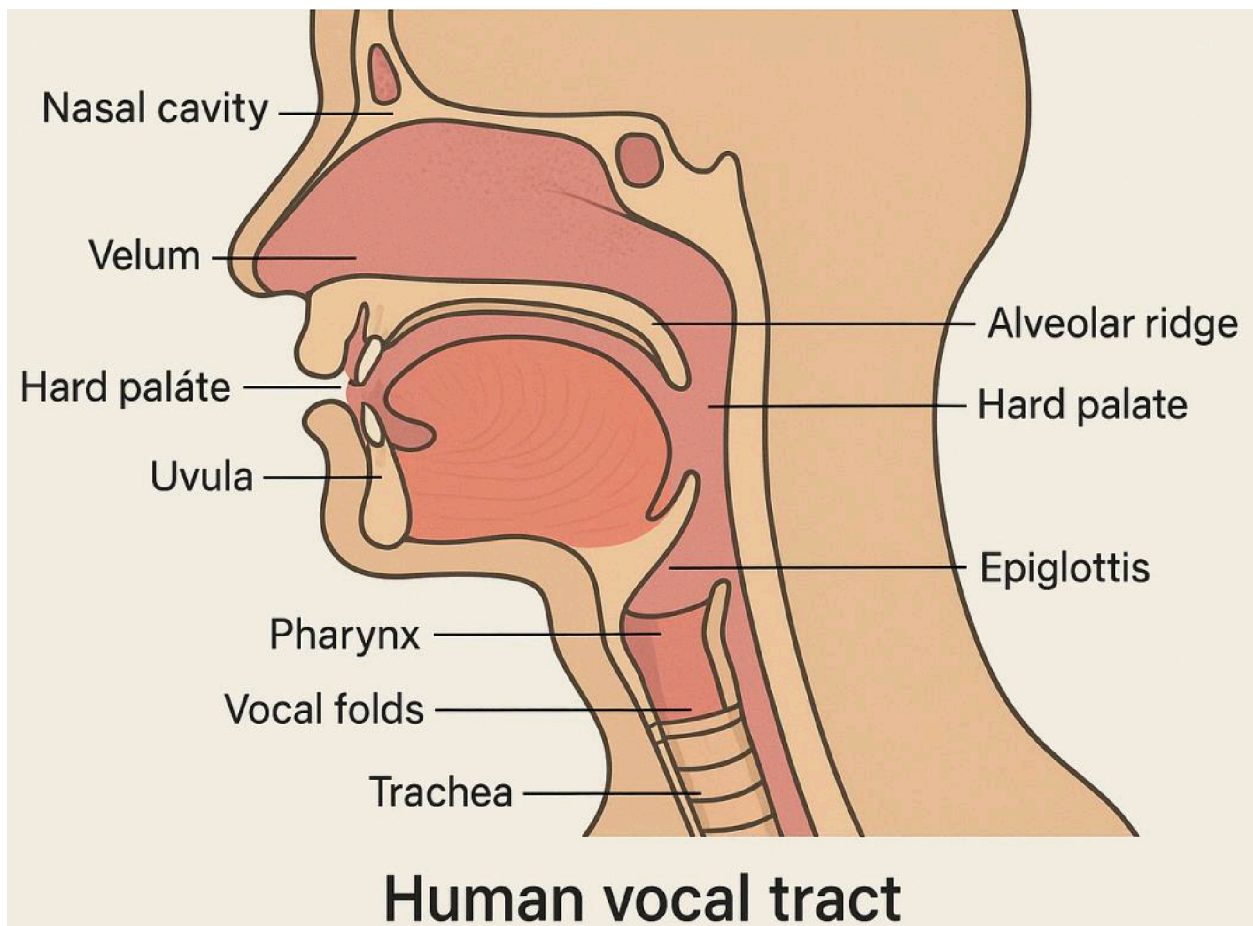


The object of this assignment is to evaluate the ability of generative LLMs to draw technical diagrams. Students with only a few weeks of knowledge of linguistics are able to find many flaws in the output of these models, and using their own skills and knowledge, they can easily produce much more reliable diagrams. This exercise can help them better understand some of the limitations of these tools and why they should not unthinkingly trust them.

I gave ChatGPT the prompt “Draw and label a midsagittal diagram of the human vocal tract. The diagram should contain all the parts necessary for a typical introductory course in linguistics.” This is the image that ChatGPT produced:



- For each of the ten labels in ChatGPT’s image, state whether the label is correct or not, and if it is incorrect, briefly explain everything wrong with it (terminology, spelling, pointing to the wrong body part, pointing to a missing body part, etc.). [5 marks]
- List all of the labels that are missing that you would have expected to see in a midsagittal diagram for it to be useful for studying the vocal tract in this course. [1 mark]
- Draw and label your own version of a fully correct midsagittal diagram on paper by hand. Make sure the labels are legible! The drawing doesn’t need to be perfect, just accurate. Then take a picture

of your drawing with a phone and include that picture as your response to this part of the assignment. Keep track of how long it takes you to draw the diagram. [2 marks]

d. Use your favourite generative LLM tool (ChatGPT, Copilot, Firefly, etc.) and try to construct a correct image matching the one you drew in 1c. Use as much clever iterative prompt engineering as you can until you either get a fully correct result similar to the one you drew by hand, or until you give up because it does not work. Include all of your prompts as part of your response, as well as one or more images that represent your process. At minimum, you should include either the version you like best or the version at the point you gave up. Keep track of how long it takes you to create a satisfactory image (or how long until you gave up) and briefly describe the overall process, including your reasoning for giving up if you did so. **You may instead opt out of using LLMs due to ethical considerations.** If you do opt out, state so explicitly and briefly discuss your reasoning. [2 marks]

e. If you used an LLM for 1d, compare your experiences between the methods in 1c and 1d, taking into consideration how long each method took, how easy each method was, which method produced the best output, and which method you would trust. For example, if you needed emergency surgery, would you prefer that your surgeon had studied anatomy in medical school with LLMs or with their own brain? [2 marks]

If you opted out of using LLMs for 1d due to ethical considerations, discuss what contexts, if any, you might find the use of generative LLMs to be acceptable. [2 marks]