Confronting AI Hype in the Classroom: ChatGPT and an Equity-First Linguistics Pedagogy

Symposium for the SIG on Teaching Linguistics: A Glimpse Into the Future
January 5th, 2024

Lex Konnelly

Independent Scholar

Nathan Sanders

University of Toronto

On AI Hype

- The rapid development and availability of generative artificial intelligence (AI) tools has gained traction in higher education as a means to enhance teaching and learning experiences.

- While these tools offer numerous possibilities for augmenting classroom activities and supporting student engagement, they also raise critical concerns that deserve careful consideration.

On AI Hype

- Widespread misconceptions about what large language models (LLMs) can and cannot do has been one of the most deleterious side effects of present-day AI hype.

- Among many qualities, LLMs have been popularly presumed to be all-knowing, sentient, and capable of performing any human task.

On AI Hype

- In this lightning talk, we we address these concerns around AI hype in our classrooms.

- We approach the discussion by way of reporting on the activities of a pedagogical initiative in the University of Toronto Linguistics Department in the summer of 2023.

What are some of the ethical and pedagogical considerations for AI-driven text generation in linguistics classrooms?

Primary concerns:

- Addressing issues of assessment development,
- Supporting students' critical thinking and development of discipline-specific argumentation and analysis,
- The responsibility of linguists in demonstrating for students the underlying computational linguistic processes that power generative AI tools.
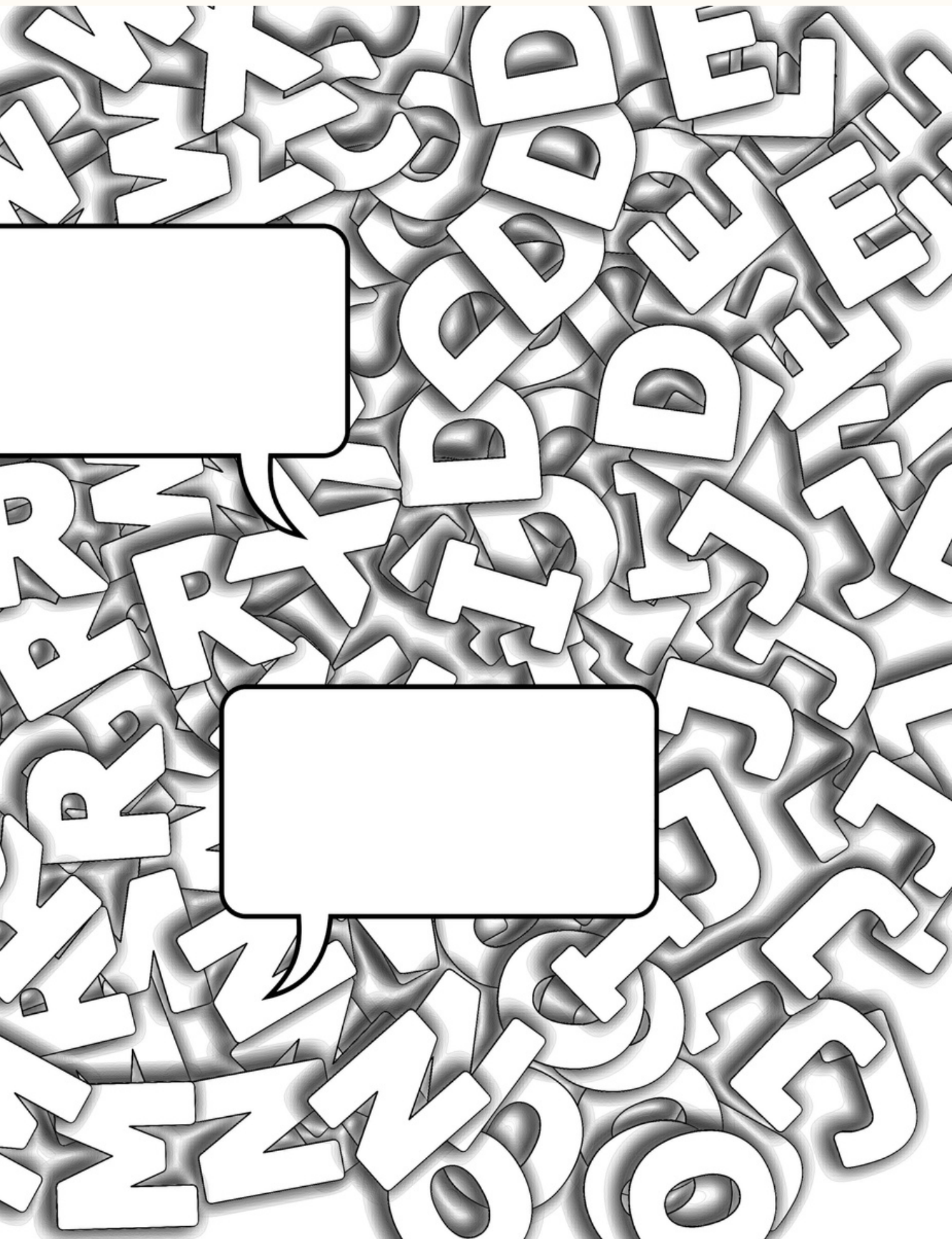
Method

