Chapter 6

One Era's Nonsense, Another's Norm: Diachronic Study of Greek and the Computer

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This chapter sets out to explore how and why digital editions of texts or text-versions could facilitate a truly diachronic study of the Greek language. It points out shortcomings of existing digital infrastructure and argues in favour of a general shift of focus towards linguistic analysis of transmitted texts with the help of electronic corpora that primarily model medieval manuscripts rather than modern editions.[1]

In April 1994 the following question was submitted to the Byzans-l mailing list:

> I'm currently performing some minor but tricky (to me at least) editing for a draft of the Psalms of Solomon. I can handle the Koine in which the Greek text was written, but the manuscript tradition ranges to the fourteenth century, and the editor/commentator wants all forms included in the index, even 'nonsense words'. Problem is, one era's nonsense is another's orthography, it would seem. Can anyone direct me to a good source for a Medieval Greek grammar and/or lexicon, especially one that accounts for changes in morphology from Classical to Medieval Greek?[2]

Many, if not all, medievalists working with Greek materials must have come across such questions when Classicists or other researchers with a Classics background, more by chance than choice presumably, have to study later texts written in registers substantially different from Classical or Koine Greek. Such questions are of course legitimate since not every Classicist can be expected to be interested in the historic development of Greek after Late Antiquity or develop an agenda of diachronic study of Greek. As in the above example most Classicists or late antique scholars will dare to enter and explore the maze of non-standardized Medieval Greek linguistic varieties only if there is some underlying reason related to the manuscript tradition of the specific text they are studying.

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2   <http://www.uni-heidelberg.de/subject/hd/fak7/hist/o1/logs/byzans-l/log.started940401/mail-34.html> (accessed January 2008).

This comes as no surprise. 'Greek' as a linguistic label covers a span of almost three millennia. It is demanding (but not impossible) to obtain an overview of the linguistic developments of Greek in the whole period from the eighth century BC until the present day.[3] The situation becomes more complicated due to the segmentation of Greek in several periods of its history in more than one dialect with diachronically changing geographical distribution. Furthermore, literary registers of Greek always tended towards mixtures of different linguistic features, either from different dialects as in the *Kunstsprache* of the Homeric poems or from different registers (learned and vernacular) in the Medieval period.

A further difficulty in accessing the exact linguistic parameters of texts written in Greek is the existence of diglossia for long periods in the history of Greek. Diglossia is a sociolinguistic situation in which a learned variety is superposed upon the everyday vernacular and replaces it in most formal functions;[4] it has led to several puristic movements starting from the Hellenistic period right through to the nineteenth century that considered only Classical Greek (or, to be precise, what was understood as Classical Greek at each time) as 'proper' Greek worthy of being used in writing; the spoken vernacular was, as a consequence, generally neglected, especially in Medieval times.[5] During such periods Classical Greek texts are studied, copied and edited, and their linguistic style is emulated by authors who consider knowledge of Classical Greek as a constituting factor of their scholarly activity and even their own personality.[6] As Michael Jeffreys puts it:

> A breakdown in the link between spoken and written Greek was first seriously
> threatened around the time of Christ, when the Atticist movement introduced
> a *diglossia* which gradually came to dominance in writing … Through most

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3   For such an overview see Geoffrey Horrocks, *Greek: A History of the Language and its Speakers* (Oxford, 2010). A research project at the University of Cambridge has set out to produce a 'Reference Grammar of Medieval and Early Modern Greek'. The grammar is expected to be published in 2011. For more information on the project see <http://www.mml.cam.ac.uk/greek/grammarofmedievalgreek> (accessed July 2009).

4   For diglossia in general see Alan Hudson, 'Outline of a Theory of Diglossia', *International Journal of the Sociology of Language*, 157 (2002): 1–48 and all other articles in this journal volume dedicated to the study of diglossia; for diglossia in the time of the Gospels, see Stanley E. Porter, *Diglossia and Other Topics in New Testament Linguistics* (Sheffield, 2000); for diglossia in Medieval Greek see Notis Toufexis, 'Diglossia and Register Variation in Medieval Greek', *Byzantine and Modern Greek Studies*, 32:2 (2008): 203–17.

5   For a general overview of the consequences of diglossia to the development of Greek, see Robert Browning, 'Greek Diglossia Yesterday and Today', *International Journal of the Sociology of Language*, 35 (1982): 49–68.

6   On how knowledge of Classical Greek is a defining characteristic of the group of 'literate individuals' in Late Byzantium see Franz H. Tinnefeld and Klaus Matschke, *Die Gesellschaft im späten Byzanz: Gruppen, Strukturen und Lebensformen* (Cologne-Weimar-Vienna, 2001).

