Embracing flexibility: new EVT features for critical editing, accessibility and inclusivity

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ABSTRACT (ENGLISH)

After a few years of fluctuating progress, caused by difficulties in maintaining continuity within the development team, EVT was given new impetus by a collaboration with a new software company and with an unexpectedly large number of digital edition projects. The requests from various research groups have led to the belief that the key concept on which to build the new features should be "flexibility/adaptability", both to ensure better support for critical editions and to offer more inclusive editions. The paper will discuss the design and development of these features in light of the digital projects in which the authors are involved.
Keywords: digital scholarly editing; digital philology; accessibility; inclusivity; critical edition.

ABSTRACT (ITALIANO)

Embracing flexibility: new EVT features for critical editing, accessibility and inclusivity. Dopo qualche anno di andamento altalenante, dovuto alla difficoltà di dare continuità al team di sviluppatori, EVT ha ricevuto nuovo impulso grazie alla collaborazione con una nuova ditta software e con un numero inaspettatamente elevato di progetti di edizioni digitali. Le richieste dei vari gruppi di ricercatori hanno portato a ritenere che il concetto chiave su cui costruire le nuove funzionalità debba essere quello della "flessibilità/adattabilità", sia per garantire un migliore supporto alle edizioni critiche, sia per offrire edizioni più inclusive. Il paper tratterà della progettazione e dello sviluppo di tali funzionalità, alla luce dei progetti digitali in cui gli autori sono coinvolti.
Parole chiave: edizione scientifica digitale; filologia digitale; accessibilità; inclusività; edizione critica.

1. INTRODUCTION: WHERE WE ARE WITH EVT DEVELOPMENT

The development of EVT has been a bit bumpy over the last few years: as explained in Cacioli *et al*. 2022, the change of development framework from AngularJS to Angular was essential to the birth of EVT 3, but as a first effect it meant a hiatus of more than two years just to reach a basic functionality comparable to that of EVT 2. The alpha version released in late 2022 thus represents a significant step forward for the future of the project, but its features are very limited: more of a demonstration prototype to be tested than something actually usable. The beta version, released in autumn 2024, is much more complete in terms of available features, but still has gaps that are being filled. The road to 1.0 is still a long one, and 2025 will be crucial.

The 2023-24 biennium also saw a revolution in the development team: the core group of developers associated with EVT's origins, our "old guard", gradually stepped aside, an event that was not painless, considering the network of human relationships and shared experiences that accumulated during the ten years of EVT development, but entirely understandable given work, family, etc. commitments that have become increasingly dense over the years. The new developers who joined the team between 2022 and 2024 were funded by grants, but this temporary relationship did not lead to their integration into the team when the grants expired. The collaboration with the software company SilentWave[1] starting in 2024 is probably the most important event for the future of EVT.

Not all is negative in 2022-24, though, as completely new and potentially very useful features have been introduced for a 1.0 version of EVT 3. These include authorial philology, thanks to the project on Saba's 1919 *Canzoniere* (Buzzoni 2024; Buzzoni *et al*. 2024), experimentation with TEI data processing and user annotation (Cacioli *et al*. 2022), and a major refinement of the digital facsimile, with the reintroduction of

[1] Home page: https://www.silentwave.eu/. See this page for EVT support: https://www.silentwave.eu/it/evt.

the bookreader view and a new view for comparing different images. A general improvement in support for critical editions has also been initiated in 2024 thanks to a collaboration with the PRIN RETI project.[2]

Before these new features could be successfully implemented, however, the new development team encountered a rather serious problem: EVT 3's XML parser was designed, and works well, for progressive handling of the TEI document, creating an in memory data structure as the file is read. This allows smooth handling of, for example, lists of named entities, and in general any information involving elements placed within the `<body>`. Unfortunately, this approach has proved less suitable for handling stand-off-type markup, which is typically placed in the `<back>` of a TEI document. Mainly for this reason, but also on the basis of other technical considerations, the SilentWave team proposed to rewrite the parser in such a way as to have a more flexible and powerful tool capable of handling all situations in which some text-related information is located anywhere in the TEI document (or even in another separate TEI document).

