69

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Artificial Intelligence and Greek Philology: An Experiment

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Table of Contents

2. The End of Philology? Human and Artificial Intelligence

This chapter discusses how artificial intelligence impacts how classical philologists see the goals of their discipline and their own activities. The first section discusses the possibility, notably discussed by Nietzsche, that classical philology will at some point end. This is in turn linked to the idea that it is possible to produce definitive editions of classical texts. The debate between Pasquali and Romagnoli, in the years 1917-1920, highlighted the need to focus philological activities on texts that were not central to the canon, avoiding texts which already received supposedly definitive editions. The chapter argues that subjectivity is a central element of the philological practice. It also argues that philologists often present their conjectures as a way to access the subjectivity of ancient writers. Wilamowitz even suggested a religious explanation, derived from Plutarch's daemonology. The rhetoric of presenting a conjecture is often based on the concepts of truth, certainty, finality. Conjectures immortalise their authors. An AI 'conjecture' is deeply subversive of the religious and immortalising language of classical philology outlined here. However, AI can be extremely helpful in editing a large number of non-canonical texts that still lack reliable editions.

Keywords: Artificial Intelligence; Classical Philology; Textual Criticism; Wilamowitz; Pasquali; Ancient Greek; Premodern Greek

1. *The End of Philology*

Has the philological study of the Greek and Latin classics come to an end? Philology has been declared dead for over a hundred years.[1]

[1] This first section revisits some of the ideas which I presented in Battezzato 2023.

Battezzato, L. 2025. "The End of Philology? Human and Artificial Intelligence" in Battezzato, L., Graziosi, B., and Haubold, J. eds. *Artificial Intelligence and Greek Philology: An Experiment*, Pisa: 37-57.

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Yet, in the 19th century it was considered the queen of the sciences.[2] It was certainly the dominant approach in the humanities. Philology was not thought to be limited to textual criticism, but included the study of manuscripts, the interpretation of texts, and more generally of literature and civilisation. In French and English (but not in Italian), it also included the study of languages.[3] The attacks on philology had both political and scientific motives.

At the beginning of the 20th century, many scholars, especially in the countries that fought against Germany in the First World War, began to challenge the status and importance of philology. Some of them were motivated by political chauvinism: they felt they had to take a stand against the (German) philological enemy.

Part of the problem, however, was related to the nature of the discipline: was there a future for philological studies? The philological enterprise, if 'philology' is used strictly in reference to textual criticism, is based on the collection and interpretation of evidence. At the beginning of the 19th century, it seemed like a vast undertaking. The new methods, inspired by A.W. Wolf, A. Boeckh, and K. Lachmann,[4] required that all ancient texts be edited anew. All the manuscripts of ancient texts had to be read, collated, and organised into a stemma, before 'scientific' editions could be published; all the inscriptions of antiquity had to be transcribed, catalogued, and published. The 'field'

[2] Kurtz 2021: 752; Turner 2015: x ('king of sciences'); see also Pollock 2009: 939 "Hindustan, where philology –rather than mathematics or theology – had always been the queen of the disciplines". Until the 19th century, the queen of the sciences was theology: van den Brink 2019: 450. Foucault 1970: 281-2 claims that "the birth of philology has remained much more hidden from Western consciousness than that of biology and that of economy", in spite of the fact that "its consequences have extended much further in our culture"; by philology Foucault actually means comparative linguistics (especially Indo-European comparative linguistics).

[3] See e.g., Watkins 1990, Pollock 2009, Daston and Most 2015 (esp. 370 n. 1 "By 'philology' we mean, in the present context, the rational, disciplined, and institutionalized form of interpersonal research, testing, and communication, directed to (above all, written) texts [...]. We take 'Classical scholarship' in a broader sense – essentially that of Friedrich August Wolf and August Boeckh – to include all the disciplines that try to cast light upon the whole of Greek and Roman antiquity, including history, linguistics, numismatics, epigraphy, papyrology, history of institutions, religion, and so forth"), Lönnroth 2017 and 2020.

[4] Wolf 1807, Timpanaro 2005, and the relevant chapters in Lanza and Ugolini 2022.

of philology (an important metaphor) was vast: 'the harvest truly is plenteous, but the labourers are few'. But philology was presented as an empirical discipline. It focused on data, and had a very precise methodology for analysing them. This meant that philology was, in principle, a finite enterprise. There are a finite number of manuscripts and texts. When all the texts have been edited, all the manuscripts read and examined, the enterprise is over. In 1875, in the notes for a book he never completed, Nietzsche wrote that

Die Philologie als Wissenschaft um das Alterthum hat natürlich keine ewige Dauer, ihr Stoff ist zu erschöpfen.

