

## Developing a Database for the Greek Fragmentary Tragedians

Andreas P. Antonopoulos, Stylianos Chronopoulos,  
Nikolaos Ntaliakouras, Panagiota Taktikou,  
Anastasia Psomiadou, Iraklis Markelis

**Abstract:** The present paper describes the progress made by the FragTrag.1 project in developing an openly-accessed Database for the Greek Fragmentary Tragedians. The Database aims to collect all information at hand about the life and fragmentary works (tragedies and satyr dramas) of 45 Greek tragedians of the 6th and the 5th centuries BC. These poets include, respectively, the pioneers of Greek drama, as well as the competitors of Aeschylus, Sophocles, and Euripides (the only three tragedians from whom we have complete works). In addition to providing digital biographical records for these poets, the Database will include the first born-digital edition of their fragmentary works and of selected *testimonia* referring to them.

### Collections of fragments: a specific type of edition in its first digital steps

From the vast literary production of ancient Greece during the Archaic, Classical, and Hellenistic eras only a small portion of texts has been transmitted in (more or less) complete form. A considerably larger portion is known to us through information provided by other texts, mainly from Imperial and Byzantine times. This information may have various degrees of detail and exactitude: a simple mention of an author's name and/or work's title and information about this work, a more detailed reference to the content of a specific work or an aspect of it, a quotation of a word or a phrase or an entire passage, and even a paraphrase of the exact wording of a specific passage. To these pieces of information, which very often represent types of reuse of an older text by a more recent one, one should add a smaller corpus of papyrial remains, which transmit directly a portion (whatever its size) of a specific text. Thus, information pieces of various types scattered among various works may give, if collected and put together, some insight into literary works that have not been transmitted extant. Putting together these information pieces in collections pertaining to a particular work, or a particular author, or even a particular genre presupposes an attention shift from the reusing or witness (extant) text to the reused (non-extant) text. In practice, nevertheless, such a collection operates at the intersection between these two types of texts, as the fuller understanding of a reused text is often dependent on its context in the witness text.

The collection and presentation of such scattered information pieces (in most cases on author or genre basis), led to the creation of a distinct kind of scholarly edition, the edition of a collection of frag-

ments,<sup>1</sup> the word “fragment” being the term that prevailed in classical scholarship to refer to these information pieces.<sup>2</sup> This genre of publication reached its peak in the 20th century, following several centuries of experimentation. Notable works that showcase its maturity, *Die Fragmente der griechischen Historiker* by F. Jacoby (Berlin 1923–), *Tragicorum Graecorum Fragmenta* by B. Snell, R. Kannicht, and S. Radt (Göttingen 1971–), and *Poetae Comici Graeci* by R. Kassel, C. Austin, and S. Schröder (Berlin 1983–), feature a similar general structure comprising the following basic components:

- *prefatory material*
- *testimonia*: a collection of texts from various sources transmitting general information about the author and/or his work or aspects of his work; some external reference system is used, commonly continuous enumeration, in order to make each *testimonium* citable.
- *titles of works*: the titles of works (and in some cases their subdivisions) attributed to an author as they are transmitted by *testimonia* and witnesses of fragments; the editions include also a section “unknown works” for the categorisation of fragments of unknown provenance.
- *fragments*: a collection of texts from various sources transmitting fragments of an author/work; this section includes a critical edition of the witness passage, as well as a critical edition of the fragment itself, and uses typographical means to distinguish between them; some external reference system is used, commonly continuous enumeration for each author, in order to make each fragment citable.
- *concordances*: tables which match references to *testimonia* and fragments in the present edition to those of a previous edition/previous editions.
- *list of sources*: a list of references to the ancient/medieval sources that transmit the *testimonia* and the fragments.
- *indices*: depending on the edition, indices of all words included in *testimonia* and fragments, and/or indices of named entities.

Transferring this genre of critical editions into a machine-operable digital format has been proven quite challenging. As Berti remarks, “the first generation of digital libraries has digitised the reconstructed text of single editions of Classical works. The goal of the second generation of digital libraries is to publish multiple editions of the same work, reproduce the critical apparatus and all other paratextual elements (prefaces, introductions, indexes, bibliographies, notes, etc.), and generate collaborative environments for critical editing of Greek and Latin sources.”<sup>3</sup>

In the case of fragmentary texts of Greek authors the digitised editions included in *Thesaurus Linguae Graecae* (TLG)<sup>4</sup> represent clearly cases belonging to the first generation: (a) no specific data model has been used for the digitisation of the collections of fragments, and (b) the digitised editions comprise less information in comparison to the print editions; most notably, no critical apparatus is included and, in most cases, the witness text is missing. The digital tools available for browsing and ac-

---

1 For the origins of this type of edition see Kassel (2005), Dionisotti (1997) (with some interesting remarks concerning the interconnection between this type of edition and the invention of print, p. 4), and Most (2009), 15–17.

2 For the term, see Most (2009).

3 Berti (2019), 260–261.

4 <http://stephanus.tlg.uci.edu> (last access 24.04.2023).

cessing information from the fragments are the default tools provided for all texts included in the TLG database, namely, there is no specific provision for the peculiarities, which collections of fragments as a genre present.<sup>5</sup>

*Brill's New Jacoby* (BNJ) has some features that bring it closer to a digital library of the second generation. It includes not only an updated digitised version of Jacoby's *Die Fragmente der griechischen Historiker*, but also additional fragments from the authors covered by Jacoby, as well as fragments from several new authors. The new material has been produced especially for BNJ. The critical edition of the *testimonia* and the fragments is accompanied by an English translation, commenting notes and prefaces to the authors. BNJ provides browsing and search tools designed specifically for this edition. The implementation of a new project, *Jacoby Online* (JO)<sup>6</sup> moves a step further into adopting a model for producing uniform and stable identifiers for its elements (CITE-Architecture) and providing specialised browsing and search tools for the collection.<sup>7</sup> Yet, the data model underlying the digital edition largely reproduces the model of a print edition and does not go significantly beyond it in terms of Linked Open Data.<sup>8</sup> In this regard, both the editions of fragments in TLG and BNJ/JO continue to rely heavily on the print tradition and do not actually open up a path for experimenting with a new data architecture, with visualisations and tools designed especially for the digital medium.