2. NEW FEATURES FOR THE *LEGES LANGOBARDORUM* PROJECT

This paper discusses new features introduced in the version developed to meet the needs of the *Leges Langobardorum* project, or otherwise related to the objectives of this project (Buzzoni & Rosselli Del Turco 2024).

2.1 Critical edition support

One of the new features introduced in EVT 3 is support for the double-end-point attached method (hereafter depa) for linking the critical apparatus to the text. As is well known, depa works both as inline markup and in stand-off mode. While both modes are supported, the implementation has focused particularly on stand-off markup because it offers an important advantage: it allows the critical text to be left "clean" so that another markup layer of any kind can be added. This feature will be particularly useful in the context of the *Leges* project, as it will allow named entities and especially Lombard terms to be marked up without fear of tag overlap.

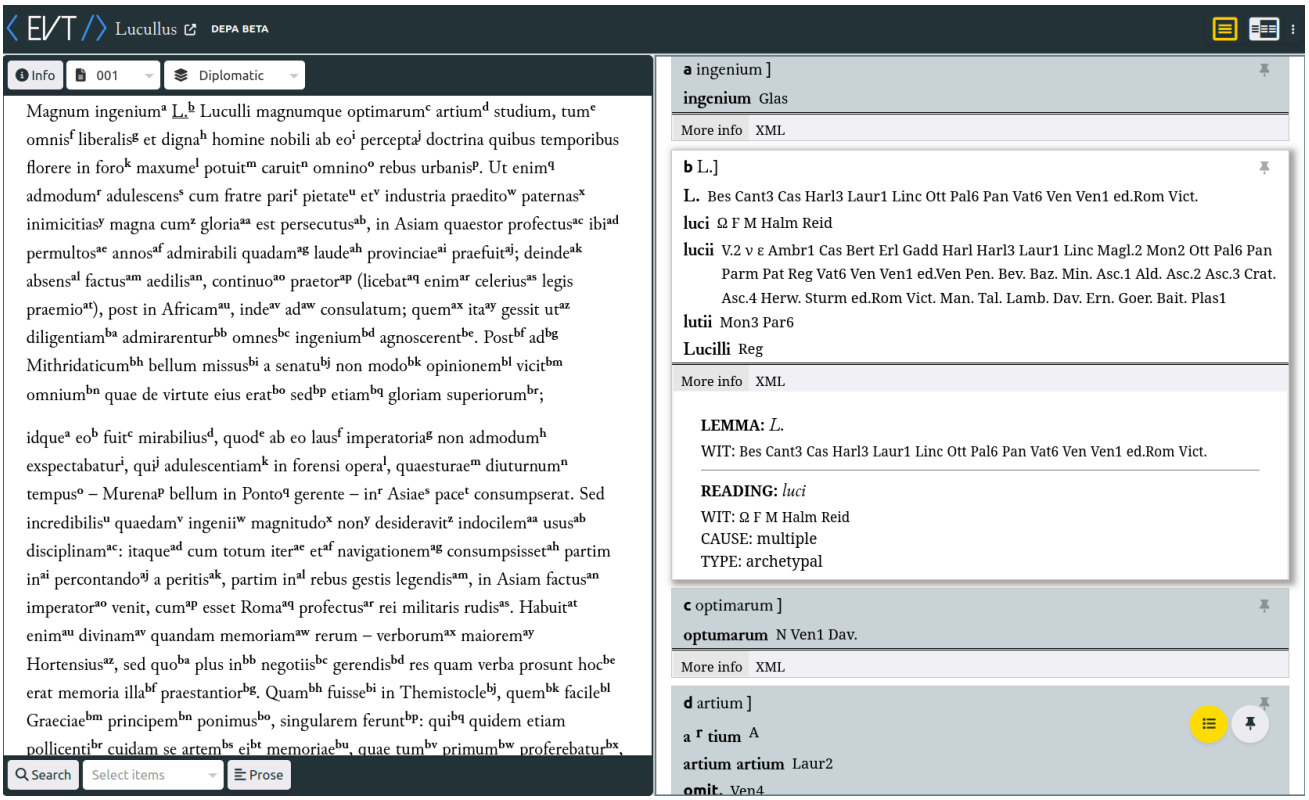

Figure 1. The TEI double-end-point attached method implementation for the RETI project

