it unworthy of a gentleman’s approach to things (in other words, below the social level of his intended readership). In short, terminology might work for us as an index of professionalization in terms of a field’s autonomy. Aristotelian philosophy is not ‘professional’ in the sense that it communicates entirely separately or mainly according to rules that are specific only to this field.

Today, the establishment of new terminology is itself an interesting area of study at the crossroads of history and sociology of science because it reveals power-struggles in each field.¹⁴ On the one hand, there are communal attempts to establish a usable terminology in almost every field of modern science. Here is a quote from a paper on terminology in medical diagnosis (Baloch et al. 2008, 428) which includes the results of the terminological work of a committee: “The term ‘suspicious’ is favored for potential malignant lesions.” We see that unlike Greek science, modern medicine does not attempt a definition, but gives a labeling recommendation instead. On the other hand, in the field of *Fachsprachenforschung*, that is, the linguistics of technol-lects, models of mapping the procedure of terminologization have emerged.¹⁵ It is obvious that due to the lack of data, nothing comparable can be achieved with discourses of knowledge in ancient cultures. However, we can at least think about questions such as how, say, Aristotle or Euclid solve the problem of terminologization. The conclusion would be that they all use a similar approach, namely that of definition, an approach that is markedly different from, say, how the physicians in the Hippocratic corpus handle terminological matters.

(e) Contemporary students of science might think about the *risks* of terminology within the broader context of science studies. They may consider questions of the involvement and thus responsibility of experts in political decision-making and, more

12 The *communis opinio*, however, states the exact opposite: see Lloyd 1987, 203 with n. 114 (Lonie).

13 Thanks to Jonas Dehn who has established the fact in his BA thesis (unpublished, HU Berlin 2014).

14 For an institutionalist view see Felber & Budin 1989, 221–228. This description of how, for example, DIN or ISO works, functions as a starting-point for comparison with ancient or non-Western cultures.

15 See Roelcke 2013.

broadly, of participation.¹⁶ Among the many attempts to explain why scientific progress in Greece apparently stopped after the Hellenistic age (problematic as that impression may be), one is pointing out terminological chaos as an indicator of exaggerated competition. We all know the commonplace that most patients do not understand what their doctors are saying, but may be, at the same time, either impressed or disgusted by these carefully constructed linguistic barriers. This implies certain risks and gains of professional interaction between doctors and patients, but it also indicates some remarkable differences in Greco-Roman upper-class medicine, where convincing the patient of the correctness of the doctor's etiology and therapy was of utmost importance to the physician.

I am quite sure that this ad hoc list leaves much to be desired, certainly in terms of structure. For example, it is obvious that the sociological approach cannot be kept separate from the linguistic one, at least not with respect to ancient cultures. Any attempt to draw up a list of everything there is to do with respect to terminologies in ancient sciences would prove rather futile. However, I hope that the following papers can illustrate the range of possible fields to approach and of the various ways of approaching them.

* * *

As I have tried to illustrate above, there are many ways to address terminologies in knowledge systems. This volume presents 11 papers and probably as many ways to proceed, many of them combining several of the approaches described above.

We begin with an exemplary exposition of two distinct terminological fields: **Francesca Schironi** gives an account of the language of Greek astronomy. She stresses that, with respect to the perspective of human observers of the sky, Greek astronomers were quite effective in coining terms, sometimes more so than their modern successors. The field itself develops from early Hellenistic astronomy to Ptolemy who, in terms of terminology and other things, systematized and ordered it. **Courtney Roby** looks at the terminology of the Roman surveyors, a field that, unlike astronomy, was fraught with any number of legal and epistemic discourses. The surveyors developed their terminological system through interactions between landscape, their specific functional intentions, and texts; they had to adapt it continually and at the same time guarantee its usability for generations to come. In a way, while astronomy was a matter of description and explanation, surveying terminology is of more importance to coming to terms with one's surroundings and, thus, implicated in social and historical contexts on a different level than 'scientific terminology'. **My own paper** adds illustrations of 'rich' terminologies as opposed to 'lean' ones, that is, of the various implications that might come with terminological choices, exemplified through snippets taken from larger fields, namely rhetoric, medicine, and siege lore. Rich terminologies go beyond purely functional con-

16 For a sample of such discussions, see Pilke et al. 2021, 3–9.

cepts of terminology; often, they contribute to the success of terminological choices. Located in a field of tension between aesthetics and ideology they have hitherto not received proper attention. In highlighting this aspect of terminology studies, I hope to provide something of an implicit commentary to many discussions of terminologies presented here.

Not surprisingly, Aristotle and Aristotelian science contributes much material to the historical study of terminologies. In the second section, five papers illustrate terminological practices in Aristotle's works and in (early) modern fields that have carried Aristotelian influences and patterns into zoology and botany. **Sabine Föllinger** discusses the terminological choices adopted by Aristotle in his *De generatione animalium*. She shows how theoretical and terminological work goes together and how analogization and metaphor play an important role in both. Since Aristotle had to face the challenges of already existent terminological facts and of integrating new observations and arguments that demanded new terms, Föllinger can observe his rhetorical practices in establishing new terms. In a different, but similarly influential field, the study of poetry, **Loren Marsh** carefully looks at terminology in the *Poetics*. As many studies and translations of the *Poetics* have shown, the terminological status of many terms used in the *Poetics* is difficult to access. Taking *mimēsis* as his example, Marsh argues that although usually considered a philosophical term, it might rather have a more technical meaning concerning the organization or arrangement of imitations. Such an assumption might solve some difficulties and confusions Aristotle's terms have provoked. With a view to the whole Aristotelian corpus, **Anna-Maria Gasser** in an especially rich paper discusses the terminological paradox of Aristotle, who establishes complex systems of terms, often defined or re-defined, but, on the other hand, falls short of modern standards of terminology that demand standardization and consistency. Focusing on clarity, she advocates, against Aristotle's own explicit statements, for flexibility and reusability as his primary intentions in using and coining terms. In addition, Aristotle seems to prefer simple and ordinary words as a basis for terminology, at least partly for aesthetical reasons. Taking a different stance, **Marcel Humar** surveys zoological naming practices, that is, the nomenclature of species, from Aristotle's to our times. He finds a host of naming practices that stress non-scientific agendas, for example, mythological allusions, memorial practices within the scientific community, strategic naming, and even ludic naming (suffice it to highlight *neopalpa donaldtrumpi*, a moth species). The material assembled suggests that naming practices in science can serve as tools for various intentions that are non-related to the zoological science. The section's last paper, by **Dominik Berrens**, shows in great detail how humanist botanical authors were coping with classic terminological systems in Latin on the one hand and an overwhelming number of new data that needed to be named and classified on the other. Berrens follows these struggles to the point at which our modern system of nomenclature emerges.

