Allo: A Modern Digital Dictionary Platform for Ancient Languages

Conference presentation abstract and visual aids

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February 23, 2023

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DOMINVM SAPIENTIAE SOLVM LAVDABO

Abstract

Ancient languages matter. They connect us to our ancestors and draw attention from many fields of study. Despite overwhelming interest, the practical study of ancient languages is usually limited to persons with access to training and resources. For introductory students, the dictionary is usually located in the appendix of the assigned grammar book. For advanced study, many ancient languages have one or more physically large, expensive, inaccessible, and difficult to use dictionaries. A systematic review of both print and digital dictionaries for eight ancient languages yielded three recurring challenges: accessibility, usability, and scope. To illustrate: the Oxford Latin Dictionary contains 2,400 pages with tiny font and weighs 9.1 pounds. The Brill Dictionary of Ancient Greek is similar; and, digital access to both requires institutional affiliation. The Chicago Assyrian Dictionary, although digitized, is comprised of 17 thick volumes. In languages like Ancient Egyptian, Akkadian, and Sumerian, yet another difficulty is added. Vital dictionaries for these languages require a separate publication of sign lists to understand the script. In many cases, these resources are hand-written in French or German. While the Internet has helped with respect to distribution of some of these materials, the challenges noted above—particularly usability—remain. This is not to say that these resources are inadequate or their creators inferior; rather, there exist hitherto unexplored opportunities to leverage the Internet in order that trade-offs are mitigated. It is therefore necessary to reconsider the goals and priorities of digital dictionaries.

Enter Allo–a modern dictionary platform for ancient languages. Each dictionary contains 1,000 high-frequency words. It is designed to be accessible, user-friendly, and suitable for advanced users. To accessibility: we offer it online, charge nothing, and do not require registration. To usability: the interface is optimized for tablet and mobile devices via our design-oriented approach. Because we regarded speed and search as the most critical goals, features like autocomplete, caching, and a recommendation engine are fully integrated. These features may reduce the time it takes to find a given entry by orders of magnitude; based on a small user study, up to 50 times faster than a print book and 5 times faster than a PDF file. To content scope: all entries are aggregated such that they include both a beginner and advanced resource. The federated, or aggregated, model we chose allows us to make updates when new resources are released. Each entry contains between 30–50 individual data fields. Full page images of original source materials and cursor-zooming are built in. Advanced users can find grammatical details, tables of forms, usage frequency statistics, example sentences, and a comprehensive but compact grammar from authoritative sources. We demonstrate the benefits of this approach in our first complete language: Allo Latin, a digital Classical Latin–to–English dictionary kindly provided on https://allo.conscious.ai/latin.

Our experience suggests that digital dictionaries must be aggregations of information about a given entry and packaged in a clean user interface. Future innovation likely requires intense cooperation among three concerned parties: a technologist, lexicographer, and language expert.

*Keywords*: lexicography, ancient languages, digital dictionaries, Latin, linguistics

