

CEED: a Cooperative Web-Based Editor for Critical Editions

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ABSTRACT

In this paper some of the results of the ERC Advanced Project PhiBor project are presented. PhiBor's main objectives are to produce a comprehensive inventory of manuscripts of Avicenna's *Ilāhiyyāt*, his main work on metaphysics, and to create on their basis a TEI P5 compliant digital critical edition. In order to permit scholars with little or no technical skills to produce a digital edition, we are developing CEED: a web-based critical edition editor. The main goal of CEED is to provide a user-friendly editor that lets scholars perform their work without requiring the acquisition of technical skills. The editor produces TEI P5 digital editions by leveraging the well known word processor approach. CEED environment is also meant to ease cooperation between scholars, since a project can be shared by several different contributors.

KEYWORDS

TEI, XML, Editor, Digital Scholarly Edition, Critical Edition

1. INTRODUCTION

Research in digital humanities is having an increasing impact on the preservation, analysis, and diffusion of cultural heritage, and scholars are showing a growing awareness of how the application of computer science to humanities improves their research workflow.

In the context of the production of critical editions, several definitions, models, and methodologies have been proposed to express the need of overcoming the *page paradigm* by means of a proper *digital paradigm* [8].

The freedom from page constraints permits to explore new approaches. On the one hand, such new approaches have produced digital editions of great scientific value; on the other hand, most of the results cannot yet be extended to a wider scholarly community due to the technical skills still required [9].

In this sense, the Text Encoding Initiative consortium, with its XML TEI standard [12], provides scholars with a large set of guidelines in the form of XML schemas and documentation and enables them to produce almost every kind of digital texts. However, this powerful representation comes with a huge initial requirement of technical skills that prevents many scholars from adopting it [3]. Another problem of XML formats is the lack of proper visualization tools. The EVT tool designed by Roberto Rosselli Del Turco [11] is filling this gap, making pioneering steps towards the fruition of texts in TEI format.

In order to enable a growing number of scholars to benefit the advantages of digital critical editions, tools with a smooth learning curve are decisive. Desirable features of tools for the production of critical editions are: (1) low technical prerequisites for users; (2) meaningful graphical visualization of the work advancements; (3) support for collaboration between scholars; (4) reliability of data representation based on standards; (5) ability to produce both digital and paper versions of the work.

Classical Text Editor (CTE) [4] and the Oxygen XML editor [10] are two major tools that can be used to produce digital critical editions. CTE focuses on the production of camera-ready copy of a text via a What You See Is What You Get (WYSIWYG) word processor. Oxygen provides a comprehensive visual XML editor. Both CTE and Oxygen, however, present downsides: CTE does not allow cooperation by different editors on the same work, and focuses on printed editions; Oxygen requires high initial technical skills.

To overcome these difficulties, we propose Critical Edition EDitor (CEED): a cooperative web-based editor for critical editions.

2. A USER-FRIENDLY CRITICAL EDITION EDITOR

CEED is being designed and developed as part of the PhiBor project [7] hosted by the Scuola Normale Superiore under the direction of Prof. Amos Bertolacci and founded by the European Research Council. PhiBor main objectives are to produce a comprehensive inventory of manuscripts of Avicenna's *Ilāhiyyāt*, his main metaphysical work with a massive posterity, and to create on their basis a TEI P5 compliant digital critical edition.

PhiBor research has already identified about 250 manuscripts and acquired copies of almost all of them. The transcription of each of these numerous witnesses during the project timespan is, of course, unfeasible; therefore it has been decided to produce a critical edition by means of an editor that would allow to record textual variations in the apparatus, and to add notes and references.

CEED provides a web application environment for the creation of digital critical editions that requires very little preliminary technical skills. ("digital critical editions" are meant here as "prêt-à-porter" editions [9], without disregarding more peculiar types of editions). A *project* in CEED identifies a critical edition and the information related to it (e.g. witnesses, manuscript images, bibliography, transcriptions). The creator of a project becomes its owner and may decide to involve other scholars in the edition permitting collaborative work. The collaboration between scholars is supported by

access management for users that share a project. Concurrent editing of the same resources has been planned but is not currently available. Being a web application, initial setup and installation are not required; it is possible to work and cooperate remotely, and the content of a project is easily retrievable. The editing process combines the classic word processors approach with contextual graphical user interfaces (GUIs). Although CEED produces TEI P5 editions, it requires no knowledge of the TEI standard, minimizing times and costs of user training. Texts are organized in *documents* that identify different transcriptions of the original chosen text and translations of it. Each document can be separated into meaningful working *units*. A *unit* presents, side by side, the portion of text under consideration and manuscripts images for its study and collation (see Figure 1).