Exactly this path is explored by Berti's *Digital Fragmenta Historicorum Graecorum* (DFHG),<sup>9</sup> a digital product which in her own words "is not a new edition of ancient Greek fragmentary historians, but a digital experiment to provide textual, philological, and computational methods for representing fragmentary authors and works in a digital environment".<sup>10</sup> DFHG's base is a digitised version of the genre-based edition of the Greek historians' fragments by K. Müller, *Fragmenta historicorum Graecorum* (Paris 1841–1884), the now outdated predecessor of Jacoby's *Die Fragmente der griechischen Historiker*. Upon this base, Berti builds a digital edition, a combination of special digital browsing and search tools, as well as various visualisations. The final product demonstrates clearly how standard features of print scholarly editions, such as indexes and lists of witnesses, can be transferred in a digital environment and how hypertext could be functionally implemented in digital editions.<sup>11</sup> Berti's "experiment" is based on a print edition of a collection of fragments and keeps unchanged its data model, but nevertheless it manages to demonstrate a way for the creation of a born-digital edition of fragments and its tools.

*Thebaidis reliquiae*,<sup>12</sup> created by M. Spanakis and published as part of the project *Thebarum Fabula*,<sup>13</sup> is an original, open-source, born-digital edition of the fragments of Antimachus' of Colophon epic poem *Thebais*. It is an author-oriented, single-author/single-work edition of fragments offering the default functionality and tools provided by TEI Publisher.<sup>14</sup> The edition is formatted as a single TEI<sup>15</sup>-

5 See also Berti (2021), 50–58 for a detailed presentation and critique of the incorporation of collections of fragments in TLG.

6 <https://scholarlyeditions.brill.com/bnjo> (last access 24.04.2023).

7 See further in Berti (2021), 58–66.

8 For the concept and some of the uses of Linked Open Data in Digital Humanities, Blaney (2017) is a very good starting point.

9 <https://www.dfhg-project.org> (last access 24.04.2023).

10 Berti (2019), 262.

11 Berti documents and discusses extensively DFGH in Berti (2019), 127–303.

12 <http://thebarumfabula.usc.es/exist/apps/bibliotheca/Antimachus-Thebais.xml> (last access 24.04.2023).

13 <http://thebarumfabula.usc.es> (last access 24.04.2023).

14 <https://teipublisher.com/index.html> (last access 24.04.2023).

15 Text Encoding Initiative: <https://tei-c.org> (last access 24.04.2023).

compatible XML document; it includes the original text of the fragments, parallel translations in English and modern Greek, a list of witnesses (manuscripts and previous editions), textual and explanatory notes; it offers the possibility to download the XML-file including all its data, but lacks any preface or prefatory remarks. There is a very simple browsing tool that provides the possibility only for linear browsing. Finally, there is no search tool especially designed for this specific edition; the *Thebarum Fabula* project provides a simple full-text search tool for all editions it includes.

Spanakis' work adopts a data model typical for print editions of fragments. The fragments are enumerated continuously and attributed to books. For each fragment Spanakis offers the original text of the witness transmitting the fragment and its translations. If the witness transmits an actual fragment, that is the original wording of the poem or something close to it (e.g. a word used by Antimachus in its lemma form), this fragment is separated from the text of the witness and is presented on its own in the original and in translation. If the witness transmits more general information about the poem, Spanakis offers only the original text of the witness and its translations.<sup>16</sup> Yet, the two cases are not differentiated explicitly.

*Thebaidis reliquiae* represents an advancement in digital scholarly editing of fragments, as it provides an open-source, born-digital, and original edition of a fragmentary work. At the same time, it can be regarded as a bridge between print and digital editions of fragments, since it is clearly indebted to the data model of print editions. The fact that this edition does not contain virtually any hypertext, Linked Open Data, or possibilities for various visualisations, reinforces the judgement that it is a born-digital edition that still follows the print paradigm.

The comparison between *DFGH* and *Thebaidis reliquiae* illustrates the crucial point at which the creation of digital editions of collections of fragments stands at this moment: on one hand, we need digital editions which offer new material and supersede their print counterparts; on the other, we need to develop new data models for creating editions of fragments in ways that they can (a) represent adequately the peculiarities of this specific scholarly genre, (b) take full advantage of the possibilities available in the digital medium, and (c) fulfil (at least some of) the criteria set up by Sahle for qualifying an edition as a digital edition: providing high-resolution facsimiles, hypertext, data modelling according to the guidelines of the TEI and enriching texts with normative data, Linked Open Data, various browsing and searching options, visualisations that go beyond pure text presentation (interactive map material, kinship network).<sup>17</sup>

The edition *Greek Fragmentary Tragedians Online* (FragTrag), presented below in its concept and basic features, places itself in the context of the ongoing research for establishing a paradigm for born-digital editions of collections of fragments.<sup>18</sup>

---

16 See e.g. fragment 13: <http://thebarumfabula.usc.es/exist/apps/bibliotheca/Antimachus-Thebais.xml?root=4.4.2.2.5.6> (last access 24.04.2023).

17 Sahle (2013), 148.

18 <https://fragtrag1.upatras.gr> (last access 24.04.2023). The project is hosted by the Department of Philology, University of Patras – Greece. Its research and other activities are also supported by the dynamic “Institute of Digital Innovation” of the University Research Centre of Ioannina (<https://urci.unit.uoi.gr/idi/en>; last access 24.04.2023). FragTrag.1 has been made possible through a major funding grant from the Hellenic Foundation for Research and Innovation (HFRI) (<https://www.elidek.gr/en>; last access 24.04.2023), in the framework of the “2nd Call for Research Projects to Support Post-Doctoral Researchers” (Project Number: 85). The authors of this paper wish to thank the HFRI for its generosity, as well as the members of the project’s Advisory Board, Profs. James Diggle (Cambridge), Eric Csapo (Warwick), George W.M. Harrison (Carleton), Antonis Petrides (Open U. of Cyprus), Angeliki Syrkou and Ioannis Chatzilygeroudis (Patras) for their support in the implementation of the Database.