[2] PRIN 2022 "RETI - REndering Texts and Images. Digital Scholarly Editions with Edition Visualization Technology". See the paper "Il progetto RETI (REndering Texts and Images): metodologia e primi risultati" by C. Barbero, M. Di Franco, F. Lazzerini and A. Persia in this volume of the proceedings.

EVT will support the standard depa method proposed in the TEI *Guidelines*,[3] which is based on the positioning of empty `<anchor/>` elements, each given a unique identifier by the `xml:id` attribute, and used in pairs (hence the name "double endpoint") to delimit text spans that are to be associated with apparatus entries. However, the method proposed by the EVT developers and used by the RETI project is slightly different: it is still based on a stand-off approach, but the way it identifies text spans does not depend on the insertion of `<anchor/>` elements, but on the identifiers automatically assigned to each word in the text.[4]

```
            <p n="1"><seg n="1" xml:id="Luc-001">
                  <w xml:id="Luc-001-1">Magnum</w>
                  <w xml:id="Luc-001-2">ingenium</w>
                  <w xml:id="Luc-001-3">L.</w>
                  <w xml:id="Luc-001-4">Luculli</w>
                  <w xml:id="Luc-001-5">magnumque</w>
                  <w xml:id="Luc-001-6">optimarum</w>
                  <w xml:id="Luc-001-7">artium</w>
                  <w xml:id="Luc-001-8">studium</w>,
```

This method lets the encoder skip the tedious addition of `<anchor/>`s to the critical text, and you also don't need the `@to` attribute in the `<app>` if the variant corresponds to only one word:

```
            <listApp n="Luc-001">

               <app from="#Luc-001-2">
                  <rdg type="lectio.sing" cause="palaeographicConfusion"
                  wit="#Glas">ingen<add hand="#Glas.hand.c">i</add>um </rdg>
               </app>

               <app from="#Luc-001-3">
                  <lem
                     wit=" #Bes #Cant3 #Cas #Harl3 #Laur1 #Linc #Ott #Pal6 #Pan
#Vat6 #Ven #Ven1 #ed.Rom #Vict."/>
                  <rdg type="archetypal" cause="multiple" wit="#Ω #F #M #Halm
#Reid">luci</rdg>
                  <rdg type="editorial"
                     wit="#V.2 #ν #ε #Ambr1 #Cas #Bert #Erl #Gadd #Harl #Harl3
#Laur1 #Linc #Magl.2 #Mon2 #Ott #Pal6 #Pan #Parm #Pat #Reg #Vat6 #Ven #Ven1 #ed.Ven
#Pen. #Bev. #Baz. #Min. #Asc.1 #Ald. #Asc.2 #Asc.3 #Crat. #Asc.4 #Herw. #Sturm
#ed.Rom #Vict. #Man. #Tal. #Lamb. #Dav. #Ern. #Goer. #Bait. #Plas1"
                     >lucii</rdg>
                  <rdg type="polygenetic" cause="multiple" wit="#Mon3
#Par6">lutii</rdg>
                  <rdg type="lectio.sing" cause="multiple" wit="#Reg">Lucilli</rdg>
               </app>
```

[3] TEI Consortium, eds. "13.2.2 The Double End-Point Attachment Method." *Guidelines for Electronic Text Encoding and Interchange*. 4.9.0. 24 January 2025. https://www.tei-c.org/release/doc/tei-p5-doc/en/html/TC.html#TCAPDE.
[4] This task can easily be performed by a script in Python or XSLT.

```
            <app from="#Luc-001-6">
               <rdg type="polygenetic" cause="diction" wit="#N #Ven1
#Dav.">optumarum</rdg>
            </app>
```

Using this method, all you need is an `<anchor/>`, so that you can link an `<app>` to it, if the variant or textual phenomenon to be described is not present in the critical text.