Philology, as a science concerning antiquity, naturally does not last forever, and its material must run out.[5]

After a century of philological endeavours, some began to think that the field of classical philology was barren.

In 1917, the Italian scholar Romagnoli launched a strongly worded attack on German 'scientific' philology. He argued that Italian scholars had been lured into philology at a time, the end of the 19th century, when the work was already done:

quando l'Italia fu spinta nel nobile arringo della filologia scientifica, il meglio del lavoro era già compiuto. Le vigne erano state già vendemmiate, s'era fatta anche la ribrúscola. Non rimaneva che qualche acino qua e là, sfuggito agli occhi líncei delle spigolatrici. Fruga fruga, i poveri Italiani trovavano poco o nulla.

when Italy was thrust into the noble joust of scientific philology, the best work had already been done. The vineyards had already been harvested; there was nothing left to glean. All that remained were a few grapes here and there that had escaped the lynx-eyed gleaners. The poor Italians rummaged and rummaged, but found very little, or nothing.[6]

The evidence allowed only a meagre harvest. The problem was not only that the data was limited, but also that the methodology yielded uncertain results. Philologists reached different conclusions using

[5] My translation from a text by Nietzsche, written in March 1875, and published in Colli and Montinari 1967: 107 as fragment 5 [62].

[6] My translation from Romagnoli 1917b: 175 = Romagnoli 1917a: 164.

the same methodology. Different scholars offered different stemmata for the same manuscript traditions; different scholars offered different assessments of the authenticity of authorial attributions; Homeric scholars reached different conclusions about the origin of the Homeric poems.[7] The philological method was based on rules that were often applied mechanically and produced absurd, or contradictory, results. In 1922, Housman claimed that the 'scientific' method of 19th-century philology was no progress at all:

> It is supposed that there has been progress in the science of textual criticism, and the most frivolous pretender has learnt to talk superciliously about 'the old unscientific days'. The old unscientific days are everlasting, they are here and now; they are renewed perennially by the ear which takes formulas in, and the tongue which gives them out again, and the mind which meanwhile is empty of reflexion and stuffed with self-complacency. Progress there has been, but where? In superior intellects: the rabble do not share it.[8]

Here, then, the idea of methodological progress was sacrificed in favour of celebrating superior human intellects, not least Housman's own: as I argue below, philologists have often been keen to celebrate their own and their colleagues' prowess. The 'philological method' also faced criticism for its rigid rationalism, which can foster general doubt about textual transmission or even historical facts: ancient texts may be corrupted, and often report fanciful or contradictory information. One could thus argue that it is impossible to be absolutely certain of the soundness of a text. The same method could also, paradoxically, lead to universal credulity: several manuscripts attesting to the same text, several texts attesting to the same construction, several texts coherently reporting the same event could lead to the fallacious conclu-

[7] On the stemmata of manuscript traditions, see e.g., the different cases analysed in Pasquali 1934. On authenticity, see e.g., the controversy about Plato's *Seventh Letter*: Pasquali 1938: 47-154, Frede in Burnyeat et al. 2015: 6-8, for surveys of 19th-century scholarship. On Homer see e.g., West 2011: 55-8; he emphasises that "a series of scholars reached a considerable degree of accord" (58), while acknowledging that "each critic has his own analysis, and no two agree exactly in their reconstruction of the original continuum" (57); West emphasises that some conclusions were widely shared, in spite of notable differences.

[8] Housman 1922: 84 = Housman 1972: 1069. See the discussion of these problems in Battezzato 2021: 29-34.

sion that its contents ought to be accepted. The Italian philosopher and historian Benedetto Croce wrote in 1913:

Applicando invero il più rigoroso metodo delle testimonianze, non c'è testimonianza che non possa essere messa in sospetto e infirmata, e la storia filologica conduce a negare la verità di quella storia, che voleva costruire [...]. Col metodo filologico non v'ha modo di rigettare nemmeno i miracoli, riposanti sulle medesime attestazioni onde si tiene accertata una guerra o un trattato di pace.