Byzantine centuries the model frameworks for writing were two, the Attic dialect of the fourth century B.C. (and its textbooks) and the Biblical *Koine*. Writers positioned themselves in relation to these past forms, with more or less concessions, conscious or not, to their spoken language.[7]

Because of diglossia, already present in the Hellenistic period and throughout the Middle Ages in the Greek-speaking world, speakers of Greek developed in general an attitude of refusal towards their native language, which was not considered worth cultivating on its own. Several registers verging on Classical Greek were used for different literary purposes; a literary register closer to the vernacular appears only from the twelfth century onwards.[8] Rhetoric, education, literacy and functional literacy as well as audience design are factors that play a major role in shaping the linguistic form of most texts written in Greek in all times.[9]

Perhaps in reflection of this attitude, Medieval Greek literature is conventionally thought of as consisting of two branches: works written in learned language as opposed to works written in registers closer to the vernacular.[10] Most works considered as major literary achievements written in Greek during Medieval times are composed in registers differing substantially from what must have been the spoken language of the time and are normally full of Classical or biblical quotations and allusions.[11] For the linguistic study of such literature in learned language one relies on available handbooks for Classical and Koine Greek; on top of that, it is certainly advantageous to obtain a general awareness of idiomatic expressions and conventions developed by authors in the Medieval period, who at times follow idiosyncratic rules.[12]

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7   Michael Jeffreys, 'The Silent Millennium: Thoughts on the Evidence for Spoken Greek between the Last Papyri and Cretan Drama', in Costas N. Constantinides (ed.), *ΦΙΛΛΕΛΗΝ. Studies in Honour of Robert Browning* (Venice, 1996), p. 133.

8   For details see Michael Jeffreys, 'The Literary Emergence of Vernacular Greek', *Mosaic*, 8:4 (1975): 171–93 and Martin Hinterberger, 'How Should We Define Vernacular Literature?', in *Unlocking the Potential of Texts: Interdisciplinary Perspectives on Medieval Greek* (Centre for Research in the Arts, Social Sciences, and Humanities, University of Cambridge, 2006), <http://www.mml.cam.ac.uk/greek/grammarofmedievalgreek/unlocking /html/Hinterberger.html> (accessed July 2009).

9   For the interplay of such factors in the development of medieval registers under diglossia, see Toufexis, 'Diglossia', 210–15; see also Erich Trapp, 'Learned and Vernacular Literature in Byzantium: Dichotomy or Symbiosis?', *Dumbarton Oaks Papers*, 47 (1993): 115–29; Hans Eideneier, *Von Rhapsodie Zu Rap: Aspekte der griechischen Sprachgeschichte von Homer bis heute* (Tübingen, 1999); Hinterberger, 'How Should We Define'.

10   See Toufexis, 'Diglossia', 203–206 with more bibliography on this issue.

11   Even those conventionally attributed to 'vernacular' literature. The distance between vernacular written literary registers and the actual spoken language is considerable and becomes smaller only towards the Early Modern period (around the sixteenth and seventeenth centuries).

12   For an argumentation towards the need of a 'genuine' grammar of Byzantine Greek see Staffan Wahlgren, 'Towards a Grammar of Byzantine Greek', *Symbolae Osloenses*, 77

One last factor that has to be taken into account when discussing issues pertaining to the study of Greek from a diachronic perspective is ideology. Ideology, in the sense of a biased interpretation of linguistic features in favour or against a predefined system of ideas, can affect choices made by scholars at all levels of their involvement with language. Editors may change the linguistic form of a text in search of readings compatible with what they consider authorial intention or for other reasons against the evidence provided by manuscript witnesses.[13] Other editors embark on a quest for an archetype in the true belief that they can reconstruct lost versions of ancient texts.[14]

The effect of ideology on the description and interpretation of linguistic facts cannot be underestimated. As a matter of fact, Greek language and (Modern Greek) national identity are, at least from the eighteenth century onwards, intertwined concepts.[15] It is not surprising, therefore, that relativism as an ideology of language has been identified as a factor that 'informs and forms collective linguistic practices' with particular reference to language debates in contemporary Greece.[16] Under such circumstances editors of texts and even linguists might find it difficult to resist following specific generalities about, for example, the language of a specific period that have been formulated under the pressure of specific dominant ideological movements. The wildly optimistic interpretation of Medieval vernacular literature as an early stage of Modern Greek literature or evidence of a Modern Greek national identity, which has been formulated in the context of the Modern Greek search for ancestry can be seen as such a characteristic example.[17]

(2002): 201–204. On how technology can assist in a collective effort to translate a Byzantine encyclopaedia written in a 'dialect somewhere between the Classical Greek of the fifth and fourth centuries BC and native language of the tenth century AD', see Anne Mahoney, 'Tachypedia Byzantina: The Suda On Line as Collaborative Encyclopaedia', *Digital Humanities Quarterly*, 3:1 (2009), paragraph 10, available: <http://www.digitalhumanities.org/dhq/vol/003/1/000025.html> (accessed March 2009).

