



# Using LARA to create annotated manuscripts and inscriptions for museums: an initial feasibility study

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**Abstract.** We argue that museums presenting exhibits of ancient texts may be able to benefit from accompanying them with annotated electronic versions. We present a short study using two sample annotated texts built using the Learning And Reading Assistant (LARA) platform for a fragment of an Old Norse manuscript and an inscription in Ancient Egyptian hieroglyphs respectively. The results of an online questionnaire suggested that people already interested in ancient languages would view the idea very positively.

**Keywords:** multimodality, museums, manuscripts, inscriptions.

## 1. Introduction

Most people interested in archaic languages have probably had the experience of standing in a museum, examining a manuscript, inscription, or tablet, and wondering what the signs written on them mean. Some exhibits may have a plaque next to the original source with some explanatory text. But even in the best case, when a full translation is provided, what is the connection between the

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signs, letters, and the claimed meaning? How much of the meaning is present in the translated text provided, and how much is guesswork? Here, we present an initial experiment, where we have used the open-source LARA (Bédi et al., 2020b – <https://www.unige.ch/callector/lara/>) to create a basic prototype of what a digitally enhanced museum exhibit of this kind might use to inform and educate their visitors. LARA supports creating multimedia resources with translations into various languages depending on the creator’s purpose. Specifically, we produced multimedia versions of two sample documents, an extract from an Old Norse manuscript and an inscription in Ancient Egyptian hieroglyphics. Each multimedia text is presented in two different views. The Old Norse text offers a ‘manuscript’ view and a ‘printed text’ view. The hieroglyphics text offers a ‘sign’ view, which displays information about the individual glyphs, and a ‘words’ view, which groups them into words and sentences. Hovering over a part of the text that is associated with an annotation outlines the symbol or image and shows a popup gloss; clicking plays audio and displays other information. In sections below, the methodology, evaluation of results, and comments will be discussed.

## 2. Two annotated texts in ancient languages

We present the two annotated texts used. Both can be accessed from a summary page<sup>8</sup> which also contains a link to the questionnaire described in the following section.

### 2.1. A fragment of an Old Norse manuscript

The first document (Figure 1) is directly available online<sup>9</sup> and consists of three verses taken from the traditional Old Norse epic *Völuspá* (The Seeress’s Prophecy), among other things famous as Tolkien’s favourite poem. The LARA document, illustrated in Figure 1, has been adapted from a full LARA version of *Völuspá* developed under a previous project (Bédi et al., 2020a). Most importantly, the manuscript view was added using the methods described in Bédi et al. (2022): as explained there, this involved using a graphical tool to draw the area in the image associated with each text word. Every verse includes audio and a parallel line-by-line translation. The user can hover over or click on words in either view. Hovering over a word in the manuscript view outlines it and shows a popup with a plain text

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8. [https://www.issco.unige.ch/en/research/projects/callector/manuscripts\\_and\\_inscriptions.html](https://www.issco.unige.ch/en/research/projects/callector/manuscripts_and_inscriptions.html)

9. [https://www.issco.unige.ch/en/research/projects/callector/v%C3%B6lusp%C3%A1\\_manuscript\\_v3vocabularypages\\_hyperlinked\\_text\\_html](https://www.issco.unige.ch/en/research/projects/callector/v%C3%B6lusp%C3%A1_manuscript_v3vocabularypages_hyperlinked_text_html)

transcription and a gloss translated into English. Clicking plays audio and shows other information.

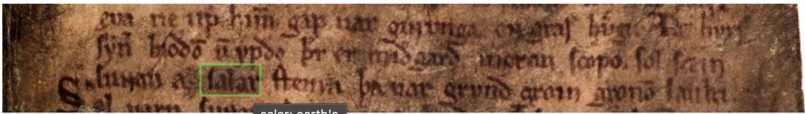
The overall intent is that the reader should both be able to *understand* the verses and also to have some chance of *appreciating* them as poetry. It is obviously difficult to quantify the second goal, but our own experiences and informal exchanges with other people who have looked at the material lead us to believe that the dramatic quality of the audio recording is key. An earlier version with a lower-quality voice was unconvincing: the one posted, which was recorded by a professional-quality voice talent, has frequently been described as ‘beautiful’ or ‘moving’ even by people who have no previous knowledge of Old Norse.

Figure 1. A verse from *Völuspá*. Each verse is presented both in the original 1280 manuscript form and also in a print version. Here, the reader has clicked on *salar* (‘earth’s’) in the manuscript version (highlighted in a green frame). The lower pane shows that the word in red also occurs in another verse.

## Völuspá

Here, you can see three verses from *Völuspá*, Tolkien's favourite Old Norse poem. Each verse is presented both in the original 1280 manuscript form and also in a print version. Hover over words in either version to see translations, click on them to hear the word spoken.

### Verse 4. The creation of Middle Earth.



**salar**

Grammar information

Lexicon poeticum entry

← Áðr Burs synir bjöðum um yppðu, þeir er Miðgarð mæran skópu; sól skein sunnan á **salar** steina, þá var grund gróin grænum lauki.

← Sól varp sunnan, sinni mána, hendi inni hægri um himinjódyr; sól það né vissi hvar hon **sali** átti, stjörnur það né vissu hvar þær staði áttu, máni það né vissi hvað hann megin átti.