Indeed, if we apply the most rigorous method of examining the evidence, no testimony is beyond suspicion or invalidation: philological history ultimately denies the truth of that history which it sought to construct [...]. With the philological method, there is no way of rejecting even miracles, which are based on the same attestations by which a war or a peace treaty are considered certain.[9]

Some of the attacks on the philological method were politically motivated.[10] As Terry Eagleton put it: 'Since England happened to be passing through a major war with Germany, it was possible to smear classical philology as a form of ponderous Teutonic nonsense with which no self-respecting Englishman should be caught associating.'[11] Italian and French scholars shared similar feelings.[12]

But the reasons were not only political. Other fields, such as the study of linguistics and modern literature, abandoned 'philology' as a method or a label in favour of other forms of self-identification. The Department of Comparative Philology at Harvard changed its name to the Department of Linguistics in the late 1940s.[13] Linguistics and literary analysis 'may be seen as sibling disciplines in that they were born of the same parent, philology'; so much so that one can trace the path 'from philology to English studies'.[14]

[9] My translation from Croce 2007: I, 254. The original version of the essay was published in 1913; the first Italian edition in book form was Croce 1917.

[10] Not Croce's; he published his book first in German: Croce 1915. When Croce published his book in Germany, Italy was at war with Austria, not with Germany (Italy declared war on Germany in August 1916).

[11] Eagleton 2008: 25-6.

[12] As an example of anti-German French scholarship, see Bérard 1917, attacking one of the manifestos of 19th-century philology, Wolf's 1795 *Prolegomena* to Homer (commented edition, with English translation, Wolf 1985).

[13] Watkins 1990: 24.

[14] "From philology to English studies" is the title of Momma 2012; the quotations

Critical editions, however, continued to be produced. In Italy, Romagnoli's attack on philology provoked controversy.[15] Pasquali wrote the most convincing reply in defence of philological methods of textual analysis.[16] Romagnoli essentially argued that the study of antiquity should shift from producing critical editions aimed at specialists to writing works of literary criticism aimed at the general public. He also proposed reception and translation practices that would support creative perspectives to make ancient texts more relevant to the present. Romagnoli's attempts at literary criticism were weak, but his translations had great impact,[17] as did his work in support of performance. In 1914 (three years before his anti-philological pamphlet) he had founded the National Institute of Ancient Drama (Istituto Nazionale del Dramma Antico) in Siracusa. Tasked with staging Greek and Latin dramas, it has been one of Italy's most influential cultural institutions for over one hundred years.[18] Romagnoli even wrote some plays based on classical themes himself.[19]

In his reply, published in 1920 in the form of a short book, Pasquali reiterated that many texts still needed critical editions. He accepted the assumption that the textual criticism of some authors was at an end. He admitted that there was little need for new editions of classical authors, and much need for editions of late antique ones.[20] This is a claim that can and has been disputed. Indeed, Pasquali's own later publications argued for the need to re-examine the manuscript tradition of the major classical writers, on the grounds that late manuscripts, often hastily rejected as 'contaminated' or 'copies', actually contained important

are from Momma 2012: 185; see his further references.

[15] The controversy has been much debated: see esp. Timpanaro 1963 and 1972: 298-305; Degani 1968 = Degani 2004: 937-57; Degani 1989: 1100-7, 1128-34 = Degani 2004: 1081-8, 1109-15; Degani 1999: 303-10 = Degani 2004: 1292-9; Moretti 2000: 270 and 282-3 (more in general Cavarzere and Varanini 2000); Heitmann 2005: 521-31; Baldi and Moscadi 2006; Pagnotta and Pintaudi 2015; Bossina 2016; 280-7 =Bossina 2022: 245-9; Piras 2017: 192-4; Battezzato 2023 with further references.

[16] Pasquali 1920; see the reprint Pasquali 1964.

[17] See e.g., Romagnoli 1924.

[18] On the history of this festival, see esp. Berezin 1994: 1255 and 1270-1 (Fascist support for the festival).

[19] See e.g., Mulè and Romagnoli 1928 (Mulè wrote the music for the play); Romagnoli 1928.