13   For examples from the domain of Medieval Greek see Io Manolessou, 'On Historical Linguistics, Linguistic Variation and Medieval Greek', *Byzantine and Modern Greek Studies*, 32:1 (2008): 69–71.

14   For a brief but comprehensive assessment of the so-called stemmatic method, see Michael D. Reeve, 'Stemmatic Method: "Qualcosa che non funziona?"', in Peter Ganz (ed.), *The Role of the Book in Medieval Culture*, Proceedings of the Oxford International Symposium. 26 September–1 October 1982 (Turnhout 1986), pp. 57–69. See also here below, footnotes 42 and 49.

15   See Peter Mackridge, *Language and National Identity in Greece, 1766–1976* (Oxford, 2009).

16   See Spyros Moschonas, 'Relativism in Language Ideology: On Greece's Latest Language Issues', *Journal of Modern Greek Studies*, 22 (2004): 194 and *Γλώσσα και Ιδεολογία* (Athens, 2005).

17   For an overview of the problems associated with the study and interpretation of Medieval Greek vernacular literature see the article of Panagiotis Agapitos, 'SO Debate Genre, Structure and Poetics in the Byzantine Vernacular Romances of Love', *Symbolae*

Whatever the pitfalls might be for a truly diachronic study of the Greek language, 'Greek offers a rare opportunity, among the world's languages, to study language change over more than 3,000 years of continuous recorded tradition …; strangely, this opportunity has often been ignored'.[18] Since especially old stages of Greek are well studied and documented, the emergence of new forms that alternate with and eventually replace older forms in later texts can easily be observed across the centuries.[19] Those studying Classical Greek thus have the rare opportunity (for a 'dead' language) to find out what happens next, 'how the story ends – although in this case it is still going on'.[20]

Because of the obvious lack of native speakers, all historical linguistic research – and in our case the exploration of the development of Greek after the Classical era – this period considered as the beginning of the story also because of its cultural significance – can only be achieved through the study of available texts.[21] In a modern framework of research such study is performed optimally with the use of a controlled corpus of written texts, preferably available in electronic form.[22] In putting a corpus together one must invariably take into consideration questions drawn up in the philological tradition:

> What is a text? Which text do we choose when there are several versions of the same text? What history does a text have? How does a text relate to other texts? Is it localizable? Is it a product of a specific speech community or a discourse

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Osloenses, 79:1 (2004): 7–101. On how Standard Modern Greek has been influenced by relativism, see Moschonas, 'Relativism', 176–7.

18   David Holton and Io Manolessou, 'Medieval and Early Modern Greek', in Willem F. Bakker (ed.), *Companion to the Ancient Greek Language* (Oxford, in print).

19   It is interesting, at least from a semiological point of view, that terminology referring to the Greek language differs from that of other European languages. The contemporary form of the language is conventionally called 'Modern', the adjective 'Old' is not used for reference to older stages of the language (as for instance in 'Old English') (see Toufexis, 'Diglossia', 206): the really old stage of Greek (compared to English or other European languages) is either not labelled at all or is called 'Classical' or 'Ancient'.

20   Holton and Manolessou, 'Medieval and Early Modern Greek'.

21   On how historical linguistics deals with the problem of the skewed nature of the data see Manolessou, 'On Historical Linguistics', 64–5.

22   For a contemporary discussion of the pros and cons of the use of electronic corpora in some aspects of historical linguistics, see Anneli Meurman-Solin, 'Structured Text Corpora in the Study of Language Variation and Change', *Literary and Linguistic Computing*, 16:1 (2001): 5–27. For a comprehensive account of the use of electronic corpora in the study of Romance languages see Claus D. Pusch, Johannes Kabatek, and Wolfgang Raible, *Romanistische Korpuslinguistik II*, 2005, <http://www.corpora-romanica. net/publications_e.htm#korpuslinguistik_2> (accessed July 2009). For a view on how philologists under the influence of technology are increasingly becoming 'corpus editors', see Greg Crane and Jeffrey A. Rydberg-Cox, 'New Technology and New Roles: The Need for "Corpus Editors"', in *Proceedings of the fifth ACM conference on Digital Libraries* (New York, 2000), pp. 252–3.

community, in other words, can it function as evidence of a dialect, or does it reflect the language use of, for instance, a professional group or a literary genre? Is it a translation? To these simple questions there are no simple answers.

