

Exercises

1. Besides distinguishing grammatical from ungrammatical sentences, the rules of syntax account for other kinds of linguistic knowledge, such as
 - a. when a sentence is structurally ambiguous. (Cf. The boy saw the man with a telescope.)
 - b. when two sentences with different structures mean the same thing. (Cf. The father wept silently and The father silently wept.)
 - c. systematic relationships of form and meaning between two sentences, like declarative sentences and their corresponding interrogative form. (Cf. The boy can sleep and Can the boy sleep?)

Draw on your linguistic knowledge of English to come up with an example illustrating each of these cases. (Use examples that are different from the ones in the chapter.) Explain why your example illustrates the point. If you know a language other than English, provide examples in that language, if possible.

2. Consider the following sentences:
 - a. I hate war.
 - b. You know that I hate war.
 - c. He knows that you know that I hate war.
 - A. Write another sentence that includes sentence (c).
 - B. What does this set of sentences reveal about the nature of language?
 - C. How is this characteristic of human language related to the difference between linguistic competence and performance? (*Hint:* Review these concepts in chapter 1.)
3. Paraphrase each of the following sentences in two ways to show that you understand the ambiguity involved:

Example: Smoking grass can be nauseating.

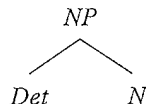
 - i. Putting grass in a pipe and smoking it can make you sick.
 - ii. Fumes from smoldering grass can make you sick.
 - a. Dick finally decided on the boat.
 - b. The professor's appointment was shocking.
 - c. The design has big squares and circles.
 - d. That sheepdog is too hairy to eat.
 - e. Could this be the invisible man's hair tonic?
 - f. The governor is a dirty street fighter.
 - g. I cannot recommend him too highly.
 - h. Terry loves his wife and so do I.
 - i. They said she would go yesterday.
 - j. No smoking section available.
4. A. Consider the following baseball joke (knowledge of baseball required):

Catcher to pitcher: "Watch out for this guy, he's a great fastball hitter."
 Pitcher to catcher: "No problem. There's no way I've got a great fastball."

Explain the humor either by paraphrasing, or even better, with a tree structure like the one we used early in the chapter for *old men and women* without the syntactic categories.

- B. Do the same for the advertising executive's (honest?) claim that the new magazine "has between one and two billion readers."
5. Draw two phrase structure trees representing the two meanings of the sentence "The magician touched the child with the wand." Be sure you indicate which meaning goes with which tree.
6. Draw the subtrees for the italicized NPs in the following sentences:
 - a. *Every child's mother* hopes he will be happy.
 - b. *The big dog's bone* is buried in the garden.
 - c. *Angry men in dark glasses* roamed the streets.
 - d. *My aunt and uncle's trip* to Alaska was wonderful.
 - e. Challenge exercises: *Whose dirty underwear* is this?
 - f. *The boy's dog's bone* is in the pantry. (Hint: Use the rules
 $NP \rightarrow \text{Det } N', \text{ Det} \rightarrow NP \text{ poss}, NP \rightarrow N'.$)
7. In all languages, sentences can occur within sentences. For example, in exercise 2, sentence (b) contains sentence (a), and sentence (c) contains sentence (b). Put another way, sentence (a) is embedded in sentence (b), and sentence (b) is embedded in sentence (c). Sometimes embedded sentences appear slightly changed from their normal form, but you should be able to recognize and underline the embedded sentences in the following examples. Underline in the non-English sentences, when given, not in the translations (the first one is done as an example):
 - a. Yesterday I noticed my accountant repairing the toilet.
 - b. Becky said that Jake would play the piano.
 - c. I deplore the fact that bats have wings.
 - d. That Guinevere loves Lorian is known to all my friends.
 - e. Who promised the teacher that Maxine wouldn't be absent?
 - f. It's ridiculous that he washes his own Rolls-Royce.
 - g. The woman likes for the waiter to bring water when she sits down.
 - h. The person who answers this question will win \$100.
 - i. The idea of Romeo marrying a 13-year-old is upsetting.
 - j. I gave my hat to the nurse who helped me cut my hair.
 - k. For your children to spend all your royalty payments on recreational drugs is a shame.
 - l. Give this fork to the person I'm getting the pie for.
 - m. khăw chyâ waă khruu maa. (Thai)
 He believe that teacher come
 He believes that the teacher is coming.
 - n. Je me demande quand il partira. (French)
 I me ask when he will leave
 I wonder when he'll leave.
 - o. Jan zei dat Piet dit boek niet heeft gelezen. (Dutch)
 Jan said that Piet this book not has read
 Jan said that Piet has not read this book.