2.2 Editorial conventions

This is a feature that was introduced in an experimental form in the very first versions of EVT 3, but only fully developed during the last development cycle (after the beta 1 release). The principle behind this feature is very simple: each philological tradition has its own editorial conventions (see, among many others, Bausi et al. 2015; Roelli et al. 2020), so to introduce fixed and unchangeable solutions in EVT is to propose a way of publishing DSE that only partially satisfies, or completely displeases, philologists other than the one who set these solutions. The remedy introduced in EVT is an additional configuration file, `editorial_conventions.json`, in which the typographical rendering for the desired type of phenomenon can be specified.

In EVT 2 it was already possible to use custom CSS rules to highlight and format the text contained by specific elements. This is particularly useful when these elements are ignored by EVT, for example the content of `<supplied>` is rendered "as is", with no special handling of its appearance. To specify that its content should be inserted between square brackets, two simple CSS rules can be used in the `custom-styles.css` file:

```
.supplied:before {content: "["}
.supplied:after {content: "]"}
```

However, this approach is not perfect, firstly because when a TEI element is actually handled by EVT, there may be a conflict with the internal stylesheets, which means that the custom CSS rules may fail altogether. It would also require each editor to create their own list of editorial elements and custom CSS rules to render them on screen. In EVT 3, the `editorial_conventions.json` file groups together all the solutions devised for editorial markup, and makes it possible to check that they are appropriate for the current edition, and to change them if necessary. Using a separate configuration file, it is also possible to create pre-defined sets corresponding to the main philological traditions (e.g. a set for Leiden style editions, one for medieval Latin texts, etc.) and to create a web front-end to allow any editor to modify and adapt them without knowing CSS syntax. This is how `<supplied>` might be handled for all edition levels:

```
  "editSuppliedText": {
      "markup": {
          "element": "supplied"
      },
      "layouts": {
          "diplomatic": {
              "style": {
                  "pre": "[",
                  "post": "]",
                  "background-color": "#e7b0e8"
              }
          },
          "interpretative": {
              "style": {
                  "pre": "[",
                  "post": "]"
                   }
```

```
            },
            "critical": {
                "style": {
                    "pre": "[",
                    "post": "]"
                }
            }
        }
    },
```

This feature is an important element of flexibility, as it does not impose a single set of conventions applicable to all philological traditions, but allows for choice and customisation according to the needs of the philologist. Also note that using this feature doesn't prevent the editor from adding custom CSS rules to further customize the appearance of the text, allowing for even more flexibility in the final output.

2.3 Inclusivity and accessibility

One of the advantages of digital editions is that they are a very viable alternative to consulting a document in person. This not only facilitates research in general, since it is only in very specific and quantitatively limited cases that it is necessary to travel in order to physically examine a document, but also an inclusive approach to the dissemination of cultural heritage, since people with serious motor disabilities can also easily use published texts. However, there are other types of disability that can make it difficult or even impossible for large groups of users to make use of a DSE: motor control problems, poor eyesight, hearing difficulties and other issues can have a serious impact on the usefulness (or otherwise) of a digital edition for many people.

