

Ask: Always Seek Knowledge

Lecsicon: A Collection of GPT-generated Acrostics

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Abstract

This article describes the project *Lecsicon*, in which over 24,000 acrostics generated by OpenAI's language model GPT serve as a conduit between machine comprehension and human interpretation. Following a specific prompt, GPT made a sentence with a series of words whose first letters sequentially spelled out the given word. At a large scale, this process gives rise to intriguing behavioral patterns in the model. The resulting acrostics also elicit gripping reflections on the nature of this literary device and its role in meaning making.

Keywords

GPT; practice-led research; experimental Art; generative acrostics; large language model; algorithmic art; artist-AI collaboration; computational media art; language-based art.

Introduction

Acrostics are a creative literary device where the initial letters of each line or paragraph spell out a word, sentence, or the alphabet. They add an additional layer of meaning or hidden message that often complements or contrasts with the explicit content of a text or word. They might also offer readers a deeper, puzzle-like experience. As a linguistic construction, acrostics are widely used in a variety of domains, from poetry to teaching (in the form of mnemonic devices) and even in the naming of legislature.

The search for multiple levels of linguistic meaning through acrostics provided the inspiration for *Lecsicon*, an ongoing generative language-based project in which OpenAI's language model GPT was used to generate over 24,000 acrostic sentences to a list of English words obtained from the English Lexicon Project. The project, originally created as a browser-based interactive work in 2023, has also been exhibited as a video installation and it is currently being produced as a physical book.

Lecsicon

Lecsicon is a project that explores the creative potential of large language models (LLMs), generative language-based art, and the fractal nature of the English language. For this project, I utilized a comprehensive collection of English words obtained from the English Lexicon Project [1] and

used OpenAI's GPT language model to generate acrostic sentences to each word. I provided GPT with a particular prompt and collected the generated acrostics into a browser-based interactive artwork (fig. 2).



Figure 1. Book version of *Lecsicon*, 2024. Produce with the help of So Jung Yoon, RISD Graphic Design MFA '25. ©Wenran Zhao

Lecsicon began in 2023. It was published in the Spring 2023 issue of the digital journal *The New River* [2]; and it was featured as a video installation in the exhibition “Do You Have the Key?” at the Fletcher building, Rhode Island School of Design in May 2023 (fig. 3). Currently the project is being produced as a physical book (fig. 1).

The prompt

Below is the original prompt given to GPT 3.5 Turbo, the version of the language model that powered chatGPT at the start of the project. The same prompt was later given to GPT 4 in a larger-scale generation attempt.

“I will give you a word. Make a sentence or phrase with a series of words whose first letters sequentially spell out my word. Your sentence doesn't have to have a strong

semantic connection with the word I give you. Here're some good examples: Cake - Creating amazing kitchen experiences. Fire - Fierce inferno razed everything. Smile - Some memories invoke lovely emotions. Here's a bad example: Abandon - Alice abandoned her plans to move to the city when she realized the cost of living was too high. Now make a sentence for /WORD/. According to our rules, there should be /N/ words in your sentence. Your response should only contain the sentence you make.”

scans the *Lecsicon* database, and strives to find a new word that has the smallest Levenshtein distance from the preceding word. A temperature slider on the site was also added. The temperature feature of the project is discussed in the following section.

Temperature

The temperature slider on the web page adjusts the scope of the program, yielding either stronger or weaker



Figure 2. Browser version of *Lecsicon*. ©Wenran Zhao

Although avoiding the word *acrostic*, the prompt was meant to be as clear and specific as possible. It also provided examples of the types of sentences that were “desirable” and those who were not. Additionally, the prompt stated that the resulting sentences did not have to have a connection, semantic or otherwise, with the original word.

GPT’s performance

In response to my prompt, the model created acrostics in the form of sentences to each of the words provided. Thousands of word-sentence pairs compose this project. Including “Lecsicon: Linguists Enthusiastically Catalog Symbols, Interpreting Carefully Occurred Nuances.”

The accuracy of GPT's responses, as usual, was not guaranteed. At times, one or two extra words slipped into the sentence. In extreme cases, the model rambled on and lost track of the initial instructions. Out of tens of thousands of attempts, with GPT 3.5, 30% of the responses strictly followed my rules; and with GPT 4, 60% of them. When one visits the *Lecsicon* web page, the successful word-sentence pairs are typed out letter-by-letter by a program. Beginning with a random word, the program

connections between consecutive words displayed. Typing speed is also influenced by temperature—in the same way as molecular motion is.

In natural language processing (NLP), there is one parameter that decides the predictability, creativity, and reliability of the model’s responses—temperature [3]. Temperature is a parameter that adjusts softmax function, which resamples the probability distribution of the upcoming word choices to ensure the quality of text generated. This mathematical function—mediated by the platforms on which it is executed—is often presented as a range of values that decides the creativity and credibility of some knowledge. In both the physical and digital cases, the control over possible states of the environment is boiled down to one number, Temperature.

The term Temperature here was deliberately picked up from thermodynamics and statistical mechanics: as the temperature increases or decreases, the number of possible states the system can be in also increases or decreases [4]. It is not empirical, it is a metaphor. Like Wittgenstein’s words on mathematics and algorithms:

“In mathematics *everything* is algorithm and nothing is *meaning* [*Bedeutung*]; even when it doesn’t look like that because we seem to be using words to talk about

mathematical things. Even these words are used to construct an algorithm.” [5]

Examples

The following is a selection of both successful and unsuccessful acrostics generated by GPT throughout the multiple iterations of the projects.

Unsuccessful examples include:

- insomnia: I need some pills to sleep over insomnia.
- jumbo: Josh usually needs bigger overalls.
- white: We have icy hills to explore.