## Greek Fragmentary Tragedians: the material

For most people nowadays Greek tragedy is almost entirely represented by the 5<sup>th</sup> century BC Athenian playwrights Aeschylus, Sophocles and Euripides, from whom we have 30–32<sup>19</sup> complete plays in total. A few people may also be aware that there is one complete satyr drama, Euripides' *Cyclops*, and that this genre too – having common roots with tragedy in the Dionysiac dithyramb – was written by the tragedians. Nevertheless, hundreds of other tragedies and satyr dramas were performed in antiquity, written by a multitude of poets. Only in Athens, every year during the 5<sup>th</sup> and most of the 4<sup>th</sup> century BC, three tragic poets would take part in the City Dionysia contest, with three tragedies and a satyr drama each. In addition, in the lesser dramatic contest of the Lenaia, starting from 440–430 BC, two tragic poets would compete with two tragedies each. In addition to the “Great Three” (from whom we also have fragmentary plays), 200 names of other Greek tragedians are known from ancient sources, starting from c. 534 BC (the traditional date for tragedy's introduction to the Athens' City Dionysia by Thespis), and going as far the 5<sup>th</sup> century AD. From the works of these poets – commonly referred to as the “minor tragedians”, or “tragicci minores”<sup>20</sup> – we have numerous fragments and *testimonia* (ranging from 270 lines to a few words, or even a single title), while some of them are simply known by name.

In order to get an idea of these poets' contribution to Greek drama, one needs to take in mind that the period between 534 BC and Aeschylus' first appearance at the theatre in 499 BC features some of the great pioneers of Greek theatre as a whole. These include Thespis, the first known poet of tragedies and – traditionally – the first actor, Pratinas of Phlius, the first known poet of satyr dramas,<sup>21</sup> Chorerilus, one of the most prolific tragedians,<sup>22</sup> and Phrynichus, the first known author of a historical drama.<sup>23</sup> It is also worth calculating, for instance, the output of the 5<sup>th</sup> cent. BC “fragmentary” poets, *vis-à-vis* that of Aeschylus, Sophocles, and Euripides. During the 95 years of the combined career of “The Triad”<sup>24</sup> approximately 1140 plays were staged in the City Dionysia,<sup>25</sup> and at least another 104 in the Lenaia (starting the count for the latter festival from 430 BC).<sup>26</sup> Provided that the numbers of the ancient sources are sound – or at least near the truth – from this total of 1244 plays only 300 belonged to the “Triad” (90 to each of Aeschylus and Euripides, 120 to Sophocles) and the rest to other poets. Among them – according to the *Suda* – Aristarchus wrote 70 plays, Ion 40 plays, Achaeus 44 plays and Philocles 100 plays.

The 4<sup>th</sup> century BC hosted some even more productive poets, the most famous of whom was Astydamas the Younger with an impressive record of 240 plays and 13 victories,<sup>27</sup> as well as the expansion of tragedy well beyond the borders of Attica. In fact, in 340 BC this poet became the first tragedian to have a bronze statue of his erected in the Theatre of Dionysus, and what is more this honour by the

19 The authorship of *Prometheus Bound* by Aeschylus and that of *Rhesus* by Euripides are contested.

20 E.g. in Snell / Kannicht (1986), the reference scholarly edition of their works, and, most recently, in Cropp (2019) and (2021).

21 He is credited with 50 plays, 32 of which satyric, and one victory by the Byzantine lexicon of *Suda*.

22 He is credited with 160 plays and 13 victories by the *Suda*.

23 I.e. *Miletou Alosis*, reflecting on the sack of Miletus by the Persians in 494 BC.

24 Starting with Aeschylus' first appearance in the theatre in 499 BC and ending with Sophocles' death in 405 BC.

25 Every year three tragic poets participated in the tragic contest, each presenting three tragedies and one satyr drama. So 95 years x 3 poets x 4 plays make 1140 plays.

26 Every year two tragic poets participated in the tragic contest with two tragedies each. So 26 years x 2 poets x 2 plays make 104 plays.

27 Compare the only 5 victories of Euripides, one of which *post mortem*.

Athenian demos took place during Astydamos' lifetime and before similar statues were erected for each of Aeschylus, Sophocles and Euripides.<sup>28</sup>

With the above in mind, two things become evident straight away. First, it is impossible to have a complete coverage of Greek theatre – at least of what is left of it – without incorporating the fragmentary works of these poets and other evidence of their life and career. Second, the stereotypical characterisation of these poets as “minor tragedians” – prompted by the poorer attestation of their work in comparison to the “Triad” – is unfortunate and does not do justice to their contribution to the theatre: many of them in their own time had comparable fame and success to Aeschylus, Sophocles and Euripides.<sup>29</sup> Conversely, these three poets were established as the “canonical” tragedians, not in their lifetime (Aeschylus died in 456 BC, Euripides in 406 BC and shortly after him Sophocles), but much later and with political intervention: a decree by the Athenian statesman Lycurgus (between 337 and 324 BC) dictating that copies of their tragedies should be kept in the state archives. As Wright notes, “from this time onwards, an enormous amount of prestige and cultural status became attached to the Triad, and much less attention was given to the work of all other playwrights”.<sup>30</sup> In order to avoid the pejorative stereotype Wright uses the term “neglected authors”. And although it is true that these playwrights have been neglected, this does not speak for their identity; it simply calls for further research and better documentation of their work. Besides, the label “neglected” can bear negative connotations: people tend to neglect what is unimportant. But this is far from true for these playwrights.

In the framework of the FragTrag.1 project we have introduced the term “fragmentary tragedians” for these poets. This is a neutral term, which simply states that their work is accessible to us only through fragments, rather than complete plays. This is the first time that the term is specifically applied to these poets, but it has been used in recent years for other Greek and Latin authors, especially in the field of Digital Classics. For instance, in 2009 Berti and her associates set some basic premises for the creation “of a digital corpus of fragmentary authors”, themselves starting with a project on the “Greek fragmentary historians”<sup>31</sup> (subsequently known as the DFHG project).

Despite the growing importance in recent decades of fragmentary texts for our knowledge of ancient literature, the plays of the fragmentary tragedians remain virtually unknown to the wider public. The only work collecting all *testimonia* and fragments is the critical edition by Snell (revised by Kannicht in 1986). The book, designed for professional scholars, has a primary focus on the Greek text, which is not translated, but is accompanied by a critical apparatus, which is heavily abbreviated and in Latin. Apart from the fact that this work is difficult for inexperienced (“Greek-/Latin-less”) readers to consult, with more than thirty years having passed even the Greek text needs to be improved. Translations, sometimes together with commentary or notes, have been confined to select fragments and authors. Kannicht (1991) has produced a German translation of *testimonia* and fragments from 30 poets. Cipolla's (2003) Italian translation and detailed commentary covers only the satyr dramas of the fragmentary poets. The most substantial satyric fragments have also been included in the collaborative volume by Krumeich et al. (1999) (in German) and in the edition of O'Sullivan / Collard (2013) (in English, in the Aris & Philips series), in both works together with plays by Aeschylus, Sophocles and Euripides. Wright's (2016) recent study on these tragedians is a valuable general contribution to the field, albeit not an edition.<sup>32</sup> In addition this work is only concerned with the tragic genre, leaving out

---

28 See the discussion by Wright (2016), xv–xvi.

29 An indicative example is the City Dionysia contest of 431 BC, where Euphorion (Aeschylus' son) took the first prize beating both Sophocles and Euripides (*Hypothesis of Eur. Medea* = Didascalica C.12 Snell/Kannicht).