As a first step, we have started to analyse the accessibility status of EVT 3 using a browser extension called SilkTide (see Fig. 2).[5]

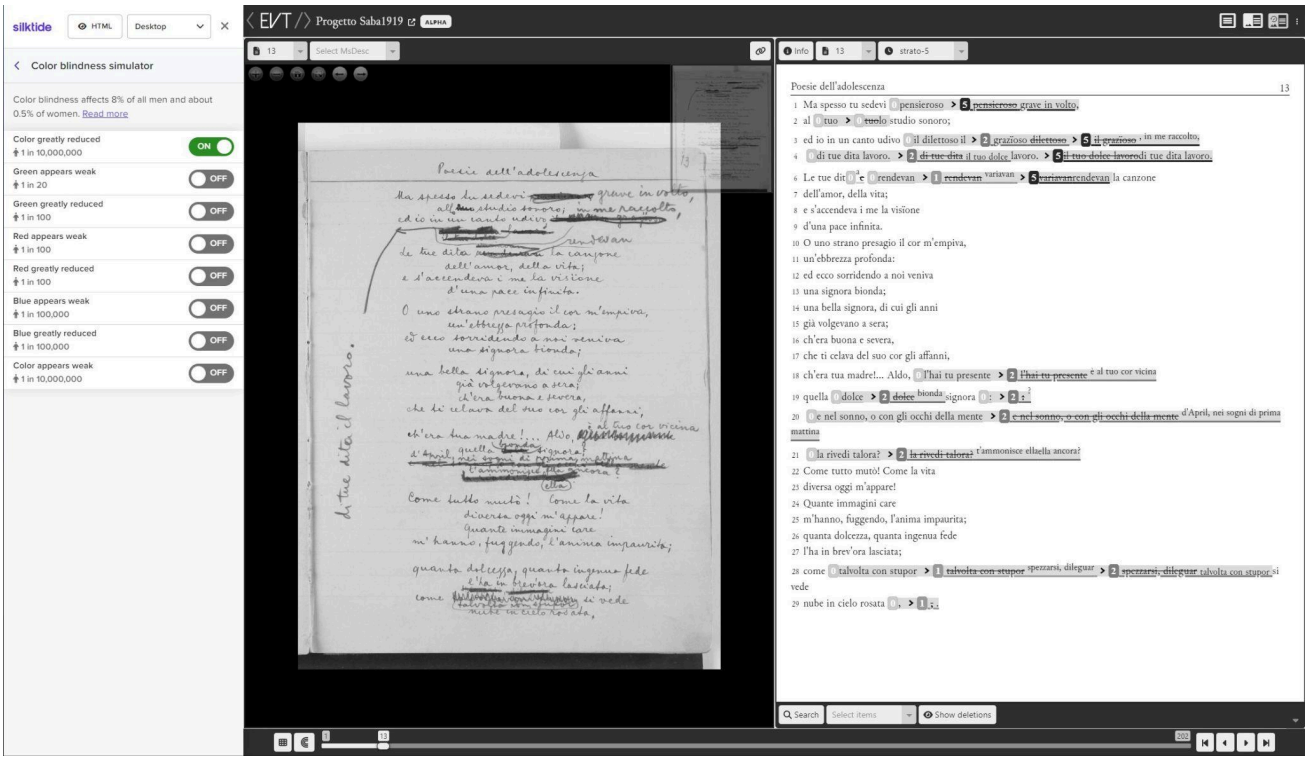

Figure 2. Checking the performance of EVT 3 in relation to visual impairment

In EVT 3 we plan to address this type of requirement in two ways:

[5] https://silktide.com/toolbar/.

- first, by improving the general layout and allowing navigation of the DSE with arrow keys and tabs, introducing shortcuts for selecting views, etc.; the use of ALT text for images and icons is also included in this part;
- the other key resource for improving the inclusivity and accessibility of the editions published using EVT will be the introduction of themes: this is also a feature introduced right away in EVT 3, with the intention of allowing, however limited, customisation of the appearance according to the type of edition (e.g. modern theme for critical editions, classic with warmer colours for diplomatic editions). The new task for themes is to customize the look and feel of EVT with the aim of mitigating visual impairments as much as possible.