8. Following the patterns of the various tree examples in the text, draw phrase structure trees for the following sentences. (*Hint*: You may omit the N' level whenever N' dominates a single N , so that, for example, *the puppy* has the structure



- a. The puppy found the child.
 - b. A frightened passenger landed the crippled airliner.
 - c. The house on the hill collapsed in the wind.
 - d. The ice melted.
 - e. The hot sun melted the ice.
 - f. A fast car with twin cams sped by the children on the grassy lane.
 - g. The old tree swayed in the wind.
 - h. **Challenge exercise**: The children put the toy in the box.
 - i. The reporter realized that the senator lied.
 - j. Broken ice melts in the sun.
 - k. My guitar gently weeps.
 - l. A stranger cleverly observed that a dangerous spy from the CIA lurks in the alley by the old tenement. (*Hint*: See footnote 1, page 153.)
9. Use the rules on page 150 to create five phrase structure trees of 6, 7, 8, 9, and 10 words. Use your mental lexicon to fill in the bottom of the tree.
10. We stated that the rules of syntax specify all and only the grammatical sentences of the language. Why is it important to say "only"? What would be wrong with a grammar that specified as grammatical sentences all of the truly grammatical ones plus a few that were not grammatical?
11. In this chapter we introduced X-bar theory, according to which each phrase has three levels of structure.
- a. Draw the subtree corresponding to each phrasal category, NP, AdjP, VP, PP, as it would look according to X-bar notation.
 - b. **Challenge exercise**: What would the structure of CP be according to X-bar notation?
 - c. **Further challenge**: Give a sample phrase structure for each tree that fully exploits its entire structure—e.g., *the father of the bride* for the NP.
12. Using one or more of the constituency tests (i.e., stand alone, move as a unit, replacement by a pronoun) discussed in the chapter, determine which of the boldfaced portions in the sentences are constituents. Provide the grammatical category of the constituents.
- a. Martha found a lovely pillow for the couch.
 - b. The light in this room is terrible.
 - c. I wonder if Bonnie has finished packing her books.

- d. Melissa slept in her class.
- e. Pete and Max are fighting over the bone.
- f. I gave a bone to Pete and to Max yesterday.
- g. I gave a bone to Pete and to Max yesterday.

13. The two sentences below contain a verbal particle:

- i. He ran *up* the bill.
- ii. He ran the bill *up*.

The verbal particle *up* and the verb *run* depend on each other for the unique idiosyncratic meaning of the phrasal verb *run up*. (*Running up a bill* involves neither running nor the location up.) We showed earlier that in such cases the particle and *object* do not form a constituent, hence they cannot move as a unit:

- iii. *Up the bill, John ran (compare this to *Up the hill John ran*).
- a. Using adverbs such as *completely*, show that the particle forms a constituent with the *verb* in [*run up*] *the bill*, while in *run* [*up the hill*], the preposition and NP object form a constituent.
- b. Now consider the following data:
 - i. Michael ran up the hill and over the bridge.
 - ii. *Michael ran up the bill and off his mouth.
 - iii. Michael ran up the bill and ran off his mouth.

Use the data to argue that expressions like *up the bill* and *off his mouth* are not constituents.

14. In terms of c-selection restrictions, explain why the following are ungrammatical:

- a. *The man located.
- b. *Jesus wept the apostles.
- c. *Robert is hopeful of his children.
- d. *Robert is fond that his children love animals.
- e. *The children laughed the man.

15. In the chapter, we looked at transitive verbs that select a single NP direct object like *chase*. English also has ditransitive verbs, ones that may be followed by two NPs, such as *give*:

The emperor gave the vassal a castle.

Think of three other ditransitive verbs in English and give example sentences.

16. For each verb, list the different types of complements it selects and provide an example of each type:

- a. want
- b. force
- c. try
- d. believe
- e. say

17. Tamil is a language spoken in India by upward of 70 million people. Others, but not you, may find that they talk “funny,” as illustrated by word-for-word translations of PPs from Tamil to English:
- a. Tamil to English Meaning

<i>the bed on</i>	“on the bed”
<i>the village from</i>	“from the village”

 - i. Based on these data, is Tamil a head initial or a head final language?
 - ii. What would the phrase structure rule for PP look like in Tamil?
 - b. Here are two more word-for-word glosses:

<i>she is a poet that think</i>	“think that she is a poet”
<i>the cobra is deadly that know</i>	“know that the cobra is deadly”