In digitizing texts and including them in large databases we may multiply erroneous interpretations if we neglect careful examination of what the texts actually are.[23]

One such large database of Greek texts, the *Thesaurus Linguae Graecae* (TLG), is considered by many as 'a prime example of how a humanities discipline has changed fundamentally for the better in consequence of the acceptance of technology'.[24] The TLG's goal is 'to create a comprehensive digital library of Greek literature from antiquity to the present era'. Comprising currently more than a hundred million words, it provides access to 2,314 authors and 9,958 works and is 'constantly updated and improved with new features and texts'.[25]

The TLG was designed in 1972 as a digital library of Classical Greek texts and this legacy still dictates most aspects of its architecture and design.[26] A single modern edition is used in order to create the electronic version of each 'work' included in the TLG corpus. Newer editions of the same work merely substitute old ones, a practice reminiscent of the use of 'standard editions' in Classical studies.[27] The choice of edition invariably determines the attributes of each 'work' (as far as its linguistic form, length or any other features are concerned).

In the absence of detailed contextualization information accompanying the online version of each text, the user who wishes to check the reliability of a given edition (if, for instance, it uses all extant manuscripts of a text or not) has to refer to the printed edition or other handbooks. The same applies to any attempt to put search results obtained by the TLG within the wider context of a literary genre or a historical period. The TLG assumes in a sense that its users have a broad knowledge of Greek literature and language of all historical periods and are capable of contextualizing each search result on their own. One can assume that this must have been the case for as long as the TLG covered only Classical Greek texts: by expanding to post-Classical and Medieval periods the TLG has made more primary textual data available to its users but made, at the same time, the

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23   Meurman-Solin, 'Structured Text Corpora', 18–19.

24   This to some extent optimistic assessment of the TLG belongs to Theodore Brunner, first director of the TLG, and is quoted by Edward Shreeves, 'Between the Visionaries and the Luddites: Collection Development and Electronic Resources in the Humanities', *Library Trends*, 40 (1992): 593.

25   <http://www.tlg.uci.edu/about> (accessed April 2009).

26   For a full account of the development of the TLG see <http://www.tlg.uci.edu/about/history.php> (accessed April 2009).

27   See Gregory Crane, David Bamman, and Alison Jones, 'ePhilology: When the Books Talk to Their Readers', in Ray Siemens and Susan Schreibman (eds), *A Companion to Digital Literary Studies* (Oxford, 2008), <http://www.digitalhumanities.org/companionDLS/> (accessed March 2009).

interpretation of search results a more demanding and time-consuming exercise for many of its users.

Nevertheless, the TLG is an everyday tool in teaching and research of invaluable importance both for Classics and all other humanities disciplines that use texts written in Greek:

> Classicists have become accustomed to scanning wide swathes of Greek and Latin literature, with full professors today who have never known a world without searchable texts. Many take for granted this core infrastructure and, when asked, admit that these tools have had far more impact upon the questions that they ask and the research that they conduct than they readily articulate. An analysis of primary source citations in the classics journals of JSTOR would give us a better appreciation of the impact which these collections have had upon published scholarship.[28]

Since in recent years the TLG has expanded considerably also in the area of Medieval Greek texts (including monastic documents from the Athos monasteries) this impact has become even more significant in other related disciplines (such as Byzantine and Medieval Greek studies). Such a large corpus of texts available online has without doubt promoted research in the domain of Greek historical linguistics. While it is true that diachronic analysis of linguistic features of Greek is much easier with the use of the TLG than without it, a large searchable database of Greek texts does not automatically solve all problems.

Put simply, historical linguistics describes, examines and evaluates the appearance of new – that is changed – linguistic forms next to old (unchanged) ones in the same text or in texts of the same date and/or geographical provenance. This interplay of old and new forms can be interpreted as evidence of language change and forms the basis of linguistic description and analysis. Let us briefly examine one particular example, the passage from the inflected Ancient Greek active participle to the uninflected Modern Greek active gerund.[29] We can already observe an established breach in the 'classical norms' for the use of participles in the Hellenistic period[30] and concrete signs of inflectional erosion with neuter nom./acc. singular forms ending in [-onta] instead of [-on] from around the fourth

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28 Crane et al., 'ePhilology'.

29 See Io Manolessou, 'From Participles to Gerunds', in Melita Stavrou and Arhonto Terzi (eds), *Advances in Greek Generative Syntax: In Honor of Dimitra Theophanopoulou-Kontou* (Amsterdam, 2005), pp. 241–83. Manolessou's paper offers a synchronic morphological and syntactic description of this development in all periods of Greek and can be seen as a paradigmatic example of the kind of historic linguistic research that makes serious use of a diachronic corpus of Greek like the TLG.