[20] See Pasquali 1920: 14-5 = Pasquali 1964: 19.

textual information that was otherwise unavailable.[21] This insight led to a series of new editions of Greek tragedy, Aristophanes, and Plato, for instance.[22] In 1920, however, Pasquali conceded to the anti-philologists that classical texts did not need new critical editions and that textual critics should focus on the large body of poorly edited late antique texts by, e.g., Basil, Gregory of Nyssa, Gregory of Nazianzus, Libanius, Themistius, and Himerius.[23] Coincidentally, Pasquali had just prepared an edition of the letters of Gregory of Nyssa, which was subsequently published in 1925.[24]

At the same time, Pasquali disagreed with Romagnoli on the issue of translation. He argued that not all ancient texts should be translated. Pasquali offered a strongly hierarchical conception of the canon: some texts were truly 'classical', while others were simply 'ancient'. He refused to give a list of 'classical' authors, claiming that the canon would change over time, but he strongly implied that some authors, such as Homer, would always be considered classical.[25] Classical authors are read for their artistry, he argued; 'ancient' authors for the information they provide. One should not translate 'ancient' authors: classicists should be able to read them in the original and extract the information they contain. Exceptions could be made for texts of interest to non-classicists, or for texts presenting particular interpretive difficulties.[26] This stance had paradoxical consequences: modern philologists were left with the task of publishing critical editions of 'ancient' authors, not of 'classical' ones. The 'classical' authors had already been properly edited, Pasquali thought in 1920. If this is so, what is the point of philological training? The point is to enable scholars to read texts in the original. His arguments against translation were, needless to say, a gate-keeping gesture. Only those who had undergone the long and complicated training of a philologist were to be allowed near the ancient texts. All others could catch a glimpse of the brilliance of Virgil or Homer through some pale modern imitations. This attitude has not

[21] Pasquali 1934.

[22] See e.g., Dawe 1964, Dawe 1973, Di Benedetto 1965, Mastronarde and Bremer 1982, Diggle 1991, on the the manuscript tradition of tragic authors; Dover 1968 for Aristophanes; Dodds 1959 and Boter 1989 for Plato.

[23] Pasquali 1920: 14-5 = Pasquali 1964: 19.

[24] Pasquali 1925.

[25] Pasquali 1920: 30 = Pasquali 1964: 34.

[26] Pasquali 1920: 30-2 = Pasquali 1964: 34-6.

entirely disappeared. Pasquali explicitly condemned 'easy democratic science', alluding (paradoxically) to Romagnoli (who was soon to prove himself an ardent Fascist).[27] It is easy to criticise Pasquali (or Romagnoli, for that matter) with the benefit of hindsight – at least in terms of assessing their politics – but examining their disagreement reveals much about their attitudes to philological practice.

Textual criticism and translation, contrary to what Romagnoli and Pasquali each argued, are not dead or useless. Pasquali himself later demonstrated the need for a new approach to textual criticism. It should be added that there is no such thing as a 'definitive edition' of a text, especially of an ancient classical text. The evaluation of the manuscript evidence is only part of the equation, as the study of language and metre continues to evolve and improve. More importantly, and contrary to the positivist rhetoric of the 19th century, it should be acknowledged that an element of subjectivity is inextricably linked to textual choices.[28] Philology cannot always work with 'hard' facts. Some linguistic or metrical structures are undoubtedly impossible in certain texts and eras, but language is inherently flexible, and every author, ancient or modern, makes creative use of it. For this reason, even when the text transmitted by the manuscripts is clearly incorrect – for example, because it is unmetrical or nonsensical – we often have to accept a degree of uncertainty in reconstructing the correct version. The same applies to manuscript traditions: it is often impossible to reach a firm conclusion about textual relations, even when the reconstruction of a stemma seems possible.[29] The positivist rhetoric of factual certainty damaged the philological enterprise by claiming certainty even when the data did not allow it. Philologists preferred to base their authority on strong statements, not always backed by facts, rather than admit uncertainty or, worse still, subjectivity.

The rejection of any suggestion of subjectivity also led scholars to underestimate the importance of translation. Translation was used in pedagogical practices, or as a 'creative' enterprise that had little to do

[27] Pasquali 1920: 32 = Pasquali 1964: 36: "comoda scienza democratica".

[28] See e.g., Tarrant 2016: 29 and esp. 40 ("No edition of a classical text can be definitive").

[29] Compare, for example, the different views of the stemma for Pindar expressed by Turyn 1932, Maas 1933, Irigoin 1952, and Snell 1959. Maas offers a compelling refutation of Turyn's stemma, but his reconstruction (essentially followed by Snell), and that of Irigoin are both possible.

with philology. Pasquali never recanted his statements about translation. His insistence that ancient texts should not be translated implied that true classicists read only in the original. This is in fact reflected in the common practice of critical editions: Teubner and OCT (unlike the Budé series) do not offer translations. Teubner was the flagship series of critical editions in the 19th century. This practice implies that there is only one possible translation for each text, and that this translation is obvious. Pasquali endorsed translations only for texts that were 'difficult to interpret', suggesting that for the most part translation was uncontroversial.[30] It is a common experience, however, that translating a text often forces one to rethink and sometimes to doubt the correctness of the transmitted text. Finding a problem is the starting point for proposing a solution.[31] The rhetoric of certainty, both in the philological practice of preparing critical editions and in the practice of reading ancient texts, downplays uncertainty. This is also apparent in the rhetoric of scholars who offer conjectures.

