

MORE PHRASE STRUCTURE RULES

The preceding chapter introduced 10 rules that specified the form of sentences, noun phrases, and adverbials in English. In this chapter we turn our attention to the phrase structure rules for predicates. The core elements of predicates are auxiliary elements (AUX) and verb phrases (VP).

THE STRUCTURE OF THE ENGLISH VERB SYSTEM

The verb system of English can be discussed in terms of its forms—or it can be discussed in terms of how it encodes meaning. In this chapter we present only the forms of the verb system (the meanings and uses of the forms are discussed in Chapters 7 through 9).

The tense forms of any language are a selective rendering of the many distinctions—both direct and indirect—that one can make with reference to time, and speaker perspective on time, in the real world. The system is selective because *tense*, in the morphological sense, refers only to the inflections one can use with finite (i.e., inflectable) verbs. Given this perspective, English has only two tense forms—past and present (or as some like to say, “past and nonpast,” where “past” includes reference to remote events as well as past time, while “nonpast” includes references to present and future time as well as cases in which timelessness is intended, such as “two plus two equals four”).¹ If we exclude the irregular verb *be* for the moment, the past tense may be realized through either regular suffixation:

We walk ed to school. (*walk*)

or other irregular vowel and consonant changes:

We saw the principal. (*see*) We bought some books. (*buy*)

The present tense is explicitly marked only in the case of third person singular subjects:

He walk -s to school.

It is expressed implicitly with a lack of marking for all other subjects:²

I	}	walk	∅	to school.
you				
they				
we				

The verb *be* is more highly inflected than other verbs in English and can express the present through three forms: *am*, *is*, *are*, and the past through two forms: *was*, *were*. (See Chapter 4 for details.)

Every nonimperative English sentence must have either a modal auxiliary (e.g. *can*, *must*, *will*) or a grammatical tense—past or present. In addition, English has two optional

structural markers of aspect—the progressive and the perfect aspect, which were introduced in Chapter 2 and are further elaborated in Chapter 7.

1. I am walk ing to school.
be . . . -ing (progressive aspect)
2. I have see n the principal.
have . . . -en (perfect aspect)

What we need to remember about the progressive and perfect aspects is that the auxiliary verb and the inflection are discontinuous. This is indicated by the three dots in their phrase structure representations. The inflection immediately moves over the following verb to eventually combine with it.

PHRASE STRUCTURE RULES FOR THE AUXILIARY

The English verb thus has many potential auxiliary elements that must be accounted for in our phrase structure rules. Consider the following sentences:

1. John wrote a book.
2. John should write a book.
3. John has written a book.
4. John is writing a book.
5. John is going to write a book.
6. Write a book!

If we consider the auxiliary (AUX) as everything in the predicate but the verb phrase and cite the verb phrase in its uninflected base form, *write a book*, we see that the auxiliary + the verb *write* in each of the sentences above consists of the following elements:

1. past tense + write = *wrote*
2. modal *should* + write = *should write*
3. pres tense + perfect *have . . . -en* + write = *has written* (-en = past participle)
4. pres tense + progressive *be . . . -ing* + write = *is writing* (-ing = present participle)
5. pres tense + the phrasal modal *be going to* + write = *is going to write*
6. imperative mood + write = *write*

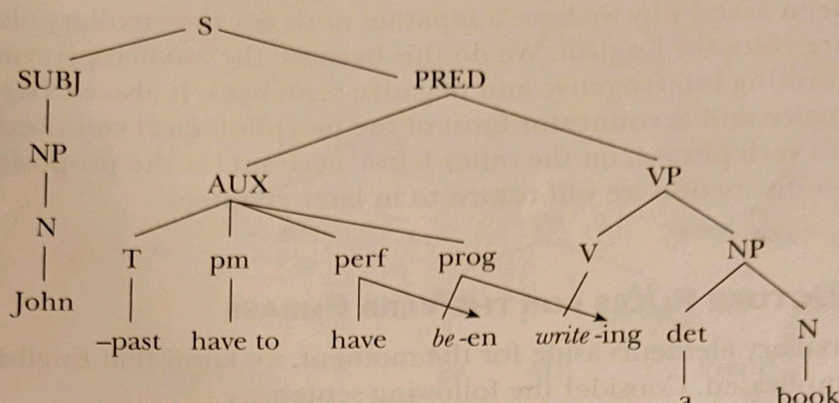
As we previously mentioned, nonimperative English sentences obligatorily take grammatical tense (-past, -pres) or a modal (e.g., *will, can, must, shall, may*). If some auxiliary verb other than a modal is present, it carries the tense. Beyond tense or a modal, three different optional auxiliary verb types may be present: a phrasal modal³ (e.g., *be going to, have to, be able to*); the perfect aspect (*have* plus the past participle); and the progressive aspect (*be* plus the present participle). If no tense-bearing auxiliary verb is present, the main verb will carry past or present tense (e.g., sentence 1 above).