30 Wright (2016), xvii.

31 Berti et al. (2009).

32 To use his own words, “it is primarily a work of literary history” (p. xxviii). Note, nevertheless, that he has accompanied his study with a useful English translation of the tragic fragments in his “Appendix I”.

satyr drama, and that until the year 322 BC; for Hellenistic tragedy Wright (p. x) directs the readers to the (then forthcoming) study by Kotlińska-Toma (2014). Similarly, the collaborative volume by Liapis / Petrides (2018) is a general study of post-classical tragedy from the 4<sup>th</sup> century BC down to the 4<sup>th</sup> century AD. The two volumes by Cropp (2019) and (2021) (in the Aris & Philips series), perhaps the most important contributions to the field since Snell, include “fragments from the tragedies with selected *testimonia*” from selected poets.<sup>33</sup> These fragments and *testimonia* are accompanied with a short introduction, English translation and notes. Cropp has intentionally left out the satyric fragments, as several of them were already treated by O’Sullivan / Collard (2013) in the same series. In addition to the above books, there are numerous smaller contributions on individual poets and works, often in conjunction with works from the “Triad”.<sup>34</sup>

The above works clearly demonstrate the growing interest for the fragmentary tragedians in the Classics community. On the other hand, the coverage of these poets’ work remains partial and, what is more, it is scattered in several different editions and other studies. It is evident that we still need a complete account of the diverse material that we have for the fragmentary poets of Greek tragedy and satyr drama, and this is what the *Greek Fragmentary Tragedians Online* project aims to do. In the first phase of this project (FragTrag.1) we will produce the first all-inclusive edition for the 46 poets belonging to the 6<sup>th</sup> and the 5<sup>th</sup> centuries BC, whose textual remains roughly amount to 50% of the surviving material. It is expedient to cover these poets, not only because the most extant textual remains come from them, but most importantly because they include the pioneers of Greek theatre (6<sup>th</sup> cent.) and some of the famous contemporaries of Aeschylus, Sophocles and Euripides, who competed and interacted with them (5<sup>th</sup> cent.).<sup>35</sup>

The complete coverage of these unrepresented playwrights will be an innovation for the field of Greek drama, and so will the medium of this edition. Following the latest trends in the research on fragmentary authors, we are preparing an open-access digital database, which will have significant advantages compared to conventional print editions. These include (a) making the material on these neglected poets easily accessible to the worldwide community, and (b) having the ability to continuously update our work, as new data come up. It is worth noting that, although several print editions of dramatic plays have been digitised so far, this will be the first born-digital edition for any Greek playwright.

Similar digital projects have been developed in recent decades in the field of Classical literature. Among them figure prominently the *Perseus Digital Library*,<sup>36</sup> including, inter alia, a wide collection of digitised editions and translations of Greek and Roman authors, and recently *The Leipzig Open Fragmentary Texts Series* (LOFTS).<sup>37</sup> The latter initiative focuses on fragmentary authors and has several interconnected subprojects, including the above mentioned *Digital Fragmenta Historicorum Graecorum* (DFHG),<sup>38</sup> a digitised form of a print edition, and the *Digital Athenaeus*,<sup>39</sup> a digital edition of the *Deipnosophists*, one of the principal sources for quotations from otherwise lost authors and works.

---

33 For instance the first volume covers 18 poets of the 6<sup>th</sup> and 5<sup>th</sup> centuries BC out of a total of 46 poets.

34 See, for instance, Diggle (1998), who has included fragments from Critias and Neophon in an anthology-edition of selected fragments from tragic poets.

35 Upon completion of our work on these poets, and provided that we will have secured the necessary funding, we will move to the second phase of the project (FragTrag.2) covering the other 50% of the material, belonging to 154 poets from the 4<sup>th</sup> cent. BC down to the 5<sup>th</sup> cent. AD.

36 [www.perseus.tufts.edu](http://www.perseus.tufts.edu) (last access 24.04.2023).

37 For detailed information, see Berti et al. (2016).

38 <https://www.dfhg-project.org> (last access 24.04.2023).

39 <https://www.digitalatheneus.org> (last access 24.04.2023).

## Greek Fragmentary Tragedians: the digital edition

The edition of the “Greek Fragmentary Tragedians” (hereafter: the digital edition) is an open-access born-digital, bilingual edition of a genre-oriented corpus of fragmentary works and related *testimonia*. It aims at combining the advantages of the structuring paradigms established by modern print editions of fragments (*Tragicorum Graecorum Fragmenta, Poetae Comici Graeci*, et al.) and key advantages that a digital edition offers, especially its accessibility, its interconnection with Linked Open Data sources, its search engines and other electronic tools, and its expansibility.

The main components of the digital edition are a TEI-XML model developed according to the needs of the project, a database for which we draw upon and adjust tools made available by the TEI Publisher,<sup>40</sup> and an especially designed graphical interface, which offers the user browsing, reading and search environments.

Starting point of the organisation of the material are the individual tragedians, as happens with print editions of fragments from multiple authors. For each tragedian the database comprises three sub-sections: (a) a biographical note (*Biography*), (b) an edition of ancient testimonies (*Testimonia*) referring to him and (c) an edition of his fragmentary plays (*Fragmentary Plays*).

Each *Biography* consists of two elements (see Fig. 1): (a) the biographical note proper, which draws upon information coming from the testimonies and discusses commonly accepted hypotheses about the life and the work of each tragedian, and (b) a list with selected references for further reading and bibliographical information.<sup>41</sup>

The screenshot shows the website interface for the Greek Fragmentary Tragedians Online. The header includes the site name and navigation links. The main content area features the name 'Mesatus' in both English and Greek, followed by a 'Biography' section. The biography text describes Mesatus as a tragedian active in Athens in the 460s BC, mentioning his participation in a tragic contest at the City Dionysia. Below the biography is a 'Further Reading' section with a list of references.