2. *Conjectures: Divine, Human, and Computational*

The philologist needs to 'feel' the classical text: Romagnoli proclaimed this subjective and intuitional necessity. Pasquali rejected 'feeling' as arbitrary. Yet, in fact, Wilamowitz, Pasquali's ideal philologist, explicitly affirmed the need to 'feel' the classics.[32] Wilamowitz insisted on 'feeling' based on a hermeneutic theory with a specific and explicit religious justification: the 'daemon' of the (exceptionally perceptive) philologist could establish some sort of connection with the ancient author and, as it were, bring that author back to life – through conjecture. Conjecture was therefore conceived as an attempt to reach into the mind, or even the 'soul', of an ancient writer. Wilamowitz often attributed a daemon to exceptionally gifted people. As Plutarch argued, 'the thoughts of daemons are luminous and shed their light on the daemonic man' (589b); 'the messages of daemons pass through all other men, but find an echo in those only whose character is untroubled and soul unruffled, the very men in fact we call holy and daemonic' (589d).[33] If, as Wila-

[30] Pasquali 1920: 31 = Pasquali 1964: 35 "d'interpretazione difficile".

[31] See Nisbet 1991 = Nisbet 1995: 338-61; Conte 2013; Battezzato 2019.

[32] On 'feeling' and the classics, see Güthenke 2020.

[33] Translation from Einarson and De Lacy 1959.

mowitz believed, philology consists of a process of *Einfühlung*, that is of 'feeling' oneself into another person, then the philologist is a 'holy and daemonic' individual who can be in contact with what other human beings once thought and wrote.[34] Conjecture is a way of making contact with the souls of people who died millennia ago. This mystical view of conjecture is, in fact, in line with ancient theories of philology. Athenaeus (XIV 634d) reports a saying about Aristarchus: 'the philosopher Panaetius of Rhodes used to refer to him [Aristarchus] as a 'mantis' ("seer"), because he could easily divine the point of a poem'.[35] In the 18th century, Bentley took up this claim and argued that the philologist needed to be endowed, 'as they used to say of Aristarchus, with a certain ability in divination and with the gift of prophecy'.[36] The concept of divination travelled from antiquity to Bentley and was used in the 19th- and 20th-century German tradition. Kurtz observed that 'hermeneutics, too, involved divination, which involved a fallible and corrigible process of hypothesis to press beyond the limitations of empirical evidence into the contingent world that conditioned a work'; and he noted that 'towards the fin de siècle, divination suggested a psychological self-projection of the interpreter on the interpreted'.[37]

Another common set of philological metaphors relates to victory: a conjecture may be called 'palmaris' (or 'palmaria'), i.e. worthy of the palm of victory[38] (a symbol adapted in the Christian tradition to celebrate the 'victory' of martyrs). The term highlights the competitive na-

[34] On this, see Battezzato 2023.

[35] Translation from Olson 2011. The passage is fr. 93 in Straaten 1962. On this passage, see Porter 1992: 70 (who argues for an ironic interpretation of the passage), Seppänen and Lampinen 2019: 901-2. The statement may contain exaggerated praise, but it is not presented as ironical in the context of Athenaeus.

[36] See Bentley 1711 c: "ut de Aristarcho olim praedicabatur, divinandi quaedam peritia & μαντικῆι". On this statement, see Scognamiglio 2021. On the links between philology and divination in antiquity, see Seppänen and Lampinen 2019. Note that Cicero, *On Divination* 2.74, in a discussion about Roman seers, contrasted *coniectura* (an inference made on the basis of elements perceived by the senses) with *diuinatio* (divinely inspired knowledge of events that could not have been known otherwise). On divination in modern philological theory, see Kurtz 2021: 761 and n. 39, with further references.

[37] Kurtz 2021: 761 and n. 39.