30 For detail, see Manolessou, 'From Participles', p. 246.

century AD.[31] Innovative and 'classical' forms appear as variant readings in texts from the Late post-Classical/Early Medieval period (fourth–sixth century AD):

> the text of the critical edition of the Life of St. John the Almsgiver, 6th c. (Gelzer, 1893) prints 6 cases of the neuter participle with the new -onta ending … and there are alternative readings in -onta in 3 more cases, to be spotted only by checking the apparatus (at 50.6, 87.22 and 97.15). However, the manuscript tradition (the 6mss., ABCDEF, used in the edition) is unanimous in none of these eight cases: three appear only in A, two only in C, one only in E, one in ACEF and one in ABCE. It is thus impossible to guess which and how many of those stood in the original text, and which are readings introduced by a later copyist.[32]

Compared to the modern edition, the linguistic picture one obtains for that particular case from medieval manuscripts is far more complicated. A scribe operating within a diglossic speech community, as described above, may unconsciously use new forms of the language and not the old forms found in the manuscript he is copying. A strong preference for old forms can also be seen as a stylistic choice, a conscious effort to elevate the register of the text. A modern editor may, however, choose to homogenize in his edition variant linguistic forms found in the manuscripts in the belief that this must have been the actual language used by the author.

It is evident, in my view, that a large corpus of Greek texts can only be used meaningfully in historical linguistic research if the following question is always kept in mind:

> How … are we to distinguish 'variation' in Medieval Greek due to language change, from variation due to other factors? This question has been posed before by Browning as the necessity 'to distinguish between incidental imitations of purist Greek and real alternatives co-existing in the spoken tongue' and by Joseph under the guise of 'textual authenticity' (i.e., 'whether a feature found in a given text or corpus corresponds in some way to a linguistically real and linguistically significant generalization about the language and about its speakers' competence', in contrast to an inauthentic feature, 'which would have no basis in actual usage and would instead be an artificial aspect of the language of a given text').[33]

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31 For examples and interpretation of this development see ibid., pp. 46–247.

32 Ibid., p. 247. The edition quoted here is Heinrich Gelzer (ed.), *Leontios' von Neapolis Leben des heiligen Iohannes des barmherzigen Erzbischofs von Alexandrien* (Freiburg i. B., 1893).

33 Manolessou, 'On Historical Linguistics', 72. The references quoted in this passage are Robert Browning, *Medieval and Modern Greek* (Cambridge, 1983), 11 and Brian D. Joseph, 'Textual Authenticity: Evidence from Medieval Greek', in Susan C. Herring, Pieter

Note that this dilemma does not only exist for Medieval Greek. Epigraphic and other evidence suggests that variation already existed in Classical Greek and that the rigid rules of Classical Greek morphology and syntax formulated by modern grammarians do not reflect actual language use by authors and speakers at the time. Recent linguistic research of Classical Greek registers has led to the conclusion that 'it is no longer possible to regard classical Attic as the monolithic monument of clarity, beauty and correct usage that both school grammars and much scholarly research makes of it'.[34]

Historical linguistics has developed an advanced methodology that allows researchers to formulate convincing answers to these and similar questions.[35] A central position in this methodology is occupied by the need to concentrate research and draw evidence from as many extant (manuscript) witnesses as possible. For the historical linguist

> [t]he manuscript is a concrete written speech act, a setting down of a linguistic message at a specific time in a specific place; it is the only one accessible to the linguist, and everything else is conjecture, however informed. This is especially true of cases where there is a distance between the time of supposed 'first composition' and the extant copy. This does not mean that we cannot use such texts as evidence for earlier states of language than the time they were copied; they can be so used, but only as a 'second-best' option, and only after comparative verification. And of course the above requirement, direct access to the manuscript, has as its presupposition that the linguist possesses the necessary philological skills for the 'decipherment' of an otherwise potentially confusing, misleading and incomprehensible text.[36]

Emendation, from the perspective of the critical editor, a necessary and fruitful exercise towards the aim of restoring ancient texts, is rejected by historical linguistics on the grounds that it falsifies the record and does not always depend on linguistically controlled arguments.[37] That a total refusal of emendation as a methodological practice cannot however be accepted as a general rule is evident by emendations in modern critical editions that have been confirmed by the later emergence of papyrological or other manuscript evidence.

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van Reenen and Lene Schøsler (eds), *Textual Parameters in Older Languages* (Amsterdam, 2000): 309.

34   Jerker Blomquist, Review of Andreas Willi, *The Languages of Aristophanes. Aspects of Linguistic Variation in Classical Attic Greek* (Oxford, 2003), in *Bryn Mawr Classical Review*, 4 June 2004. Willi's book is an exemplary linguistic study of different Classical Greek registers based on available textual data.