Fig. 1: Mesatus, Biography.

The *Testimonia* sub-section includes the original text of selected testimonies on a given tragedian and a translation in English; the testimonies are continuously enumerated and each of them is identified with a unique identifier following the CTS/CITE architecture (see Fig. 2).<sup>42</sup>

40 <https://teipublisher.com> (last access 24.04.2023).

41 [https://fragtrag1.upatras.gr/exist/apps/fragtrag/mesatus/Mesatus\\_BIO.xml](https://fragtrag1.upatras.gr/exist/apps/fragtrag/mesatus/Mesatus_BIO.xml) (last access 24.04.2023).

42 [https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/testimonia/Phrynichus\\_TESTIMONIA.xml](https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/testimonia/Phrynichus_TESTIMONIA.xml) (last access 24.04.2023).



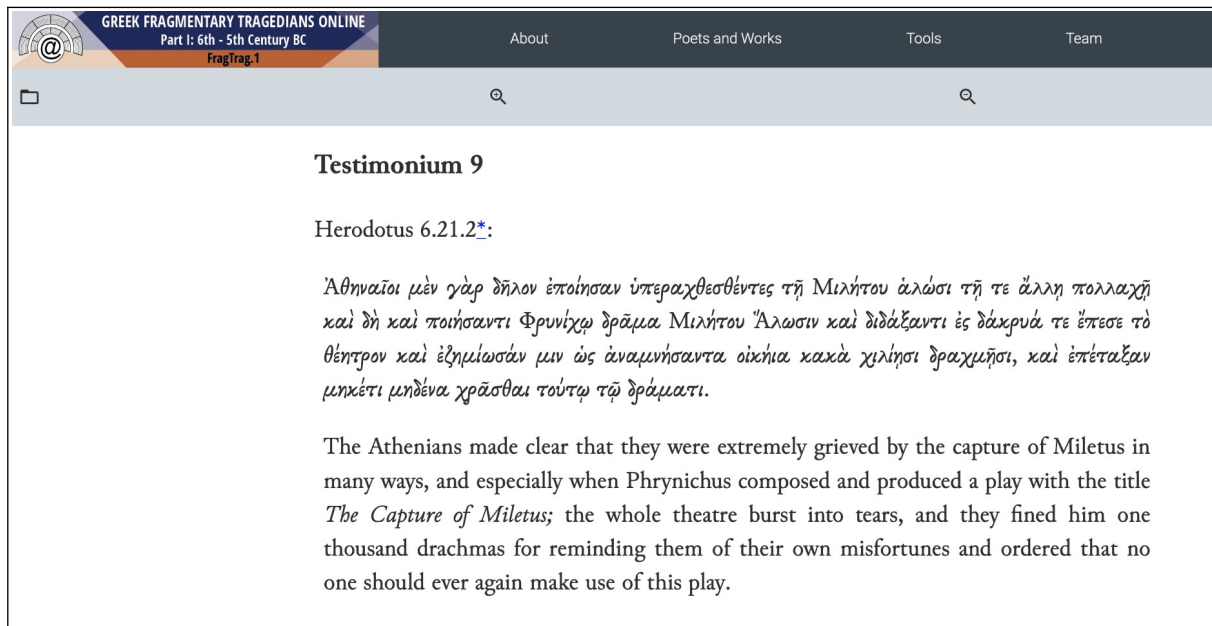


Fig. 2: Phrynichus, *testimonium* 9.

In the *Fragmentary Plays* sub-section the edition follows the practice of print editions organising the material into: (a) plays, each identified by its title (in the Greek original and Latin transliteration), and an identifier modelled on the basis of the CITE-Architecture, and (b) a category “from unknown plays”. Departing from the practice in the *Tragicorum Graecorum Fragmenta* the edition distinguishes between proper “fragments” and, a new category proposed by us, “reports”.<sup>43</sup>

The CTS/CITE architecture has been used for the citable identification of poets, *testimonia*, titles, fragments and reports as discrete objects. For this purpose we use the specified namespace “fragtrag” in which the name of each poet (e.g., “thespis”) is used as a collection’s identifier. Each collection has two objects, “*testimonia*” and “*fragmenta*” and the object “*fragmenta*” contains three types, “title”, “report”, “fragment”.<sup>44</sup> Thus:

- the identifier for Phrynichus’ *testimonium* 1 in the edition is:  
urn:cite2:fragtrag.phrynichus.testimonia:1
- the identifier for the title “Αἰγύπτιοι” of Phrynichus is:  
urn:cite2:fragtrag:phrynichus.fragmenta.title:aigyptioi
- the identifier for Phrynichus’ fragment 1 is:  
urn:cite2:fragtrag:phrynichus.fragmenta.fragment:1
- the identifier for Phrynichus’ report 1 is:  
urn:cite2:fragtrag:phrynichus.fragmenta.report:1

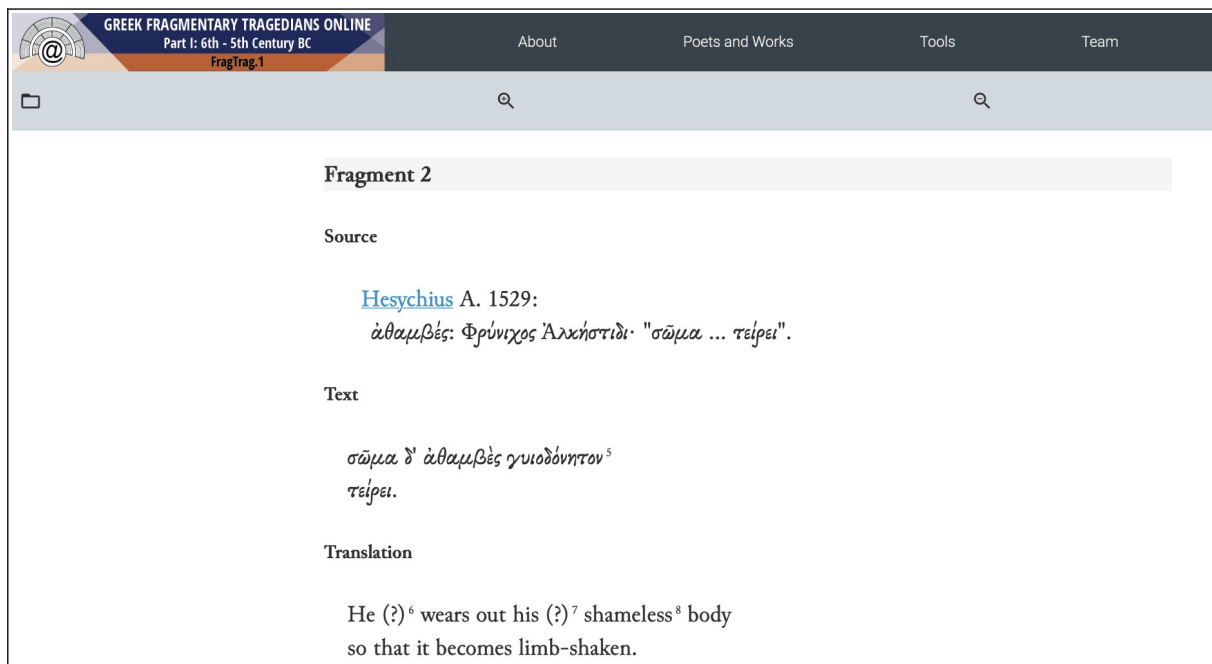
The proper fragments consist of text (lines, phrases or even simple words – though not necessarily original word forms) quoted from the original play, whether a tragedy or a satyr drama. The “reports” are information pieces about an element of a play (for example an event from its plot, the presence of a