[38] See e.g., Carrion 1576: 26 "scribendum conicio, quae mihi coniectura paene palmaria est, de veteris scripturae vestigijs", Carrion 1579: 218 "emendatio palmaria",

ture of the philological enterprise: philologists must be celebrated for defeating errors in the manuscript tradition, or for proving their superiority over rival philologists. The metaphor stresses the effort required to achieve victory: 'sacrifices' (another religious metaphor) must be made to secure 'victory'. Similar language is used in sport and religion. Paradoxically, modern editors of sacred texts are wary of proposing and accepting conjectures: these texts are so foundational to Western culture, and their authority so strong, that the idea of changing them by 'conjecture' is rarely countenanced.[39] Philologists, it seems, can hope for a mystical connection with ancient authors only if these authors did not write canonical religious texts – presumably, the assumption here is that God took care to prevent textual corruption in divine texts.

The first instantiations of what would become the modern apparatus criticus appeared in the 16th century; scholars used sigla to designate manuscripts in their collations.[40] A crucial feature of the modern apparatus criticus, however, is that it lists the names of the authors of conjectures. This has the practical aim of helping other scholars to find the arguments that philologists sometimes (though not always) used to support their suggestions. It also gives the reader a sense of the progress made over time in establishing the text; those in the know, when reading the name of a philologist, can place him (or, more rarely, her) in time, which in turn helps to assess the conjecture. Renaissance conjectures often dealt with basic problems of syntax or morphology, whereas later conjectures, especially from the 19th and 20th centuries, are often based on more advanced knowledge of metre, language, and style.[41] However, the naming of philologists in the apparatus is not only the

Modius 1584: 101 and 387 "palmaria correctio", "palmaria emendatio", Brink 1978: 1149, Brink 1986: 71.

[39] See Cohen 2023: 4, 45-6, 50, 56, 89, 126, 172 on the reluctance to emend sacred texts (e.g., 172: "there is a growing reluctance to emend without compelling reason", in practice only when we find "obvious scribal errors"); this, for instance, rules out the possibility of deleting obvious interpolations, such as the end of the Gospel of Mark, or the episode of the adulterous woman in the Gospel of John: see, in general, Ehrman 2005, Battezzato 2009.

[40] Sigla used in Renaissance collations: Battezzato 2006, Reeve 2006: 179-80 (criticising Flores and Tomasco 2002). Timpanaro 2005: 65 lists Bengel 1763 as the first occurrence of the term *apparatus criticus*.

[41] Some scholars give the precise bibliographical reference for each emendation, which again helps the reader: see especially West 1990b.

result of practical considerations – it is also a way to immortalise their names. The 'great souls' of modern philologists who were able to 'feel' what the ancient author wrote will not perish. Their 'victory' over (textual) corruption and (scholarly) rivalry will be celebrated in perpetuity. Mentioning the name of the philologist who first advanced a conjecture (or a supplement) is thus considered not only good scholarly practice, but also a way of honouring their work. Editions that do not mention the name of the author of a conjecture do exist, but they aim to simplify the task of reading an apparatus for a student audience.[42]

As many scholars have observed, conjectures are based on 'feeling' and intuition, more than, or in addition to, knowledge of language, metre, and style. As Housman puts it: "Textual criticism is a science, and, since it comprises recension and emendation, it is also an art".[43] If so, emendation involves a creative element, not a scientific one. This in fact leads to 'open' editions. Some conjectures (the truly 'palmary' ones) are generally considered 'correct'. However, on several issues, each philologist will 'feel' differently – both about the need for a conjecture and in choosing the right one.[44]

'Feeling' what the ancient text must have been like and 'studying' language, metre, and style actually correspond to two fundamental modes of human thinking. Kahneman called intuition 'System 1', a mode of thinking which 'operates automatically and quickly, with little or no effort and no sense of voluntary action'.[45] This applies to everyday life, as well as to intellectual endeavours such as reading. People are able to 'read' words or parts of words that are missing from a text; they read the right word instead of a misprint. But intuition is only part of the picture. Scholars must resort to analytical judgement; they must test hypotheses and check dictionaries, grammatical works, and statistical evidence about word usage.[46] This kind of work is always necessary to confirm a conjecture based on 'intuition'; it may also be the basis

[42] Some editions in the *Cambridge Greek and Latin Classics* series (often known as the "Green and Yellow" commentaries) use a generic siglum, such as *c*, to indicate a conjecture, omitting the name of the scholar who devised it: see e.g., Denyer 2001, Gray 2007.