35   For a comprehensive overview see Brian D. Joseph and Richard D. Janda (eds), *The Handbook of Historical Linguistics* (Oxford, 2003).

36   Manolessou, 'On Historical Linguistics', 67.

37   Roger Lass, *Historical Linguistics and Language Change* (Cambridge, 1997), 100.

Digital Research in the Study of Classical Antiquity

What becomes obvious is that there exists a mismatch or a conflict of interest between the needs of the historical linguist, as described in the above passage, and those of the philologist who is primarily interested in studying all aspects of a specific text (and not only its language) and therefore is well served with a critical edition of a single text. The editor who is preparing a critical edition typically transcribes or collates all extant manuscripts of the text he is editing but presents *one* text to the reader, with variant readings in a so-called *apparatus criticus*. This conflict is strengthened by the general tendency of modern critical editing of ancient texts not to burden the apparatus 'by false and trivial reading and those useless for the constitution of the text'.[38]

A reading may of course be 'false' according to the norms governing language use of the period the text belongs to (and to the editor's understanding of how these rules apply to the text in question); what could or should not be excluded a priori is the possibility that such a 'mistake', however trivial, may also represent an intermediate stage towards a new development or an insecurity on the part of a manuscript scribe brought on by language change in his time. Since most editors of ancient texts are familiar only with the grammar of the period their text belongs to, information relevant to the study of later stages of the language may be lost if variants are concealed from the apparatus criticus, especially if the text (or the copy of the text) is dated in a period where language change has taken place.[39]

A particularly lucid example of a rather minimal but significant phonological language change that is commonly excluded from the apparatus criticus of most editions is the addition of an analogical /n/ to the original accusative singular of masculine and feminine nouns of the third declension in -a, that begun in Roman times and eventually led (together with other parallel developments) to the merger of the first and third noun declension in post-Classical times.[40] This change is documented almost exclusively with the help of evidence taken from texts like inscriptions or papyri that are normally edited diplomatically. In most critical editions of texts from relevant periods such variants are not included in the apparatus criticus (for obvious reasons of economy of space) and are only mentioned, if at all, in the introduction.

A technology-based approach can help us resolve this conflict: in a digital environment 'economy of space' is no longer an issue. By lifting the constraints

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38   Georg Luck, 'Textual Criticism Today', *The American Journal of Philology*, 102:2 (1981): 164–94, reflecting the predominant methodology of textual criticism at the time.

39   More research is needed on the evaluation of variable readings and their relevance for the study of language change in the case of texts from the Classical era. The common hypothesis is that knowledge of Classical grammar and/or faithful copy of the source manuscript would allow most copyists to avoid such mistakes and not introduce changed forms in the text. On the other hand, most, if not all, manuscript scribes of the Medieval period are native speakers of Greek and may be influenced by their native tongue while copying a text written in Classical Greek.

40   For details of these developments see Horrocks, *Greek*, pp. 286–88.

of printed editions, a digital edition can serve the needs of both philologists and historical linguistics (or for that matter any other scholar who has an interest in approaching ancient texts).[41] A 'plural' representation of ancient texts in digital form, especially those transmitted in 'fluid' form,[42] is today a perfectly viable alternative to a printed edition. Only a few years ago such a digital endeavour seemed technologically impossible or something reserved for the very few computer-literate editors.

With the emergence of well-documented and widely used standards like the TEI (<http://www.tei-c.org>), every editor has at his disposal a versatile tool for the representation of texts in digital form. In matters of accessibility, scale, media, hypertext, updates, and iterative research and transparency digital editions are an equal if not better alternative to printed editions.[43] It is in principle now possible to create document-based digital critical editions including both main texts and their paratexts (like scholia or other annotations) as they appear in different single sources.[44]

Grid computing promises advances in the ability to store and make accessible large collections of digital items of heterogeneous nature (such as digital images of manuscripts or other witnesses, digital manuscript transcriptions and digital editions of texts based on many manuscripts); if we adopt an optimistic stance, we should be able to create a new generation of digital resources or services that adapts to the needs of users and expands accordingly.[45] Such new resources

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41   For the use of manuscripts in the study of literature or history see Michael D. Reeve, '*Elimination codicum descriptorum:* A Methodological Problem', in John N. Grant (ed.), *Editing Greek and Latin Texts*, Papers given at the Twenty-Third Annual Conference on Editorial Problems, University of Toronto 6–7 November 1987 (New York, 1989), pp. 8–9.

42   For a discussion of fluid forms of transmission see Leighton D. Reynolds, and Nigel G. Wilson, *Scribes and Scholars. A Guide to the Transmission of Greek and Latin Literature* (Oxford, 1968), 234–7.

