

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 not try to use it to write the fourth paragraph for you!

Prompt #1: Consider the following sample data from general North American English, some of which may be useful for determining whether or not a preposition plus a noun phrase forms a syntactic constituent, which we may call a prepositional phrase (PP).

Possibly useful sample data:

It's best to meet with Eyota in the afternoon.
The afternoon is when it's best to meet with Eyota.
In the afternoon is when it's best to meet with Eyota.
With Eyota is when it's best to meet in the afternoon.
Kylo's father is in the hospital.
That is the hospital where Kylo's father is.
Kylo's father is who is in the hospital.
The hospital is where Kylo's father is.
I saw the creature behind Ilsa's house.
Ilsa's house is where I saw the creature.
Behind Ilsa's house is where I saw the creature.

Select a relevant example from this set and show how it and slight variations of it can be used to demonstrate the constituency of our proposed PP, based on how questions are formed and answered.

ChatGPT response: One relevant example from the given set that demonstrates PP constituency is: "In the afternoon is when it's best to meet with Eyota."

To demonstrate the PP constituency of this sentence, we can ask questions about the prepositional phrase "in the afternoon":

1. "When is it best to meet with Eyota?" Answer: "In the afternoon."
2. "When is not a good time to meet with Eyota?" Answer: "Not in the afternoon."
3. "What is the best time to meet with Eyota?" Answer: "In the afternoon."

These questions and answers show that "in the afternoon" functions as a single unit, indicating the presence of a prepositional phrase as a syntactic constituent.

Variations of this sentence can also be used to demonstrate PP constituency:

1. "Where is it best to meet with Eyota?" Answer: "In the afternoon."
2. "What is the ideal time for meeting with Eyota?" Answer: "In the afternoon."
3. "At what time of the day is it optimal to meet with Eyota?" Answer: "In the afternoon."

These variations also show that "in the afternoon" is a single unit and functions as a prepositional phrase constituent.

Solution: This is nearly an okay response. The first example does indeed use proper question formation and response, with the PP *in the afternoon* as a response, indicating that it may be a syntactic constituent. However, the second example is completely irrelevant, since it introduces unnecessary negation. The third example is redundant, since it is basically the same as the first, but adds the unnecessary word *time*. The remaining three examples are also unnecessary and oddly constructed, not matching how we would have discussed this constituency test in class.

Prompt #2: Now do the same thing, except using the syntactic constituency test concerning the placement of sentential adverbs.

ChatGPT response: One syntactic constituency test that can be used to determine whether a preposition plus a noun phrase forms a constituent is the placement of sentential adverbs.

A relevant example from the given set that demonstrates this test is: "Kylo's father is in the hospital."

To demonstrate the PP constituency of this sentence, we can add a sentential adverb, such as "fortunately" or "unfortunately":

1. "Fortunately, Kylo's father is in the hospital."
2. "Unfortunately, Kylo's father is in the hospital."

Both of these sentences have the same basic meaning as the original sentence, but with the added adverb, they also demonstrate that "in the hospital" forms a single constituent, a prepositional phrase.

Similarly, we can use variations of the sentence to show the placement of sentential adverbs:

1. "It's fortunate that Kylo's father is in the hospital."
2. "Unfortunately for Kylo, his father is in the hospital."
3. "Kylo's father is, unfortunately, in the hospital."

In all of these variations, the placement of the adverb "fortunately" or "unfortunately" demonstrates that "in the hospital" is a prepositional phrase constituent.

Solution: This is a completely wrong response. In order to show that a string of words is a constituent with this test, we need to attempt to place the adverb inside the hypothesized constituent and find that the sentence is ungrammatical. So we would want an example like **Kylo's father is in often the hospital*, where the adverb *often* intervenes between the preposition and the following NP. Since this is ungrammatical, but *often* can otherwise be placed in other positions outside known constituents (*Kylo's father often is in the hospital*, *Kylo's father is often in the hospital*, *Kylo's father is in the hospital often*, etc.), this suggests that *in the hospital* is a constituent that blocks an intervening adverb.

Prompt #3: Finally do the same thing, except using the syntactic constituency test concerning how some words or phrases can be used to refer to some other syntactic constituent in the same sentence.

ChatGPT response: Another syntactic constituency test that can be used to determine whether a preposition plus a noun phrase forms a constituent is substitution. This test involves replacing a word or phrase in the sentence with another word or phrase that refers to the same constituent.

A relevant example from the given set that demonstrates this test is: "The hospital is where Kylo's father is."