[43] Housman 1922: 68 = Housman 1972: 1058.

[44] See Trovato 2017: 243-74.

[45] See Kahneman 2011: 20; Kahneman and Tversky 2000; Gilovich et al. 2002. For a more detailed discussion of the psychology of conjecture, see Battezzato 2019.

[46] See for instance Diggle 1994.

from which a textual conjecture emerges. Analytical work corresponds to what Kahneman calls 'System 2', which 'allocates attention to the effortful mental activities that require it, including complex computation'; its operations 'are often associated with the subjective experience of agency, choice, and concentration'.[47]

In fact, both systems are present and intertwined in any scholarly activity.[48] Skilled readers use intuition ('System 1') more often: in "an environment that is sufficiently regular to be predictable"[49] intuition leads to reliable (though not flawless) predictions. As Kahneman points out, "as you become skilled in a task, its demand for energy diminishes", and "the pattern of activity associated with an action changes as skill increases, with fewer brain regions involved".[50] However, people working on ancient texts must constantly revert to 'System 2'. Non-native speakers of a language often fail to notice mistakes that native speakers would easily spot. Scholars who read texts in ancient languages are not native speakers. When they edit a text, they must make sure that it conforms to the linguistic and stylistic norms expected of that particular author or period. This practice is even regularly theorised in textual criticism handbooks and is referred to as the need to check the *usus scribendi* of each author.[51] One way of putting this is to say that 'System 2' must be used to examine every element of the ancient text. If the transmitted text appears to be incorrect, scholars can use 'System 1' and/or 'System 2' to look for new solutions to problems that were not noticed on the first (or second, or third) reading.

The 'art' of conjecture corresponds to 'System 1'; the 'science' corresponds to 'System 2'. The main question addressed in this volume

[47] Kahneman 2011: 21. We are not concerned here with the question of whether all of Kahneman's research results could be replicated. Some have been contested (see Schimmack 2017 and 2020) as part of the so-called replication crisis (see e.g., on psychology, Maxwell, Lau, and Howard 2015; Forbes, Travers, and Johnson 2023; on the implications of the replication crisis for the humanities, see Kramnik 2023: 89); indeed, Kahneman's own research has discussed the problem of replicability, and discussed it in relation to his own work: Kahneman 2017. These specific details do not affect the general concepts used by Kahneman.

[48] The following paragraph reformulates what I wrote in Battezzato 2019: 13.

[49] Kahneman 2011: 240.

[50] Kahneman 2011: 35. See 451 for references.

[51] See e.g., Pasquali 1952: 122-4; Maas 1958: 10-3, 41; West 1973: 56-9; Timpanaro 2005: 68-9, 88, 124, 137; Battezzato 2009: 775.

is what happens when we add Artificial Intelligence to the human and divine ways of understanding the restoration of ancient texts: does AI use 'System 1' or 'System 2', or a combination of both? Logion is based on a statistical model: it introduces what is statistically expected to be found in a text. In doing so, it brings to the fore an essential contradiction in philology: on the one hand, it aims to standardise the text, to make it more predictable and banal. This is what scribes (and readers) do unconsciously ('System 1'). Philologists have long established that when two readings are transmitted, the 'more difficult' one (*lectio difficilior*) is to be preferred.[52] On the other hand, philologists, by looking at an author's *usus scribendi*, claim that the text that is more likely to be correct (another probabilistic judgement, this time made by human beings) is the less unusual one. These two principles are in tension with each other.[53] The 'conjectures' made by Logion reveal this tension and confront scholars with the need to rethink some of their assumptions.

Logion is unsettling also in another respect. An AI 'conjecture' is deeply subversive of the immortalising language of classical philology briefly outlined here. As many of the essays in this volume show, the AI tool Logion is capable of suggesting readings that are likely to reconstruct what the author originally wrote, even in passages that were never suspected of corruption. The number of persuasive suggestions is a fraction of the total number of suggestions. In fact, this is what also happens with human scholars: even in the case of scholars with excellent philological reputations, such as Hermann, Wilamowitz, or West, only a fraction of their conjectures is convincing.[54] Many of Logion's 'conjectures' are clearly wrong, sometimes for elementary grammatical reasons. That said, let us examine the case of a convincing 'conjecture' by Logion. What should we print in the apparatus? 'Computator'? 'Post computatorem Barnes et Sandri'? 'Computatorem secutae May et Ozbek'? Should we immortalise the AI tool? Does it make sense to speak of 'immortalising' AI? Is AI a 'daemonic' being? Can we bestow the 'crown' of victory on a soulless entity? The idea of giving AI a place of prominence in what used to be exclusive province of human beings is unsettling to many scholars – despite the fact that we humans have

[52] See e.g., Pasquali 1952: 122-6; Maas 1958: 13; West 1973: 51; Battezzato 2009: 775; Trovato 2017: 117-24, and Graziosi, chapter 1 in this volume: 19 and n. 17.