43 From existing print editions of fragmentary texts *only* the *Poetae Comici Graeci* distinguishes typographically between fragments and information pieces about a given play. These information pieces are printed in a smaller size font and enumerated with Latin numbers separately for each play (in contrast the fragments are enumerated with Arabic numbers continuously for each poet).

44 For the CITE-Architecture and its implementation in general, see Blackwell / Smith (2019). For the specific implementation in FragTrag Berti (2021), 105–114 has been very helpful.

speaking character, or a subject theme presented in the play) which do not constitute quotations from the original play. The distinction between fragments and reports was deemed necessary both because they contain material from, or relevant to a given play belonging to different levels, and because the elements used for their encoding in the edition differ.

From the material about and from the plays of Phrynichus, for example, we treat the text “σῶμα δ' ἀθαμβές γυιοδόνητον / τείρει” (transmitted by Hesychius A. 1529) as a fragment, since it is presented by the witness as the exact wording contained at some point in the tragedy *Alcestis* (see Fig. 3).<sup>45</sup> Similarly, we treat as a fragment the lexicographical remark in Hesychius E 195 “ἔγκαρπα: τοῦς κεκουρευμένους πυρούς· ἀλλὰ καὶ ἔγκαρπα Φρύνιχος Δαναΐσι”, which informs that Phrynichus' tragedy *Danaids* contained the word “ἔγκαρπα”, even if we do not know in which exact form it appeared.



The screenshot shows the website interface for 'GREEK FRAGMENTARY TRAGEDIANS ONLINE'. The header includes navigation links: 'About', 'Poets and Works', 'Tools', and 'Team'. Below the header is a search bar. The main content area is titled 'Fragment 2' and contains the following information:

- Source:** Hesychius A. 1529: ἀθαμβές: Φρύνιχος Ἀλκήστιδι· "σῶμα ... τείρει".
- Text:** σῶμα δ' ἀθαμβές γυιοδόνητον<sup>5</sup>  
τείρει.
- Translation:** He (?)<sup>6</sup> wears out his (?)<sup>7</sup> shameless<sup>8</sup> body  
so that it becomes limb-shaken.

**Fig. 3: Phrynichus, fragment 2 (from his *Alcestis*).**

On the contrary, we treat the information about the fact that “Phrynichus the tragedian in the play Antaeus related in detail a lot on wrestlings” transmitted by the Scholia to Aristophanes' *Frogs* (689) and the fact that “Phrynichus the tragedian in his play Antaeus writes about wrestlings between this Antaeus the Libyan and Heracles” transmitted by Tzetzes' commentary on the *Frogs* (688a) as reports, since these remarks do not aim at transmitting something on the level of the wording but report about a subject theme the play contained (see Fig. 4).<sup>46</sup> The same applies to the information about a scene in Phrynichus' *Alcestis* in which Thanatos appears carrying a sword and cuts hair from Alcestis' head transmitted in Servius' commentary on *Aeneid* 4,694.

45 [https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/fragmenta/Phrynichus\\_FRAGMENTA.xml](https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/fragmenta/Phrynichus_FRAGMENTA.xml) (last access 24.04.2023).

46 [https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/fragmenta/Phrynichus\\_FRAGMENTA.xml](https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/fragmenta/Phrynichus_FRAGMENTA.xml) (last access 24.04.2023).

The screenshot shows the website interface for 'GREEK FRAGMENTARY TRAGEDIANS ONLINE'. The header includes navigation links: 'About', 'Poets and Works', 'Tools', and 'Team'. Below the header is a search bar. The main content area displays the title '4. Antaios or Libyes / Ανταῖος ἢ Λίβυες <sup>9</sup>'. Underneath, there are two sections: 'Report 3a' and 'Report 3b'. Report 3a includes a reference to 'Schol. ad Ar. Ran. 689:' followed by Greek text and an English translation: 'Phrynichus' wrestlings: because Phrynichus the tragedian in the play Antaios related in detail a lot on wrestlings.' Report 3b includes a reference to 'Tzetzes ad Ar.Ran. 688a:' followed by Greek text and an English translation: 'Phrynichus the tragedian in his play Antaios writes about wrestlings between this Antaios the Libyan and Heracles.'

**Fig. 4: Phrynichus, reports 3a and 3b.**

For the encoding of the proper fragments the edition follows the familiar distinction between “source text” (reference to the source and the original text transmitting the fragment) and “fragment text”, and offers a text with critical notes for both, and additionally an English translation for the fragment text. The edition encodes the reports providing the reference to the source text, its original wording and an English translation thereof. Fragments and reports are treated as different categories and therefore are enumerated separately, although they are both included in the sub-section of *Fragmentary Plays*.

The original Greek (and/or Latin, in the *testimonia* and reports) texts in each of these sub-sections are equipped with a selection of critical notes, which record variant readings, conjectures and their sources, as well as other necessary information on the text. The English translations are equipped with explanatory notes that make the texts more intelligible, as well as short discussions of textual problems and editorial decisions. In other words, these notes include data that we would find, respectively, in the critical apparatus and in the commentary of a conventional print edition. Sources transmitting the *testimonia*, the fragments and the reports, original texts, translations, critical notes and explanatory notes are each explicitly annotated as such. Furthermore, the sources of *testimonia* are interlinked (where possible) with already available online versions of their complete text, most often in the *Perseus Digital Library*,<sup>47</sup> and in other openly-accessible sources. The purpose of this is to give the reader access to as much context as possible for each *testimonium*.