Sometimes much more than tense or a modal auxiliary occurs in the AUX of a single sentence. For example:

1. John had to be writing a book. (AUX = past tense, phrasal modal, and progressive aspect)
2. John has been writing a book. (AUX = present tense, perfect and progressive aspects)
3. John should have written a book. (AUX = modal and perfect aspect)
4. John will have been writing a book. (AUX = modal, perfect and progressive aspects)
5. John will have to have written a book. (AUX = modal, phrasal modal, and perfect aspect)
6. John had to have been writing a book. (AUX = past tense, phrasal modal, perfect and progressive aspects)

Not all the combinatory possibilities are illustrated here. We discuss others in subsequent chapters. The tree diagram for the sixth example sentence above is

John had to have been writing a book.



As we have just seen, whenever three or more auxiliary elements occur together, the perfect precedes the progressive, and a phrasal modal precedes either of the two aspects. A modal can precede a phrasal modal and also either of the two aspects. If two or more potentially tense-bearing auxiliary verbs are present, only the first of these auxiliary verbs will carry the tense.

These relationships can be summed up in the following rule:

$$11. \text{AUX} \rightarrow \left\{ \left\{ \begin{array}{l} \text{T} \\ \text{M} \end{array} \right\} \begin{array}{l} (\text{pm}) \\ (\text{perf}) \\ (\text{prog}) \end{array} \right\} \\ \text{-imper}$$

Here the auxiliary is AUX. It is made up of either *-imper* (imperative mood) or tense (T) or a modal (M), if (T) or (M) is selected; it can be followed by the other optional auxiliary elements: phrasal modal (pm) and the perfect (perf) and progressive (prog) aspects. (Imperative mood is a tenseless verb form in English, which will be explained in detail in Chapter 12.)

You have already learned that morphological tense in English is either past or present. This choice is stated in phrase structure rule 12:

$$12. \text{T} \rightarrow \left\{ \begin{array}{l} \text{-past} \\ \text{-pres} \end{array} \right\}$$

The perfect and progressive aspects are expanded into their auxiliary verbs and accompanying grammatical inflections in rules 13 and 14 respectively:

$$13. \text{perf} \rightarrow \text{have} \dots \text{-en}$$

$$14. \text{prog} \rightarrow \text{be} \dots \text{-ing}$$

Notice that we are using the *-en* as a symbol for the past participle. Past participles in English are not always formed with an *-en*, as the following examples show:

-en⁴	Vowel alternations	Look the same as the past tense form
written	sung	learned
eaten	drunk	read
seen	swum	taught

ESL/EFL students will need ample practice using the various past participles in order for them to master the many forms.

We have been asked why we have a separate node for the auxiliary elements in our phrase structure rules for English. We do this because the auxiliary is syntactically very important in forming interrogative and negative sentences. It also carries tense, mood, modality, and voice and accounts for most of the morphological complexity in English. The subject and verb phrase, on the other hand, account for the propositional content of sentences—a distinction we will return to in later chapters.

PHRASE STRUCTURE RULES FOR THE VERB PHRASE

Leaving the auxiliary elements aside for the moment, we know that English verb phrases also can be complicated. Consider the following sentences:

- a. John is a teacher. after
- b. Alice is very pretty./Alice is very, very pretty. copular complement
- c. The students are in the room. locating complement
- d. Steve snores. prep phrase
- e. Judy studies mathematics. S N O = transitive
- f. He gave the money to Sally. Di-trans
- g. He gave Sally the money. adj phrase
- h. Gaby is allergic to cats. adj phrase