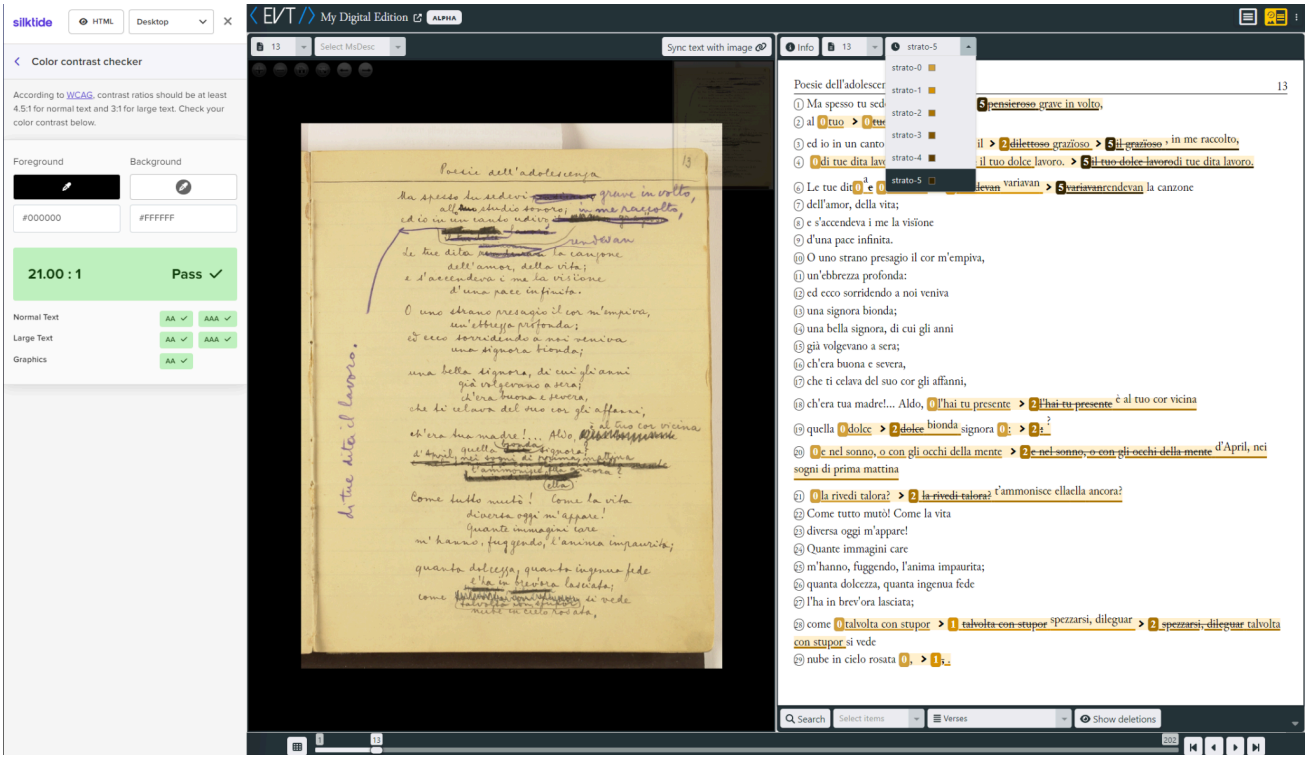

Figure 3. Testing the high contrast theme with SilkTide

Our main point of reference is the latest version of the Web Content Accessibility Guidelines 2.2 (WCAG 2024) which require alternative text for images, the availability of keyboard shortcuts, transcripts for audio (which we do not have in our project) and, above all, the possibility of modifying the contrast ratio according to specific needs by acting on the Graphical User Interface.

CONCLUSION

EVT has always been a visualization software focused on user needs, primarily the philologist who intends to create a critical edition. It is precisely by addressing user requirements—on the one hand, greater flexibility to create products better aligned with the practices of their communities, and on the other, increased attention to readers with specific needs—that the new features related to critical editions, accessibility, and inclusivity have been designed and developed. The "bottom-up" model, deemed effective by the authors given the results achieved, will continue to be employed in the future, with the addition of focus groups made up of readers from specific categories, capable of providing the team of designers and developers with informed feedback.

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