A crucial feature of digital scholarly editions is the conversion of the traditional tools present in print editions, such as concordances and indexes, into machine actionable formats and the inclusion of Linked Open Data. Towards this aim the edition annotates all named entities in the fragments and reports (personal and geographical names) with references to Linked Open Data sources: the VIAF database<sup>48</sup> (for ancient authors), the *Wikidata* database<sup>49</sup> for historical persons other than ancient authors

47 <http://www.perseus.tufts.edu> (last access 24.04.2023).

48 <https://viaf.org> (last access 24.04.2023).

49 <https://www.wikidata.org> (last access 24.04.2023).

and mythical entities, and the *Pleiades* database<sup>50</sup> for place names. Similarly, all bibliographical references are annotated as such and connected to the bibliographical depository of the project.

These annotated elements provide the material for the indexes included among the *Tools* of the database.<sup>51</sup> The user can search through the edition for geographical names, for mythological entities (gods and heroes) and for the sources transmitting testimonies and fragments. Besides these tools, the edition also offers the possibility for a full-text search (whether in the original or in translation) of the *testimonia*, the fragments and the reports.<sup>52</sup>

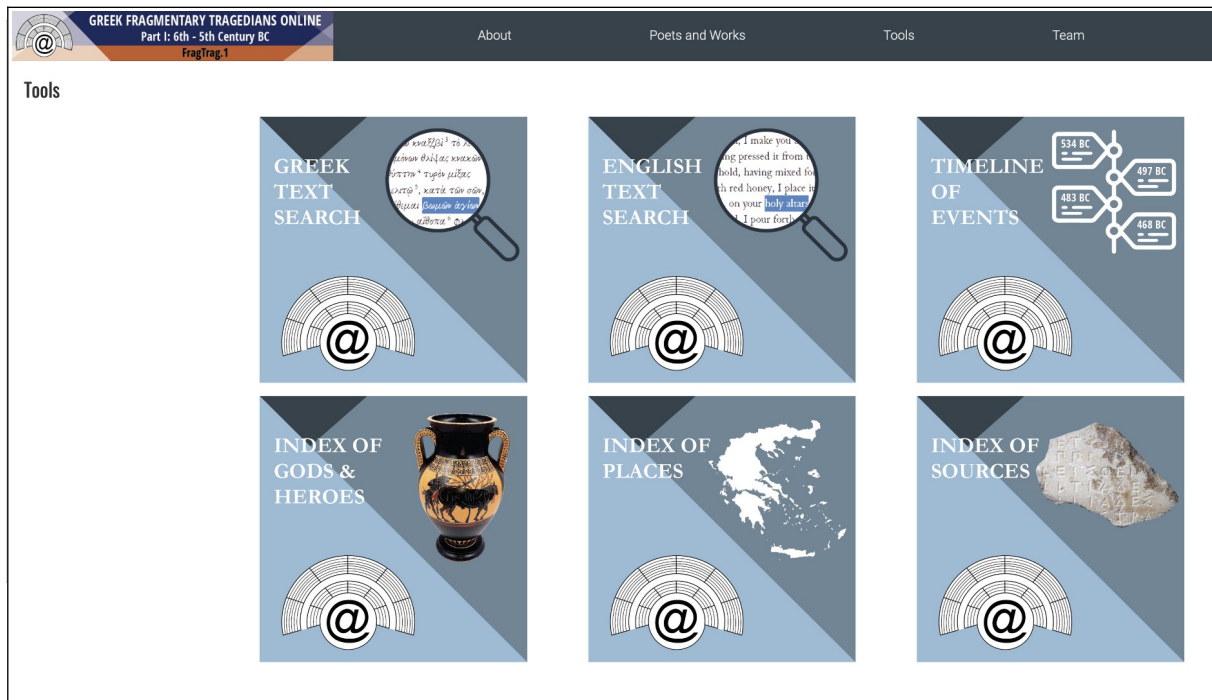


Fig. 5: Tools and Indices of the FragTrag edition.

To sum up, the edition *Greek Fragmentary Tragedians Online* aspires of being an original and useful product for the scholarly community and an experiment about how critical editions of collections of fragments could be transferred into the digital medium. It offers critical texts of *testimonia*, fragments and their witnesses, as well as English translations thereof with basic explanatory notes that make these texts more intelligible. This born-digital edition is experimenting with (a) a TEI/XML structuring model, (b) the use of Open Linked Data for persons and geographical entities, (c) an environment for browsing and searching a collection of fragments, and (d) the creation of digital indices and tools pertaining to the specific needs and aims of a critical edition of a collection of fragments.

50 <https://pleiades.stoa.org> (last access 24.04.2023).

51 [https://fragtrag1.upatras.gr/exist/apps/fragtrag/fragtrag\\_tools.html](https://fragtrag1.upatras.gr/exist/apps/fragtrag/fragtrag_tools.html) (last access 24.04.2023).

52 [https://fragtrag1.upatras.gr/exist/apps/fragtrag/fragtrag\\_tools.html](https://fragtrag1.upatras.gr/exist/apps/fragtrag/fragtrag_tools.html) (last access 24.04.2023).

## Sources

### Digital corpora

Antimachus Colophonius, *Thebaidis Reliquiae*, <http://thebarumfabula.usc.es/exist/apps/bibliotheca/Antimachus-Thebais.xml> (last access 24.04.2023).

Digital Fragmenta Historicorum Graecorum (DFHG), <https://www.dfhg-project.org/> (last access 24.04.2023).

Jacoby Online (JO), <https://scholarlyeditions.brill.com/bnjo/> (last access 24.04.2023).

TLG database, <https://stephanus.tlg.uci.edu/> (last access 24.04.2023).

### Text editions

Cipolla (2003): P. Cipolla (ed./trans.), *Poeti minori del dramma satiresco*, Amsterdam 2003.

Cropp (2019): M. J. Cropp (ed./trans.), *Minor Greek Tragedians. Vol. 1: The Fifth Century*, Liverpool 2019.

Cropp (2021): M. J. Cropp (ed./trans.), *Minor Greek Tragedians. Vol. 2: Fourth-Century and Hellenistic Poets*, Liverpool 2021.