A phrase structure rule that would allow us to account for all such structural possibilities follows:

$$15. VP \rightarrow \left\{ \begin{array}{l} \text{cop} \left\{ \begin{array}{l} NP \\ AP \\ PrepP \end{array} \right\} \\ V \quad (NP)^2 (PrepP) \end{array} \right\}$$

(cop refers to a copular verb⁵)

Can you determine which instance of the above rule would be used to generate each of the above eight sentences? For example, the first three sentences could be accounted for by the following subrules contained within rule 15:

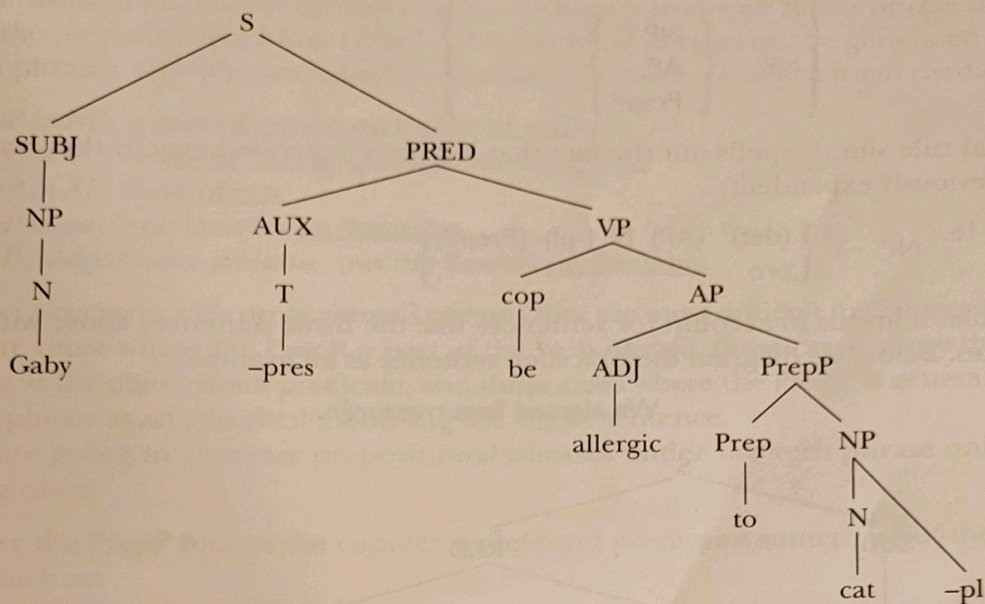
- a. $VP \rightarrow \text{cop } NP$
- b. $VP \rightarrow \text{cop } AP$
- c. $VP \rightarrow \text{cop } PrepP$

See if you can figure out the phrase structure for the verb phrases in sentences (d) and (e). Sentences (g) and (h) convey propositionally equivalent information but are generated by slightly different phrase structure rules for the verb phrase:

- g. $VP \rightarrow V NP PrepP$
- h. $VP \rightarrow V NP_1 NP_2$

When option (g) is selected, a special rule of interpretation applies so that we know the first noun phrase is the indirect object and the second the direct object. There is further discussion of this in Chapter 19, which treats sentences that have indirect objects in addition to direct objects. Here is the tree diagram for sentence (h):

Gaby is allergic to cats.



OBJECT NOUN PREDICATES⁶

To complete our basic phrase structure rules, we need to discuss one further sentence type: sentences with object noun phrases that take nouns, adjectives, or adverbial prepositional phrases as predicates. Consider the following examples:

	direct object NPs	object predicates
	↓	↓
1. We elected	Sam	<u>treasurer.</u>
2. Lola considers	Forrest	<u>stupid.</u>
3. Sally placed	the book	<u>on the table.</u>

The constituents following the direct objects in these three sentences are the same constituents that can follow a copular verb; however, when they directly follow a copular verb, they refer back to the subject NP (e.g., *Sam is the treasurer*). In the sentences above, the underlined constituents refer to the object NP and predicate something with respect to that object noun phrase:

- 1' Sam is treasurer.
- 2' Forrest is stupid.
- 3' The book is on the table.