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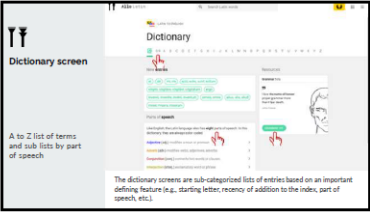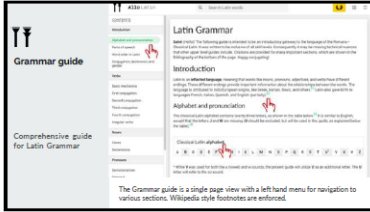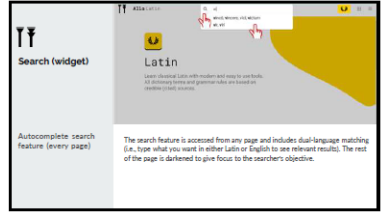
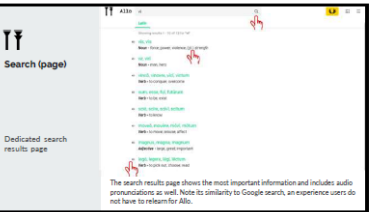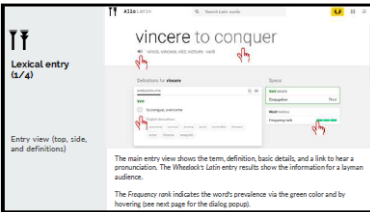# Appendix A: Wireframes for Allo Latin (Visual Aids)
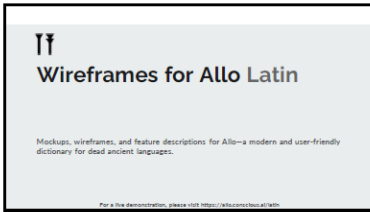
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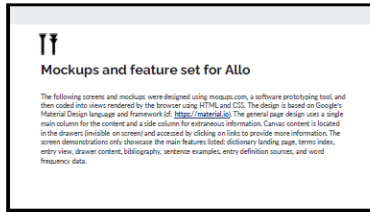
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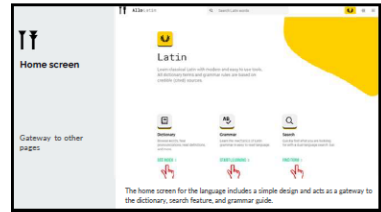
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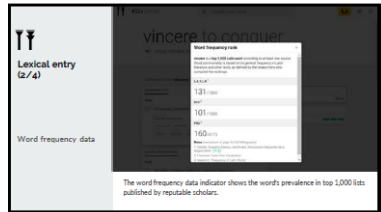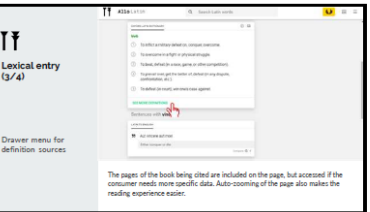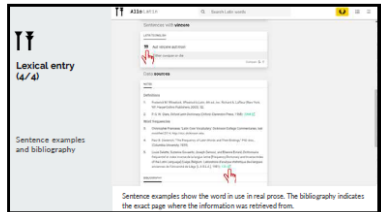

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Wireframes for Allo Latin

Mockups, wireframes, and feature descriptions for Allo—a modern and user-friendly dictionary for dead ancient languages.

Mockups and feature set for Allo

The following screens and mockups were designed using moqups.com, a software prototyping tool, and then coded into views rendered by the browser using HTML and CSS. The design is based on Google's Material Design language and framework (cf. https://material.io). The general page design uses a single main column for the content and a side column for extraneous information. Canvas content is located in the drawers (invisible on screen) and accessed by clicking on links to provide more information. The screen demonstrations only showcase the main features listed: dictionary landing page, terms index, entry view, drawer content, bibliography, sentence examples, entry definition sources, and word frequency data.

Home screen

Gateway to other pages

Search Latin words

Latin

Learn classical Latin with modern and easy to use tools. All dictionary terms and grammar rules are based on credible (cited) sources.

Dictionary

Browse words, hear pronunciations, read definitions, and more.

SEE INDEX >

Grammar

Learn the mechanics of Latin grammar in easy to read language.

START LEARNING >

Search

Quickly find what you are looking for with a dual-language search bar.

FIND TERM >

The home screen for the language includes a simple design and acts as a gateway to the dictionary, search feature, and grammar guide.

Dictionary screen

A to Z list of terms and sub lists by part of speech

Allo Latin

Search Latin words

LATIN TO ENGLISH

Dictionary

0-9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

New entries

et   dē   vīs, vīs   sciō, scīre, scīvī, scītum

cōgitō, cōgitāre, cōgitāvī, cōgitātum   ergō

inveniō, invenīre, invēnī, inventum   omnis, omne   alius, alia, aliud

miser, misera, miserum

Parts of **speech**

Like English, the Latin language also has **eight** parts of speech. In this dictionary, they are always color coded.

Adjective (adj.) modifies a noun or pronoun   >

Adverb (adv.) modifies verbs, adjectives, adverbs   >

Conjunction (conj.) connects two words or clauses   >

Interjection (interj.) exclamatory word or phrase   >

Resources

Grammar help

"

I love ~~the name of honor~~ proper grammar more than I fear death.