Diggle (1998): J. Diggle (ed.), *Tragicorum Graecorum Fragmenta Selecta*, Oxford 1998.

FGrH: F. Jacoby (ed.), *Die Fragmente der griechischen Historiker*, Berlin–Leiden, 1923–1958.

Kassel / Austin: R. Kassel, R. / C. Austin (eds.), *Poetae Comici Graeci I–VIII*, Berlin 1983–2022.

Kannicht (1991): R. Kannicht (ed./trans.), *Musa Tragica. Die griechische Tragödie von Thespis bis Ezechiel*, Göttingen 1991.

Krumeich et al. (1999): R. Krumeich / N. Pechstein / B. Seidensticker (eds./trans.), *Das griechische Satyrspiel*, Darmstadt 1999.

O' Sullivan / Collard (2013): P. O' Sullivan / Ch. Collard (eds./trans.), *Euripides' Cyclops and Major Fragments of Greek Satyric Drama*, Oxford 2013.

Snell / Kannicht (1986): B. Snell (ed.), *Tragicorum Graecorum Fragment. Vol. 1. Didascaliae tragicae. Catalogi tragicorum et tragoediarum. Testimonia et fragmenta tragicorum minorum* (revised by R. Kannicht), Göttingen 1986.

Wright (2013): M. Wright (ed./trans.), *The Lost Plays of Greek Tragedy. Vol. 1. Neglected Authors*, London 2013.

## References

- Berti et al. (2009): M. Berti / M. Romanello / A. Babeu / G. Crane, Collecting Fragmentary Authors in A Digital Library, in: JCDL '09: Proceedings of the 9th ACM/IEEE-CS joint conference on Digital libraries, New York 2009, 259–262, <https://dl.acm.org/doi/10.1145/1555400.1555442> (last access 24.04.2023).
- Berti et al. (2016): M. Berti / B. Almas / G. Crane, The Leipzig Open Fragmentary Texts Series (LOFTS), DHQ 10.2 (2016), <http://www.digitalhumanities.org/dhq/vol/10/2/000245/000245.html> (last access 24.04.2023).
- Berti (2021): M. Berti, Digital Editions of Historical Fragmentary Texts, Heidelberg 2021, <https://doi.org/10.11588/propylaeum.898> (last access 24.04.2023).
- Blackwell / Smith (2019): C. W. Blackwell / N. Smith, The CITE Architecture: a Conceptual and Practical Overview, in: M. Berti (ed.), Digital Classical Philology. Ancient Greek and Latin in the Digital Revolution, Berlin 2019, 73–93, <https://www.degruyter.com/document/doi/10.1515/9783110599572-006/html> (last access 24.04.2023).
- Blaney (2017): J. Blaney, Introduction to the Principles of Linked Open Data, Programming Historian 6 (2017), <https://programminghistorian.org/en/lessons/intro-to-linked-data> (last access 24.04.2023).
- Dionisotti (1997): A. C. Dionisotti, On Fragments in Classical Scholarship, in: G. Most (ed.), Collecting Fragments. Fragmente Sammeln, Göttingen 1997, 1–33.
- Franzini et al. (2016): G. Franzini / E. Franzini / M. Büchler, Historical Text Reuse: What Is It?, eTRAP 2016, <http://www.etrapp.eu/historical-text-re-use> (last access 24.04.2023).
- Kassel (2005): R. Kassel, Fragments and Their Collectors, in: F. McHardy / J. Robson / D. Harvey (eds.), Lost Dramas of Classical Athens. Greek Tragic Fragments, (transl. Hazel and David Harvey, first publ. Fragmente und ihre Sammler, 1991), Liverpool 2005, 7–20.
- Kotlińska-Toma (2014): A. Kotlińska-Toma, Hellenistic Tragedy, London 2014.
- Liapis / Petrides (2018): V. Liapis / A. Petrides (eds.), Greek Tragedy after the Fifth Century. A Survey from the Fourth Century BC to the Fourth Century AD, Cambridge 2018.
- Most (2009): G. Most, On Fragments, in: Tronzo, W. (ed.), The Fragment. An Incomplete History, Los Angeles 2009, 9–22.
- Sahle (2013): P. Sahle, Digitale Editionsformen. Zum Umgang mit der Überlieferung unter den Bedingungen des Medienwandels, Teil 3: Textbegriffe und Recodierung. Norderstedt 2013.

## Figure references

- Fig. 1: Mesatus, Biography, screenshot from the FragTrag.1 page, [https://fragtrag1.upatras.gr/exist/apps/fragtrag/mesatus/Mesatus\\_BIO.xml](https://fragtrag1.upatras.gr/exist/apps/fragtrag/mesatus/Mesatus_BIO.xml) (last access 24.04.2023).
- Fig. 2: Phrynichus, *testimonium* 9, screenshot from the FragTrag.1 page, [https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/testimonia/Phrynichus\\_TESTIMONIA.xml](https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/testimonia/Phrynichus_TESTIMONIA.xml) (last access 24.04.2023).
- Fig. 3: Phrynichus, fragment 2 (from his *Alcestis*), screenshot from the FragTrag.1 page, [https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/fragmenta/Phrynichus\\_FRAGMENTA.xml](https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/fragmenta/Phrynichus_FRAGMENTA.xml) (last access 24.04.2023).
- Fig. 4: Phrynichus, reports 3a and 3b, screenshot from the FragTrag.1 page, [https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/fragmenta/Phrynichus\\_FRAGMENTA.xml](https://fragtrag1.upatras.gr/exist/apps/fragtrag/phrynichus/fragmenta/Phrynichus_FRAGMENTA.xml) (last access 24.04.2023).
- Fig. 5: Tools and Indices of the FragTrag edition, screenshot from the FragTrag.1 page, [https://fragtrag1.upatras.gr/exist/apps/fragtrag/fragtrag\\_tools.html](https://fragtrag1.upatras.gr/exist/apps/fragtrag/fragtrag_tools.html) (last access 24.04.2023).

## Author contact information<sup>53</sup>

Andreas P. Antonopoulos  
Assist. Professor of Ancient Greek Literature  
Department of Philology  
University of Ioannina  
Ioannina 45100, Greece  
E-Mail: [andreas.antonopoulos@uoi.gr](mailto:andreas.antonopoulos@uoi.gr)

---

<sup>53</sup> The rights pertaining to content, text, graphics, and images, unless otherwise noted, are reserved by the authors. This contribution is licensed under CC BY 4.0.