43   See Gabriel Bodard, 'The Inscriptions of Aphrodisias as Electronic Publication: A User's Perspective and a Proposed Paradigm', *Digital Medievalist*, 4 (2008), <http://www.digitalmedievalist.org/journal/4/bodard/> (accessed March 2009).

44   See Paolo Monella, 'Towards a Digital Model to Edit the Different Paratextuality Levels within a Textual Tradition', *Digital Medievalist*, 4 (2008), <http://www.digitalmedievalist.org/journal/4/monella/> (accessed March 2009).

45   Gregory Crane et al., 'Beyond Digital Incunabula: Modelling the Next Generation of Digital Libraries', in J. Gonzalo, C. Thanos, M.F. Verdejo and R.C. Carrasco (eds), *Research and Advanced Technology for Digital Libraries* (Berlin-Heidelberg 2006), pp. 353–66, <http://dx.doi.org/10.1007/11863878_30> (accessed March 2009); Gregory Crane, David A. Smith, and Clifford E. Wulfman, 'Building a Hypertextual Digital Library in the Humanities: A Case Study on London', in *Proceedings of the 1st ACM/IEEE-CS Joint Conference on Digital Libraries* (Roanoke, VA: 2001), pp. 426–34, available: <http://portal.acm.org/citation.cfm?id=379437.379756> (accessed March 2009); Gregory Crane et al., 'ePhilology'.

could and should also include digital items (such as transcriptions or collations of manuscripts in digital form or even digital facsimiles of manuscripts) that are by-products of printed editions, traditionally not made available to the reader at all.[46]

The discussion until now can be aptly summarized by quoting Peter Robinson's five propositions about the nature of editorial work in the digital medium:

1. The use of computer technology in the making of a particular edition takes place in a particular research context.
2. A digital edition should be based on full-text transcription of original texts into electronic form, and this transcription should be based on explicit principles.
3. The use of computer-assisted analytic methods may restore historical criticism of large textual traditions as a central aim for scholarly editors.
4. The new technology has the power to alter both how editors edit, and how readers read.
5. Editorial projects generating substantial quantities of transcribed text in electronic form should adopt, from the beginning, an open transcription policy.[47]

Such an approach would guarantee the creation of digital editions that can be used equally well by philologists and historical linguists. Electronic editing of Greek texts should take place within the research context of diachronic linguistic research (as sketched above), providing adequate access to primary manuscript material from any period of the Greek language. Philologists and historical linguistics could benefit mutually if they would engage in interdisciplinary research without reservations and fears of contact.[48]

Even if we cannot change the way critical editors edit their texts, it is still possible to enhance 'traditional' critical editions by transposing them to the digital medium; editorial choices become transparent by linking the apparatus criticus to the electronic text and – ideally – accompanying the electronic edition with high-quality digital images of the manuscript witnesses.[49]

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46   See Espen S. Ore, 'Monkey Business – or What is an Edition', *Literary and Linguistic Computing*, 19:1 (2004): 35–44.

47   Peter Robinson, 'The Canterbury Tales and other Medieval Texts', in John Ushworth, Katherine O'Brien O'Keeffe, and Lou Burnard (eds), *Electronic Textual Editing* (New York, 2006), p. 74, <http://www.tei-c.org/About/Archive_new/ETE/Preview/robinson.xml> (accessed March 2009).

48   For such an approach see the work done by the 'Digital Editions for Corpus Linguistics (DECL)' project at the Research Unit for Variation, Contacts and Change in English, University of Helsinki, <http://www.helsinki.fi/varieng/domains/DECL.html> (accessed March 2009).

49   For such a pilot electronic edition see Christian Brockmann (ed.), *Galen. Kommentar zu Hippokrates, Über die Gelenke. Die Einleitung und die ersten sechs Kommentarabschnitte von Buch I*, Corpus Medicorum Graecorum/Latinorum, <http://pom.

However, digital editions should not be treated as a panacea for all shortcomings of Greek historical linguistic research. Rationalizing the apparatus criticus in printed editions was not just a consequence of pragmatic but also of epistemic considerations. Separating the charting of variants, the *recensio* in traditional philological terms, from the *emendatio* (correction of these readings that are considered 'false' according to the *recensio*) is considered by contemporary textual critics as Lachmann's great contribution to textual theory.[50] Followed by generations of textual critics, this methodology has contributed, on the epistemic side, to fostering at times a scholarly attitude according to which the modern reader, assisted by the editor, is better equipped than medieval scribes to preserve the 'true' form of ancient texts;[51] the editor is allowed to introduce emendations against the manuscript tradition based solely on his command of language, style or other relevant characteristics of the texts he is editing;[52] the reader of such editions is encouraged to look down on supposedly ignorant medieval scribes.[53]