The last section brings together studies that touch upon a wide range of modern terminologies. In the contested field of modern professional and highly technical medicine, **Werner Golder** describes the different functions medical terminology serves between scientific discourse, medical procedure, economic considerations, and communication with patients. Golder has many critical things to say about current terminological practice in medicine and, thus, provides a view on the future of the ancient terminologies discussed in this volume, notably the Peripatetic ones. Occasionally, professional terminology obscures deficient practices (one might wonder whether this, i.e., the back and forth of exclusion and inclusion, is one of the most attractive social functions of terminologies). **Matthias Schemmel**'s contribution touches upon a topic that resonates through all of this volume, namely how terminology relates to everyday language. He adopts an historian's stance and discusses three rather unrelated fields: ancient Chinese theoretical texts and their terminology of space, Newtonian mechanics, and the terminologies of relativity theory in the twentieth century. He shows that despite their many differences, all three exhibit the same tendency whereby the integration of knowledge leads to an increasing distance of terms from their everyday equivalents. The final paper of our volume, by **Thomas Stolz** and **Ingo Warnke**, describes in detail how in a highly specialized field, the semiotics of geographic names, a new research current, namely an interest of language on maps, leads to coining a new term, *epikhartikon*. It brings, to me, a certain satisfaction that this new term is, essentially, an ancient Greek one.

* * *

It is to be feared that this volume exhibits, once again, the usual weaknesses of the *sammelband*.¹⁷ Nonetheless, I do hope that its heterogeneous content and manifold aspects, leading into different, and sometimes unforeseeable, directions, can document that there is much to find in terminologies.

Bibliography

- Asper, M. 2015a. "(Some) Domains of Metaphor in Hellenistic Literature". In: M. Witte and S. Behnke, eds. *The Metaphorical Use of Language in Deuterocanonical and Cognate Literature*. Berlin, 41–58.
- Asper, M. 2015b. "Medical Acculturation? Early Greek Texts and the Question of Near Eastern Influence". In: K.D. Fischer and B. Holmes, eds. *The Frontiers of Ancient Science: Essays in Honor of Heinrich von Staden*. Berlin, 19–46.
- Baloch, Z.W., et al. 2008. "Diagnostic Terminology and Morphologic Criteria in Cytologic Diagnosis of Thyroid Lesions". In: *Diagnostic Cytopathology* 36.6, 425–437.
- Felber, H., and G. Budin, eds. 1989. *Terminologie in Theorie und Praxis*. Tübingen.
- Fleck, L. 1979. *Genesis and Development of a Scientific Fact*. Transl. F. Bradley & R.K. Merton. Chicago.

¹⁷ As eloquently described by Kemp 2009, esp. 1018f.

- Edelstein, L. 1963. "Motives and Incentives for Science in Antiquity". In: A. Crombie, ed. *Scientific Change. Historical Studies in the Intellectual, Social and Technical Conditions for Scientific Discovery*[. . .]. New York, 15–41.
- Kemp, W. 2009. "Gruppentexte. Ein kritischer Blick auf Sammelband und Forschergruppe". In: *Merkur* 726. Jg. 63, H. 11, 1013–1022.
- L'Homme, M.-C. 2020. "Being a Privileged Witness of Twenty Years of Research in Terminology". In: *Terminology* 26.1, 1–6.
- Lloyd, G.E.R. 1983. *Science, Folklore, and Ideology*. Cambridge.
- Lloyd, G.E.R. 1987. *The Revolutions of Wisdom. Studies in the Claims and Practice of Ancient Greek Science*. Berkeley.
- Lloyd, G.E.R. 1996. "Theories and Practices of Demonstration in Galen". In: M. Frede and G. Striker, eds. *Rationality in Greek Thought*. Oxford, 255–277.
- Lloyd, G.E.R. 2009. *Disciplines in the Making. Cross-Cultural Perspectives on Elites, Learning, and Innovation*. Oxford.
- Netz, R. 1999. *The Shaping of Deduction*. Cambridge.
- Netz, R. 2009. *Ludic Proof*. Cambridge.
- Pilke, N., et al. 2021. "Terminology as a Societal Resource. Possibilities and Responsibilities in a Changing World". In: *Terminology* 27.1, 3–9.
- Roelcke, Th. 2010. *Fachsprachen*. 3rd ed, Berlin.
- Roelcke, Th. 2013. *Definitionen und Termini. Quantitative Studien zur Konstituierung von Fachwortschatz*. Berlin.
- Temmerman, R. 2000. *Towards New Ways of Terminology Description: The Sociocognitive Approach*. Amsterdam.