- For this initiative, we partnered with individual faculty members interested in adapting their teaching materials.

- Diverse and individualized pedagogical goals: some were primarily concerned with making assessments "GPT-proof", while others were interested in incorporating AI tools into their assignments.

"GPT-proofing"

- Inventorying what ChatGPT can do well
  - E.g., provide answers to questions that might otherwise be resolvable through a Google search, but more conveniently
- Assessing specific course materials for solvability in ChatGPT
  - Resistance dependent on question type, structure, presentation of data
- Analyzing detection tools
  - Ineffective, perpetuate linguistic inequities

TL;DR: Difficulties posed by the widespread availability of ChatGPT expose issues in pedagogical design that pre-date the tool's release, and reinvention of the wheel is not necessary!

Incorporation of AI tools

- Embracing students' use of AI productivity tools within certain guidelines
- Incorporation of ChatGPT output as data for analysis, metalinguistic discussion in the linguistics classroom

TL;DR: Linguists are especially well-positioned to educate students on the capabilities of these tools and the linguistic theory (or lack thereof) that underpins their development; by explicitly incorporating model output in assignment design for linguistic analysis, students can see firsthand its errors in reasoning and application of technical concepts.

Incorporation of AI tools

**Sample syntax assignment showing how to productively use ChatGPT:
Syntactic constituency arguments**

In this homework assignment, you are shown sample prompts that were given to ChatGPT, along with ChatGPT's response to each prompt. All of the prompts together are an attempt to write an essay piece by piece in ChatGPT to make an argument about syntactic constituency in general North American English. Your task is to evaluate each response. Be explicit about what ChatGPT gets right and wrong. Finally, write your own concluding paragraph that would complete this attempted essay by using the fourth syntactic constituency test we have talked about that was not submitted as a prompt to ChatGPT.

Note: based on the extensive errors you see in ChatGPT's responses, I hope you are convinced why you should <u>not</u> try to use it to write the fourth paragraph for you!

Excerpt of an assignment by Nathan Sanders (2023)
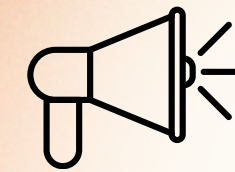
Linguistics and AI Literacy

Assess authentically

Aim for endocentric assessments (i.e., ones that rely on course-internal content, skills, and applications).

Engage students

Rather than take a punitive, surveillance-based approach, set clear expectations with students. Encourage them to use AI tools to think *with* them rather than *for* them!

Debunk AI linguistic myths

Linguists have an especially crucial role to play in deflating AI hype and democratizing knowledge of the technology.

Linguistics and AI Literacy

- The development of LLMs is of fundamental linguistic concern, yet often involves minimal knowledge of linguistics (Bender et al. 2021).
- While there have been many leaps and bounds in the renewed phase of AI development, NLP and NLU are most central to advancements in our ability to communicate with computers through commands in human language.
- In demonstrating for students the underlying computational linguistic processes that power generative AI tools – and their limitations – we shatter the illusion that such technologies are indeed intelligent or reliable substitutes for independent learning.

Thank you!

Contact us at:

a.konnelly@mail.utoronto.ca

nathan.sanders@utoronto.ca