 - i. Do these further data support or detract from your analysis in part (a)?
 - ii. What would the pertinent VP and CP rules look like in Tamil, based on these data?
 - c. Give a word-for-word translation from Tamil of *airplane on the runway* and *suppose that cobras spit*.
 - d. Challenge exercise: Same as (c) for: *believe that she sits by the well*.
18. All *wh* phrases can move to the left periphery of the sentence.
- a. Invent three sentences beginning with *what*, *which*, and *where*, in which the *wh* word is not in its d-structure position in the sentence. Give both the s-structure and d-structure versions of your sentence. For example, using *when*: *When could Marcy catch a flight out of here?* from *Marcy could catch a flight out of here when?*
 - b. Draw the phrase structure tree for one of these sentences using the phrase structure and movement rules provided in the chapter.
 - c. Challenge exercise: How could you reformulate the movement rules used to derive a *wh* question such as *What has Mary done with her life?* using an X-bar CP structure (see question 11)?
19. There are many systematic, structure-dependent relationships among sentences similar to the one discussed in the chapter between declarative and interrogative sentences. Here is another example based on ditransitive verbs (see exercise 15):
- The boy wrote the senator a letter.
 The boy wrote a letter to the senator.
 A philanthropist gave the animal rights movement \$1 million.
 A philanthropist gave \$1 million to the animal rights movement.
- a. Describe the relationship between the first and second members of the pairs of sentences.
 - b. State why a transformation deriving one of these structures from the other is plausible.

20. State at least three differences between English and the following languages, using just the sentence(s) given. Ignore lexical differences (i.e., the different vocabulary). Here is an example:

Thai: dèg khon ní kamlang kin.
 boy classifier this progressive eat
 "This boy is eating."
 mǎa tua nán kin khâaw.
 dog classifier that eat rice
 "That dog ate rice."

Three differences are (1) Thai has "classifiers." They have no English equivalent. (2) The words (determiners, actually) "this" and "that" follow the noun in Thai, but precede the noun in English. (3) The "progressive" is expressed by a separate word in Thai. The verb does not change form. In English, the progressive is indicated by the presence of the verb *to be* and the adding of *-ing* to the verb.

a. French

cet homme intelligent comprendra la question.
 this man intelligent will understand the question
 "This intelligent man will understand the question."
 ces hommes intelligents comprendront les questions.
 these men intelligent will understand the questions
 "These intelligent men will understand the questions."

b. Japanese

watashi ga sakana o tabete iru.
 I subject fish object eat (ing) am
 marker marker
 "I am eating fish."

c. Swahili

mtoto alivunja kikombe.
 m- toto a- li- vunja ki- kombe
 class child he past break class cup
 marker marker
 "The child broke the cup."

watoto wanavunja vikombe.
 wa- toto wa- na- vunja vi- kombe
 class child they present break class cup
 marker marker
 "The children break the cups."

d. Korean

ki sonyon-iee wiyu-lil masi-ass-ta.
 ki sonyon- iee wiyu- lil masi- ass- ta
 the boy subject milk object drink past assertion
 marker marker
 "The boy drank milk."

ki-nin	muos-il	mok-ass-ninya.
ki nin	muos- il	mok- ass- ninya
he <i>subject</i>	what <i>object</i>	eat <i>past</i> <i>question</i>
<i>marker</i>	<i>marker</i>	

"What did he eat?"

e. Tagalog

nakita	ni	Pedro-ng	puno	na	ang	bus.
nakita	ni	Pedro -ng	puno	na	ang	bus.
saw	<i>article</i>	Pedro that	full	already	<i>topic</i>	bus
					<i>marker</i>	

"Pedro saw that the bus was already full."

21. Transformations may delete elements. For example, the s-structure of the ambiguous sentence "George wants the presidency more than Martha" may be derived from two possible d-structures:

- George wants the presidency more than he wants Martha.
- George wants the presidency more than Martha wants the presidency.

A deletion transformation either deletes *he wants* from the structure of example (a), or *wants the presidency* from the structure of example (b). This is a case of transformationally induced ambiguity: two different d-structures with different semantic interpretations are transformed into a single s-structure.

Explain the role of a deletion transformation similar to the ones just discussed in the following humorous dialogue between "two old married folks."

HE: Do you still love me as much as you used to?

SHE: As much as I used to what?