[53] See e.g., Pasquali 1952: 12, 122-6; Battezzato 2009: 775.

[54] See e.g., West 1990a: 355-72, along with the remarks in Di Benedetto 1992: 152-3 = Di Benedetto 2007: 1230-31.

been using electronic tools to work on philological problems for decades now. The first planning meeting that eventually led to the creation of the *Thesaurus Linguae Graecae* took place in 1972. However, it is one thing to use a tool that simply provides access to data; it is quite another to have a tool like Logion that suggests its own candidates for likely textual corruption and can create new data, for instance by supplementing lacunae. This is all the more disturbing given that we do not really have access to Logion's 'reasoning'. We do not know whether Logion bases its suggestions on 'System 1' or 'System 2'; indeed, more fundamentally, we do not know to what degree or in what possible ways deep neural networks like Logion resemble human reasoning.[55]

What is essential to note at this point in the development of AI tools for philological tasks is that such tools do not substitute philologists. Philologists still need to evaluate Logion's suggestions; the 'System 2' task is up to human beings. It is human beings who need to find arguments and textual parallels to support – or challenge – Logion's suggestions. In a sense, Logion's suggestions are not actually 'conjectures': Logion makes different suggestions for the same passage based on the limits set by its human users. The suggestions may differ by one, two, or more letters from the text under consideration: the greater the distance from the text, the slimmer the chance of producing a convincing suggestion.[56] This shows how much Logion is controlled by humans. Human philologists can decide on the extent of an intervention in the text (from a punctuation mark or word division, which is distance 0, to a complete rewriting of a word, e.g., by transposing syllables). Not only that: it takes a human being (or more than one) to decide what is worth discussing, and accepting, and what is not. Finally, it takes a human being (or more than one) to produce an edition, to decide what combination of readings is acceptable in the thousands of words that make up the text.

Another issue worth highlighting here is that of translation. Classical scholarship has often focused on a narrow canon of texts. After all, this is what 'classical' means, not least in its relation to social class.[57] One

[55] For a basic introduction to how Logion is trained, see Brooks and Cowen-Breen, chapter 4 in this volume.

[56] See the essay by Barnes and Sandri, chapter 6 in this volume.

[57] See Aulus Gellius, *Attic Nights*, 19.8.15 "So go now and inquire, when you chance to have leisure, whether any orator or poet, provided he be of that earlier band – that is to say, any classical or authoritative writer, not one of the common herd [*id est classicus adsiduusque aliquis scriptor, non proletarius*] – has used *quadriga* or *harenae*"

upshot of establishing a classical canon is that ancient texts not considered worthy of the term have neither been translated nor properly edited. This is particularly problematic for Greek texts when it comes to late-antique and Byzantine literature. These texts are often dense and complex – and extremely lengthy. Many AI tools offer help with translations, even if Logion has not yet been adapted for this task. Translations often reveal the presence of textual problems: humans often translate what should be in the text but is not. Translations would also help to attract readers by making texts accessible to a wider audience. But even if an AI tool could translate such texts in full and make them intelligible to modern readers, there would still be a need for experts: translation tools can certainly make mistakes and need human supervision and assessment.

Dario Amodei recently wrote:

> I think it is very likely a mistake to believe that tasks you undertake are meaningless simply because an AI could do them better. Most people are not the best in the world at anything, and it doesn't seem to bother them particularly much. [...] people [...] greatly enjoy activities that produce no economic value. [...] In any case I think meaning comes mostly from human relationships and connection, not from economic labor. [58]

So, what is the point of all this work? It only makes sense to invest in editions and translations if people read them. The hope is that AI tools like Logion will make it easier for new readers to access ancient texts. These texts were created for the pleasure, education, and (alas) frustration of human beings. Without readers, philology is meaningless. But without editions, there are no readers. And without readers, there is no meaning.

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(translation Rolfe 1927). On the relationship between classics and class, see e.g., Hall and Stead 2020: 25-6.

[58] Amodei 2024.

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