As always, the truth lies somewhere in the middle. Emendations made by sensible editors who have studied in depth the cultural context and the language of the text they are editing are valid as long as they are clearly marked as such and their rationale is explained. Editing a text is an intellectual activity and emendations can and should be enjoyed by editors and their informed readers. In a digital edition there is room for several instances of one text or multiple versions of texts; it is at the editor's discretion to let readers choose which instance of the text they prefer to read and exploit for their purposes or to restrict navigation through instances of text based on specific criteria. A pluralistic digital edition encourages readers to

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bbaw.de/cmg/> (accessed March 2009); for an electronic edition of a corpus of inscriptions with paradigmatic character see Joyce Reynolds, Charlotte Roueché and Gabriel Bodard, *Inscriptions of Aphrodisias* (2007), <http://insaph.kcl.ac.uk/iaph2007> (accessed March 2009). For a truly 'plural' edition of the New Testament, albeit in prototype form, see the 'New Testament Transcripts Prototype', <http://nttranscripts.uni-muenster.de/> (accessed March 2009).

50   David C. Greetham, *Textual Scholarship: An Introduction* (New York, 1994), 323. For a full description of the 'lachmanian orthodox' albeit in condensed form, see Paul Maas, *Textual Criticism*, trans. from the German by Barbara Flower (Oxford, 1958).

51   For an approach to critical editing that sees in textual tradition a transformational process and not merely a deterioration see Giorgio Pasquali, *Storia della tradizione e critica del testo* (Firenze, 1952) and Reynolds and Wilson, *Scribes and Scholars*.

52   For an extreme example of such an attitude from the Medieval Greek *War of Troy* see Manolessou, 'On Historical Linguistics', 69–71. On the characteristics of what constitutes a bad critic (from the perspective of textual editing of classical texts) see Luck, 'Textual Criticism Today', 168–70.

53   For an informative account of the development of critical editing from an epistemological viewpoint see Michael D. Reeve, 'Shared Innovations, Dichotomies and Evolution', in Anna Ferrari (ed.), *Filologia Classica e Filologia Romanza; Esperienze ecdotiche a confronto,* (Spoleto, 1998), pp. 429–505.

approach all transmitted texts equally, even if one text is highlighted among the many texts included in the edition.[54]

Traditional printed critical editions represent a specific model of representation of sometimes complex relationships among different manuscript witnesses mediated by the editor; the editor's choices and the different readings of the tradition are documented in the apparatus criticus, which constitutes an organic part of the edition. They are the product of long and erudite scholarship and in many cases succeed in restoring an ancient text in remarkable detail.

Electronic dissemination of such editions *without* the apparatus criticus in a single, seemingly homogeneous, large corpus like the TLG holds the danger of a monolithic approach to the interpretation of linguistic features that relies solely on choices made by editors and nothing else. As argued above, choices made by editors can be affected by many extra-linguistic parameters and should therefore always be subjected to comparative verification. Verification should not be performed solely on the basis of authoritative textbooks or other reference material since, especially in less studied areas like Medieval Greek, the danger of erroneous literature back-referencing is quite high.[55] The conscientious researcher of linguistic issues should always check again and again the manuscript witnesses to find evidence for the validity of his arguments.[56]

Despite its limitations the TLG remains a remarkable achievement and a resource that changed for the better the way research is conducted in the field of Classics and other related disciplines.[57] Historical linguists and other scholars interested in linguistic aspects of ancient texts are better served if they do not rely solely on data retrieved from the TLG but also consult the manuscript tradition as recorded in the apparatus criticus or the introduction of critical editions. The emergence of digital critical editions in which the manuscript tradition of ancient texts is recorded in its entirety in conjunction with new, powerful electronic services will undoubtedly help us explore in detail how linguistic norms change over time, how and why such change appears or not in transmitted texts, and what are the factors shaping the linguistic properties of each era.

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54   For the role of highlighting one instance of an edited text within a digital edition see Peter Robinson, 'The One Text and the Many Texts', *Literary and Linguistic Computing*, 15:1 (2000): 5–14.

55   Manolessou, 'On Historical Linguistics', 70.

56   For a discussion of similar issues in creating electronic tools for linguistic research see Notis Toufexis, 'Neither Ancient, nor Modern: Challenges for the Creation of a Digital Infrastructure for Medieval Greek', paper presented at the Workshop Epistemic Networks and GRID + Web 2.0 for Arts and Humanities, Internet Centre, Imperial College London, January 2008), <http://www.toufexis.info/archives/61> (accessed July 2009).

57   For a constructive criticism of the model the TLG stands for see Crane et al., 'ePhilology'.