22. Challenge exercise: Compare the following French and English sentences:

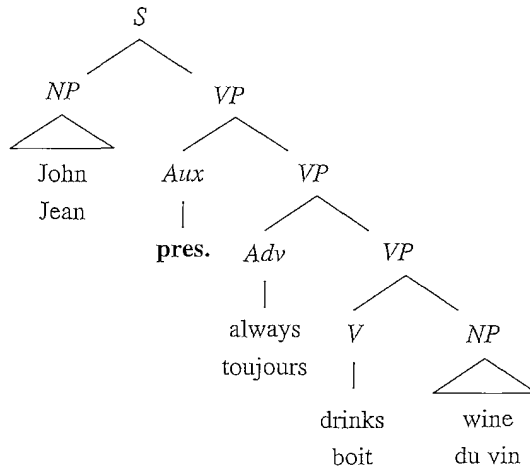
French

Jean boit toujours du vin.
 Jean drinks always some wine
 (*Jean toujours boit du vin)
 Marie lit jamais le journal.
 Marie reads never the newspaper
 (*Marie jamais lit le journal)
 Pierre lave souvent ses chiens.
 Pierre washes often his dogs
 (*Pierre souvent lave ses chiens.)

English

John always drinks some wine.
 *John drinks always some wine
 Mary never reads the newspaper.
 *Mary reads never the newspaper.
 Peter often washes his dogs.
 *Peter washes often his dogs.

- Based on the above data, what would you hypothesize concerning the position of adverbs in French and English?
- Now suppose that UG specifies that in *all languages* adverbs of frequency (e.g., *always*, *never*, *often*, *sometimes*) immediately precede the VP, as in the following tree. What rule would you need to hypothesize to derive the correct surface word order for French? (*Hint*: Adverbs are not allowed to move.)



- c. Do any verbs in English follow the same pattern as the French verbs?
23. a. Give the tree corresponding to the underlined portion of the sentence
The hole should have been being filled by the workcrew.
- b. Give the tree corresponding to the VP *cursed the day I was born the day I was born.*
 Which must come first, the AdvP or the NP? (You needn't worry about the internal structure of the AdvP or NP.)
24. Show that an embedded CP is a constituent by applying the constituency tests (stand alone, move as a unit, and replace with a pronoun). Consider the following sentences in formulating your answer, and provide further examples if you can. (The boldfaced words are the CP.)
- Sam asked **if he could play soccer**.
 I wonder **whether Michael walked the dog**.
 Cher believes **that the students know the answer**.
 It is a problem **that Sam broke his arm**.

25. Challenge exercise:

- a. Give the d-structure tree for *Which dog does Michael think loves bones?* (Hint: The complementizer *that* must be present.)
- b. Give the d-structure tree for *What does Michael think that his dog loves?*
- c. Consider these data:
- *Which dog does Michael think that loves bones?
 - What does Michael think his dog loves?

In (ii) a complementizer deletion rule has deleted *that*. The rule is optional because the sentence is grammatical with or without *that*.

In (i), however, the complementizer must be deleted to prevent the ungrammatical sentence from being generated. What factor governs the optionality of the rule?

26. Dutch and German are Germanic languages related to English, and as in English *wh* questions are formed by moving a *wh* phrase to sentence initial position.
- a. In what way are the rules of question formation in Dutch and German different from English? Base your answer on the following data:

German	Dutch
i. Was hat Karl gekauft? what has Karl bought "What has Karl bought?"	Wat heeft Wim gekocht? what has Wim bought "What has Wim bought?"
ii. Was kauft Karl? What buys Karl "What does Karl buy?"	Wat koopt Wim? what buys Wim "What does Wim buy?"
iii. Kauft Karl das Buch? buys Karl the book "Does Karl buy the book?"	Koopt Wim het boek? buys Wim the book "Does Wim buy the book?"

- b. Challenge exercise: Consider the following declarative sentences in Dutch and German:

iv. Karl kaufte das Buch. "Karl bought the book."	Wim kocht het boek. Wim bought the book. "Wim bought the book."
v. Das Buch kaufte Karl. The book bought Karl "Karl bought the book."	Het boek kocht Wim. the book bought Wim "Wim bought the book."
vi. Das Buch kaufte Karl gestern. the book bought Karl yesterday "Karl bought the book yesterday." Het boek kocht Wim gisteren. the book bought Wim yesterday "Wim bought the book yesterday."	
vii. Gestern kaufte Karl das Buch. Yesterday bought Karl the book "Yesterday Karl bought the book." Gisteren kocht Wim het boek. yesterday bought Wim the book "Yesterday Wim bought the book."	

What rules derive the different word order in declarative sentences?
(*Hint*: There are two rules, one involving movement of the verb, and the other movement of an XP.)

- c. Are either of the rules in (b) familiar from the German/Dutch questions in (i)–(iii)?