Julius Caesar

GRAMMAR 101

The dictionary screens are sub-categorized lists of entries based on an important defining feature (e.g., starting letter, recency of addition to the index, part of speech, etc.).

Grammar guide

Comprehensive guide for Latin Grammar

Allo Latin

Search Latin words

Latin Grammar

Salvē (*Hello*)! The following guide is intended to be an introductory gateway to the language of the Romans—Classical Latin. It was written to be inclusive of all skill levels. Consequently, it may be missing technical nuances that other upper level guides include. Citations are provided for many important sections, which are shown in the Bibliography at the bottom of the page. Happy conjugating!

Introduction

Latin is an **inflected language**, meaning that words like nouns, pronouns, adjectives, and verbs have different endings. These different endings provide important information about the relationships between the words. The language is attributed to Indo-European origins, like Greek, Iranian, Slavic, and others.[1] Latin also gave birth to languages French, Italian, Spanish, and English (partially).[2]

Alphabet and pronunciation

The classical Latin alphabet contains twenty-three letters, as shown in the table below.[3] It is similar to English, except that the letters **J** and **W** are missing (**U** should be excluded, but will be used in this guide, as explained below the table).[4]

Classical Latin **alphabet**																						
A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q	R	S	T	U*	V	X	Y	Z

* While **V** was used for both the *u* (vowel) and *w* sounds, the present guide will utilize **U** as an additional letter. The **U** letter will refer to the *oo* sound.

The Grammar guide is a single page view with a left hand menu for navigation to various sections. Wikipedia style footnotes are enforced.

Search (widget)

Autocomplete search feature (every page)
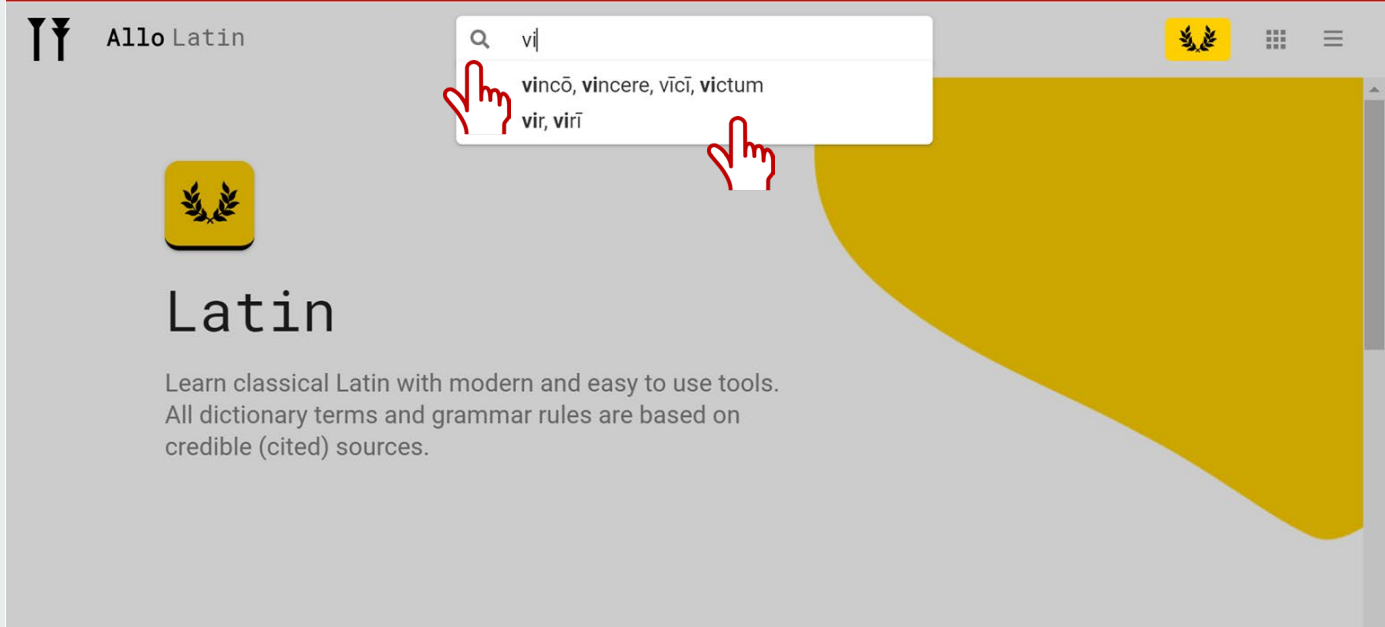
The search feature is accessed from any page and includes dual-language matching (i.e., type what you want in either Latin or English to see relevant results). The rest of the page is darkened to give focus to the searcher's objective.