Successful examples include:

- activity: All children thrive in varied, invigorating tasks year-round.
- music: Many unexpected sounds indicate creativity.
- gender: Generations endlessly nurture diverse, equal respect.
- commie: Capitalists often mock Marxist ideology enthusiastically.

Acrostics and Meaning

Acrostics involve the strategic placement of initial letters to a sentence to convey a message or word that is external to the sentence. Poets from Chaucer to Boccaccio, and from Edgar Allan Poe to Lewis Carroll have used this literary device to add depth, creativity, and intrigue to their work. This technique is particularly effective in shorter forms, such as sonnets or haikus, where each letter carries significant weight. Acrostics enhance the aesthetic appeal of poems, providing an additional layer of complexity through the arrangement of letters. Beyond their puzzle-like nature, acrostics serve as a unique form of self-expression for poets, allowing them to play with language and engage readers in an interactive exploration of the written word.

But the use of acrostics is not limited to poetry. They are often used in the creation of mnemonic devices that help retain large lists of information. Examples include the popular acrostic “My Very Excellent Mom Just Served Us Noodles” used to recall the names of the planets (including Neptune) and “Every Good Boy Deserves Fruit (or Favour in some versions)” used to recall the names of the notes placed on the lines of the treble clef staff. Acrostics are effective as mnemonic devices because they help fix in our minds what psychologist George A. Miller called “the magic number,” the average amount of discrete items the human brain is normally capable of retaining in short-term memory [6].

The use of acrostics in daily speech has been understood by some scholars as a type of linguistic “clipping”—the contraction of words to fewer letters—like how acronyms such as WASP (White Anglo-Saxon Protestant) and radar (radio detecting and ranging) work. However, I believe the use of acrostics in language goes further. In U.S. politics, for instance, legislators often craft bill titles that form acrostics that relate to the legislation's content. This serves

the dual purpose of succinctly summarizing the bill's focus and providing a memorable identifier. Such acrostic naming conventions can aid lawmakers, the public, and the media in quickly grasping the essence of proposed legislation, streamlining the communication of policy ideas. Some of the cleverer acrostics used in bills include the “Standardizing Testing and Accountability Before Large Elections Giving Electors Necessary Information for Unobstructed Selection” or STABLE GENIUS Act introduced in 2018 by Brendan Boyle of Pennsylvania and the “Accountability and Congressional Responsibility On Naming Your Motions” or ACRONYM Act introduced by Mike Honda of California.

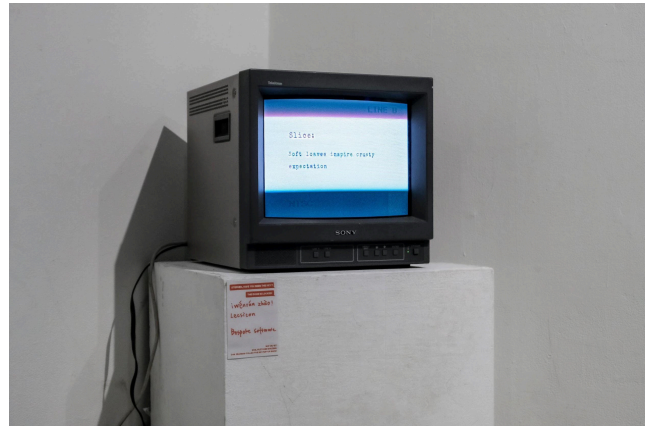


Figure 3. Video installation version of *Lecsicron* for the exhibition “Do You Have the Key?” at the Fletcher building, Rhode Island School of Design in May 2023. ©Wenran Zhao

Linguistic devices like acrostics captivate people like me because there is a hidden layer behind putting words together following certain mechanisms. In *Lecsicron*, the resulting sentences provide a greater context for the original words and reveal new perspectives. But I believe it is not a coincidence that GPT makes sentences that relate to the original word's meaning. Instead, it is a deliberate calculation and balancing process to capture words based on their relations to each other: a ghost wandering through a latent word vector space. Any word in such a space is nothing but the linguistic associations around it, based on statistical computation of the patterns of the text humans have produced. Sentences emerge from their context, and perhaps that's why some entries are intriguing and exciting, such as “snob: Surely, no one believes”, or “date: Dinner and theater experience.”

Conclusion

In this paper, I have described the process involved and the concept behind *Lecsicron* a generative language-based project that generates acrostics to English words using OpenAI's GPT language model. The outputs generated by the model bring about a discussion on the nature of language and the meaning-making potentials of literary devices such as acrostics. Acrostic outputs such as the ones generated for “snob” and “date” not only follow the rules stated established in the prompt but concurrently seem to

implicate the original word's meaning, allowing context to be nested within the form of language. The units of meaning—letters, words, sentences, paragraphs—feed into each other and meanings bleed through the edges. In this sense, *Lecsicon* is only made possible by the fractal nature of the English language: the way we make sense of letters, words, sentences, and paragraphs.

Further discussions on this project might center on the idea of artworks that interact with language models as a form of research, and how such works can explore the relationship between large language models and language itself from a philosophical viewpoint. Examining the intersections between technical jargon and philosophical semantics offers insights into subsequent cognitive and cultural transformations of human society in the context of Artificial General Intelligence.

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Author Biography

ǰwénrán zhào! [Wenran Zhao] is an interdisciplinary artist who works with code, technology, language, and textiles. She looks at the ever-evolving technology—algorithms, XR, Artificial Intelligence, and many more—in a nostalgic yet anachronistic way. Her works augment mundane objects or artifacts with bespoke software, exploring the textures of technology and reinterpreting the semiotics in interactive interfaces and sensorial experiences. She holds a bachelor's degree of New Media Art from City University of Hong Kong and will obtain her MFA in Digital + Media from Rhode Island School of Design in 2024.