Notes

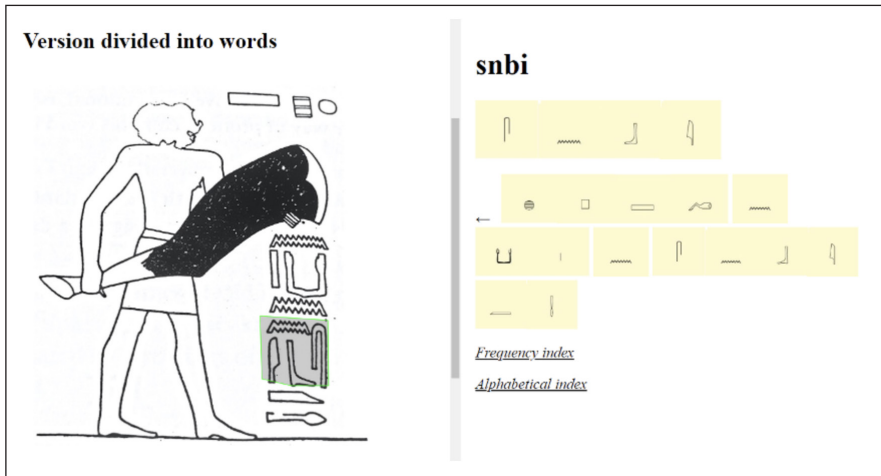
Frequency index

Alphabetical index

## 2.2. An inscription in Ancient Egyptian hieroglyphs

The second document (Figure 2) is available online<sup>10</sup> and presents an Ancient Egyptian inscription taken from a popular introductory text on hieroglyphs (Collier & Manley, 1998). Again, the methods from Bédi et al. (2022) have been used to associate appropriate areas in the image with words and individual glyphs. In this example, the central goal is to make the apparently indecipherable hieroglyphs comprehensible, so that the visitor can experience the unfamiliar and enjoyable sensation of reading and understanding them. In contrast to the Old Norse example, the audio is of less importance and is primarily decorative. The LARA multimedia version presents the Ancient Egyptian inscriptions in two versions: the first version, left, shows it divided up into words, and the second version (right) shows it divided up into individual hieroglyphs. In both cases, hovering over something shows a popup with a gloss, and clicking shows more information and plays audio recorded by a native Egyptian male voice talent.

Figure 2. This inscription (highlighted in green frame) says, roughly: ‘Ox-leg for the *ka* (soul) of Senbi, the virtuous’. Here, the reader has clicked on the highlighted word *snbi* (the name ‘Senbi’). This brings up the explanatory linearised text on the right and plays an audio version.



10. [https://www.issco.unige.ch/en/research/projects/callector/hieroglyphics1avocabpages/\\_hyperlinked\\_text\\_.html](https://www.issco.unige.ch/en/research/projects/callector/hieroglyphics1avocabpages/_hyperlinked_text_.html)

### 3. Preliminary evaluation with questionnaire

We circulated a link to the summary page hosted on the University of Geneva’s server, encouraging people to look at the two examples described in the preceding section and fill in a short anonymous questionnaire with nine questions created in Google Forms, which was distributed on social network sites for learning languages. We received responses from 24 subjects (12 female, 11 male, one other). In response to the first question, *Generally, are you interested in texts written in ancient languages?*, 18 (75%) replied “Yes” and four (17%) replied “A bit”. In response to the second question, *When you visit museums, do you like to look at texts in ancient languages?*, we received 16 answers of “Yes” and eight of “A bit”. In response to the third question, *What was your reaction to the examples of the multimodal ancient texts here?*, 17 subjects (71%) gave the most positive answer (“Very interesting, I spent some time looking at them”) and the other seven (29%) gave the second most positive answer (“Kind of fun, I flipped through them a bit”). In response to the fourth question, *Would you be interested in accessing similar multimodal texts in ancient languages on a museum website?*, 18 (75%) selected “Very interested” and four (17%) selected “A bit interested”. In the fifth question, where a list of statements was presented and subjects were asked to tick all the ones they agreed with, 20 (83%) ticked “Multimodal texts like these would help me understand text exhibitions at museums” and nine (38%) ticked “I like to read about museum exhibitions before or after I visit, I might use them then”. The sixth question invited subjects to give free-form comments about how the annotated texts could be improved. Unsurprisingly, given that much less work has been invested in it and it is still rather rough, most of the criticism was directed towards the hieroglyphics example; it was also apparent that subjects would have liked the material to be easily available on mobile devices. However, in the seventh question, which asked for general free-form comments, all replies were extremely positive.

### 4. Conclusions and further directions

The large number of positive responses to the first two questions on the questionnaire suggest a self-selection effect: people interested in ancient languages are evidently overrepresented in this population. Also, the sample is fairly small. With these caveats, our impression is that people who like ancient languages would welcome the introduction of this kind of technology in relevant museums, and would perceive it as substantially enhancing the museum experience. Encouraged by this, we have begun to discuss the idea with people active in the museum world. Their

initial response has also been positive: in particular, they seem attracted to the idea of making text exhibits more open, technologically enhanced, and accessible.

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