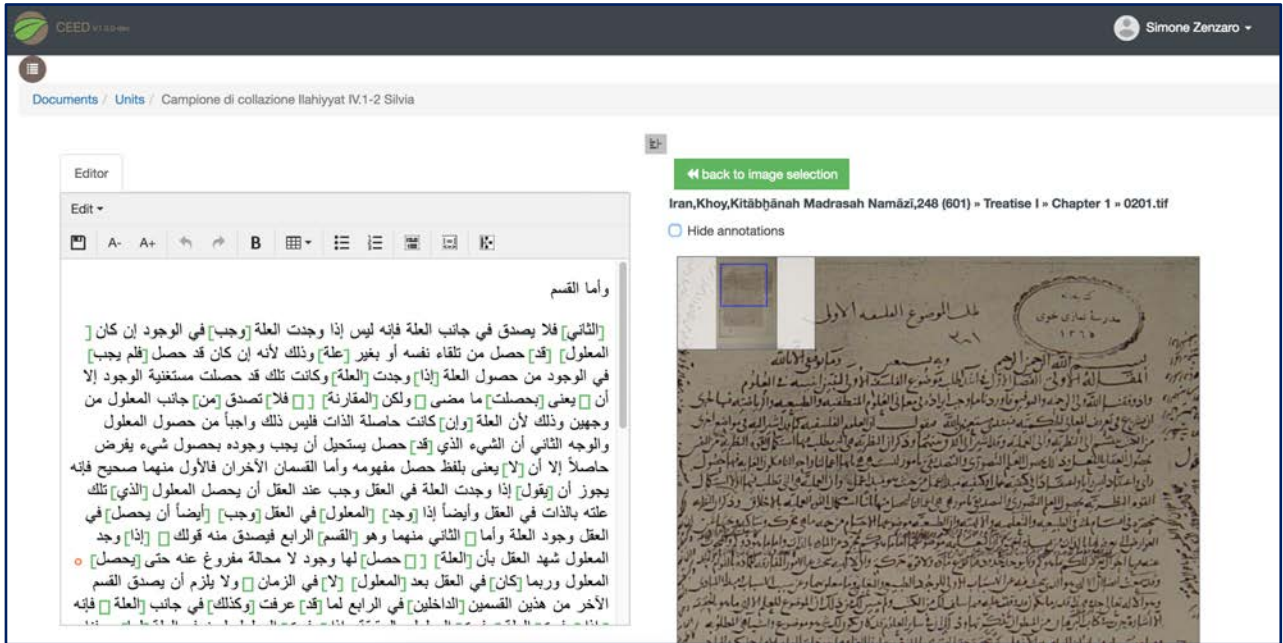


Figure 1. Working on the text

The basic action on texts is to highlight and make easily visible segments that carry interesting textual phenomena. Text phenomena managed by CEED are readings, annotations, editorial interventions, and structural information (page numbers, headings, chapters, treatises, etc.).

With regard to textual variations, CEED currently can manage both simple manuscript variant readings and variant readings with scribal interventions, like cancellations, corrections etc. (see Figure 2). Besides these two types of “objective” readings, CEED allows to record also “subjective” editorial interventions into the text by the editor(s). In the former context, CEED supports the description of different hands, causes of variations, and languages. Within the readings with scribal interventions, also the time sequence of the interventions, i.e. their different phases, is recorded (e.g. a correction that follows a cancellation); if any of these phases is attested also by another witness, it is possible to record the concordance. A CEED module is responsible for the definition and management of witnesses (manuscripts and printed books) to guarantee uniform reference to them. An exporter module produces the TEI P5 version of a project, which can serve for preliminary inspection or for the issue of the final digital edition.

From the software engineering point of view, CEED is being developed as an Angular application [1] written in Typescript [13]. The application communicates with a REST service that unifies the internal JSON [5] data model and the related operations. The REST service manages the manuscript images and the critical edition data. The images are stored inside an International Image Interoperability Framework (IIIF) [6] compliant image server. A BaseX database [2] stores the critical edition data.

3. FUTURE DEVELOPMENT

CEED is currently under development. Some core features are already available (project and work groups management; readings and text structure annotations; multilingual support; notes), while others are in a prototypal state.