To demonstrate the PP constituency of this sentence, we can replace "the hospital" with a pronoun that refers to the same constituent:

1. "It is where Kylo's father is."
2. "Where Kylo's father is, is the hospital."

Both of these sentences have the same basic meaning as the original sentence, but with the replacement of "the hospital" with a pronoun or another phrase, they also demonstrate that "where Kylo's father is" forms a single constituent, a prepositional phrase.

Similarly, we can use variations of the sentence to show the substitution test:

1. "The place where Kylo's father is located is the hospital."
2. "Where Kylo's father currently is can be found in the hospital."

In both of these variations, the substitution of "the place where Kylo's father is located" and "where Kylo's father currently is" for "the hospital" demonstrates that "where Kylo's father is" forms a prepositional phrase constituent.

Solution: This response starts off on a bad foot, by using the technical term *substitution*, which was not used in the prompt or in the course at all. This would be a clear marker of someone writing the response using outside resources rather than following the material as taught in the

course. Further, the examples ChatGPT gives do not use substitution in the strict sense, and they do it for the wrong string (*the hospital* instead of *in the hospital*). For example, in *It is where Kylo's father is*, *where* is not substituting for *the hospital*, since **It is the hospital Kylo's father is* is ungrammatical! The prompt specifies that the relevant word (in this case, *where*) should refer to some other constituent within the same sentence. Thus, we need an example like *Kylo's father is in the hospital, and his mother is there, too*. Here, *there* refers back to *the hospital*. This is the same kind of structure extensively demonstrated in class for this test.

But, what happens when we give the entire assignment to ChatGPT? Can it find its own errors, and also produce a coherent fourth paragraph using the unnamed fourth test? Here's its output:

ChatGPT appears to understand the three different tests for determining syntactic constituency. It correctly identifies relevant examples from the given set and demonstrates how each example can be used to show the constituency of the proposed prepositional phrase (PP). [Wrong!]

In the first prompt, ChatGPT correctly uses the question-and-answer test to demonstrate the constituency of a prepositional phrase. In the second prompt, it correctly uses the sentential adverb test to demonstrate the same thing. In the third prompt, ChatGPT correctly uses the substitution test to demonstrate the constituency of the prepositional phrase. [Still wrong!]

However, ChatGPT is not perfect and occasionally makes mistakes. [One of the truest things it has said!] For example, in the second prompt, ChatGPT says that the placement of the adverb "demonstrates that 'in the hospital' is a prepositional phrase constituent." It is more accurate to say that the placement of the adverb supports the idea that "in the hospital" is a prepositional phrase constituent, but it does not necessarily demonstrate it. [Utter nonsense.] Additionally, in the third prompt, ChatGPT stops in the middle of a sentence without finishing it. [I can't find this supposed sentence...]

In conclusion, ChatGPT generally shows a good understanding of the three different tests for determining syntactic constituency. [Bullshit. It certainly does not demonstrate any understanding at all, let alone good understanding.] However, it does make some minor [!!!] errors that could be improved upon with further training. [Training without learning isn't going to solve the problem!] Overall, the examples and explanations provided by ChatGPT are helpful in demonstrating the ways in which syntactic constituency can be determined in general North American English.

Prompt #4: [Note the use of *prompt* instead of *response*!] Another way to test for constituency is by using the coordination test. [Too bad for ChatGPT, because this was not the fourth constituency test used in this course! We used the movement test and ignored the coordination test. Again, this would be a sign of someone writing from outside materials rather than course materials.] To determine if a prepositional phrase is a single constituent, we can check if it can be coordinated with another similar prepositional phrase. A relevant example from the given set that demonstrates this test is: "Behind Ilsa's house is where I saw the creature."

To apply the coordination test to this sentence, we can try coordinating it with a similar prepositional phrase, such as "in the woods" or "at the park":

1. "Behind Ilsa's house is where I saw the creature, and in the woods is where I heard it."
2. "At the park is where I heard the creature, and behind Ilsa's house is where I saw it."

Both of these sentences sound grammatically correct and demonstrate that "behind Ilsa's house" is a single constituent, a prepositional phrase. They show that "behind Ilsa's house" can be coordinated with another similar prepositional phrase and still make sense in the context of the sentence. Therefore, the coordination test provides further evidence that "behind Ilsa's house" is a prepositional phrase constituent. [And not only did it pick the wrong test, but it used this test incorrectly! A correct usage of coordination would be something like *behind Ilsa's house and at the park is where I saw the creature.*]