Allo Latin

vi|

vincō, **vin**cere, vīcī, **vic**tum

vir, virī

Latin

Learn classical Latin with modern and easy to use tools. All dictionary terms and grammar rules are based on credible (cited) sources.

Search (page)

Dedicated search results page

Allo

vi

Latin

Showing results 1 - 10 of 13 for **"vi"**

🔊 **vīs, vīs**
Noun - force, power, violence, (pl.) strength

🔊 **vir, virī**
Noun - man, hero

🔊 **vincō, vincere, vīcī, victum**
Verb - to conquer, overcome

🔊 **sum, esse, fuī, futūrum**
Verb - to be, exist

🔊 **sciō, scīre, scīvī, scītum**
Verb - to know

🔊 **moveō, movēre, mōvī, mōtum**
Verb - to move; arouse, affect

🔊 **magnus, magna, magnum**
Adjective - large, great; important

🔊 **legō, legere, lēgī, lēctum**
Verb - to pick out, choose; read

The search results page shows the most important information and includes audio pronunciations as well. Note its similarity to Google search, an experience users do not have to relearn for Allo.

Search Latin words

vincere to conquer

vincō, vincere, vīcī, victum · *verb*

Lexical entry (1/4)

Entry view (top, side, and definitions)

Definitions for **vincere**

WHEELOCK'S LATIN

Verb

① to conquer, overcome

English derivatives:

convince · convict · evince · evict · invincible · Vincent · victor · Victoria · vanquish

Specs

Verb details

Conjugation · Third

Word metrics

Frequency rank

The main entry view shows the term, definition, basic details, and a link to hear a pronunciation. The *Wheelock's Latin* entry results show the information for a layman audience.

The *Frequency rank* indicates the word's prevalence via the green color and by hovering (see next page for the dialog popup).

Word frequency data

The word's frequency data indicator shows the word's prevalence in top 1,000 lists published by reputable scholars.

Lexical entry (3/4)

Drawer menu for definition sources

The pages of the book being cited are included on the page, but accessed if the consumer needs more specific data. Auto-zooming of the page also makes the reading experience easier.

Lexical entry (3/4)

Drawer menu for definition sources with full pages (auto-zoom on hover of cursor)

Oxford Latin Dictionary

uincō on page **2064**

FULL BOOK

Verb

① To
② To
③ To
④ To
   co
⑤ To

SEE MOR

Senten

LATIN TO E

Au

Eit

Data s

NOTES

Definition

1. Fre
    NY:

2. P. G

Lexical entry (4/4)

Sentence examples and bibliography

Sentences with **vincere**

LATIN TO ENGLISH

" Aut vincere aut mori

Either conquer or die

Compare G Y

Data **sources**

NOTES

Definitions

1. Frederick M. Wheelock, *Wheelock's Latin*, 6th ed., rev. Richard A. LaFleur (New York, NY: HarperCollins Publishers, 2005): 52.

2. P. G. W. Glare, *Oxford Latin Dictionary* (Oxford: Clarendon Press, 1968): 2064 ↗.

Word frequencies

3. Christopher Francese, "Latin Core Vocabulary," Dickinson College Commentaries, last modified 2014, http://dcc.dickinson.edu.

4. Paul B. Diederich, "The Frequency of Latin Words and Their Endings," PhD diss., (Columbia University, 1939).

5. Louis Delatte, Suzanne Govaerts, Joseph Denooz, and Etienne Evrard, *Dictionnaire fréquentiel et index inverse de la langue latine* [Frequency Dictionary and Inverse Index of the Latin Language] (Liège, Belgium: Laboratoire d'analyse statistique des langues anciennes de l'Université de Liège [L.A.S.L.A.], 1981): 120 ↗.

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Sentence examples show the word in use in real prose. The bibliography indicates the exact page where the information was retrieved from.