The modular structure of CEED permits to incrementally add features in order to provide new functionalities. In particular, we are working on: a module for the *visualization preview* of the edition by integrating EVT; a *dashboard* that summarizes statistical data of text phenomena and users activity; *bibliography* and *authors* references; and a visual *exporter* to TEI P5. Although the constant information exchange with the PhiBor working group gives valuable direction of improvement, a proper assessment of usability will be planned as soon as we reach the completion of most of the core features.

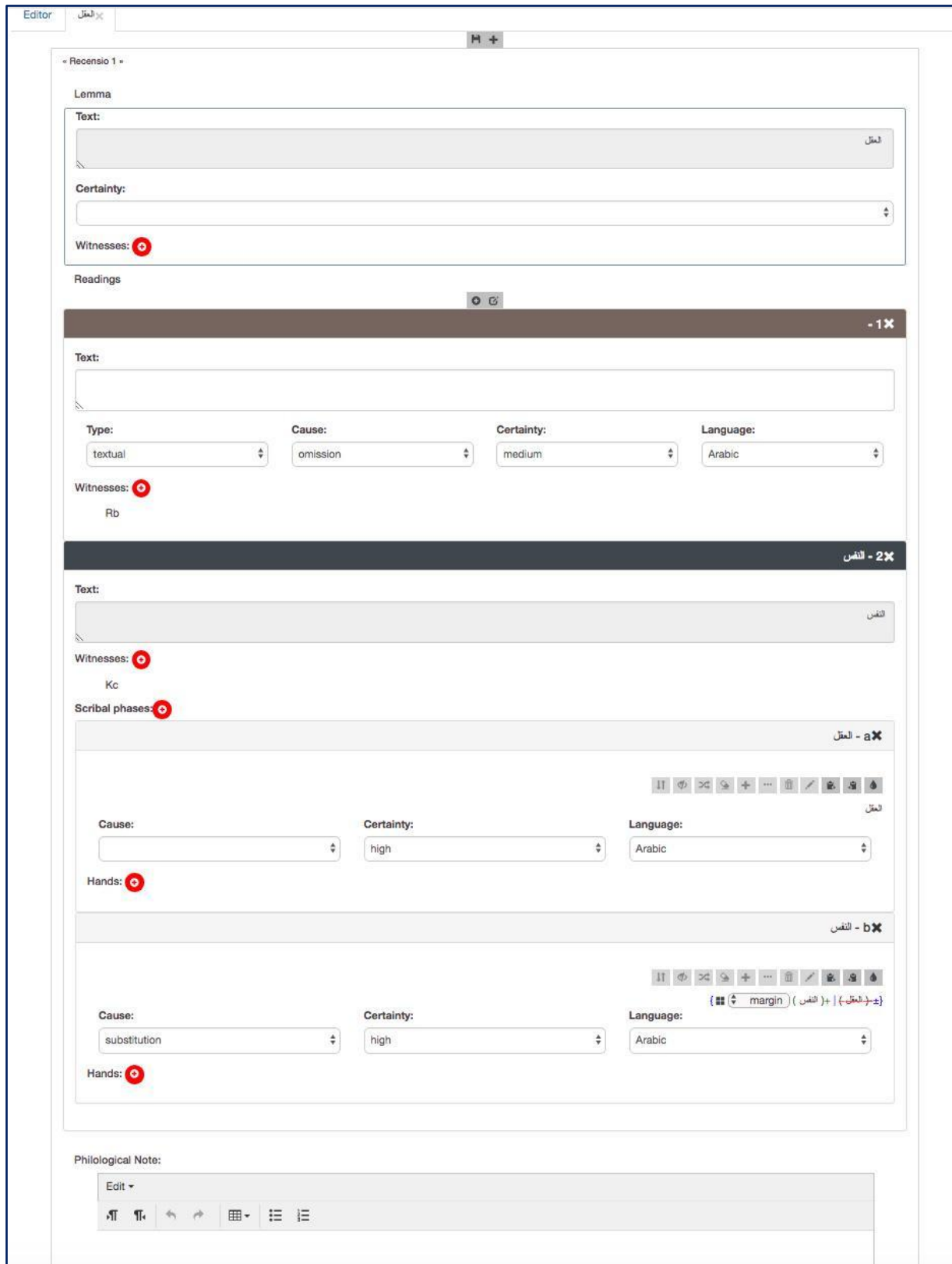


Figure 2. Readings definition

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