To account for this type of sentence, where there is no explicit verb but where a predicative relationship is nonetheless present, we need one further rule⁷ that generates such predicates:

$$NP \rightarrow NP' \left\{ \begin{array}{l} NP \\ AP \\ PrepP \end{array} \right\}$$

Actually, this rule is an expansion of rule 4, introduced in the preceding chapter. Rule 4 is now as follows:

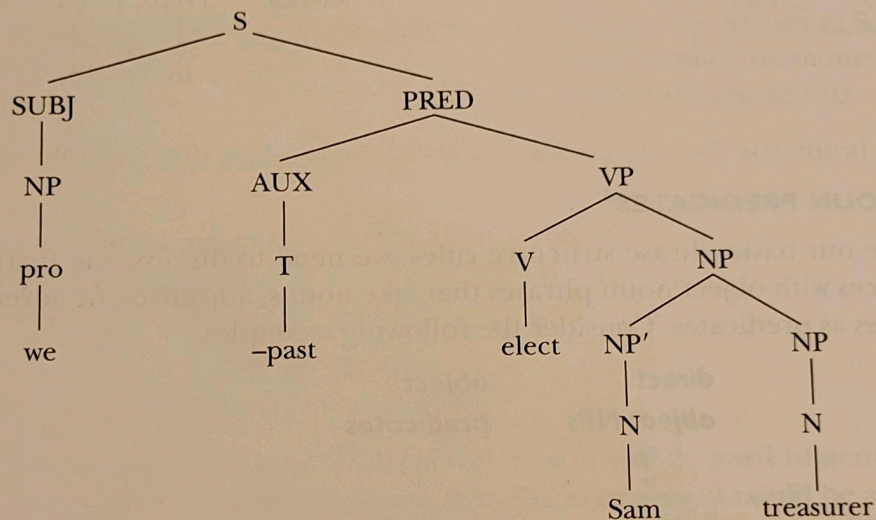
$$4. \text{ NP} \rightarrow \left\{ \begin{array}{l} (\text{det})^3 \text{ (AP) N (-pl) PrepP} \\ \text{pro} \\ \text{NP}' \left\{ \begin{array}{l} \text{NP} \\ \text{AP} \\ \text{PrepP} \end{array} \right\} \end{array} \right\}$$

Our final rule simply spells out the fact that NP' gets expanded exactly the way NP has been previously expanded:

$$16. \text{ NP}' \rightarrow \left\{ \begin{array}{l} (\text{det})^3 \text{ (AP) N (-pl) (PrepP)} \\ \text{pro} \end{array} \right\}$$

These rules allow us to account for sentences like the three sentences above with object predicates. Below, we diagram the first such sentence as an example:

We elected Sam treasurer.



There is one condition on the third option in rule 4; it applies only to prototypical NP objects (e.g. direct objects). Indirect objects, for example, do not take this type of object noun predication.

SYNTACTIC ROLES OF NPs IN PRED (PREDICATE)

This is a good time to review the two syntactic roles that noun phrases can have under the predicate (PRED) node. This is in contrast to the noun phrases directly generated under the subject node (SUBJ), which function only as subjects. Under the predicate node (PRED), NPs can function as objects or predicates. They function as three types of objects:

direct objects: Jim read a book.

indirect objects: Sara gave me some flowers.

objects of prepositions: Sam lives in a big house.

Noun phrases function as predicates of subjects when they occur after a copular verb. They function as predicates of objects when an object noun phrase is expanded, (i.e. the third possibility in rule 4 above) to include an object noun predicate:

subject noun predicate: Jan is a teacher.

object noun predicate: We elected Sam treasurer.

SYNTACTIC ROLES OF PREPOSITIONAL PHRASES

Perhaps the most ubiquitous constituent that we have introduced in our phrase structure rules is the prepositional phrase (PrepP). Prepositional phrases can be generated as parts of noun phrases, verb phrases, adjective phrases, adverbials, or object noun predicates:

PrepP in NP: a man of honor, an ounce of vodka

PrepP in VP: be in the house, give the book to Mavis

PrepP in AP: fond of cats

PrepP in Advl: do laundry on Saturday

PrepP in object noun predicate: put the flowers on the table

The three structures with prepositional phrases that are most difficult to distinguish structurally are those where the PrepP is part of the verb phrase, those cases where the PrepP functions as the object noun predicate, and those cases where the PrepP is generated after the verb phrase as an adverbial modifying the whole sentence.

We are going to generate prepositional phrases under the verb phrase only in the following cases:

1. where the PrepP follows the copular verb *be* and predicates something of the subject NP, such as:

John is in his room.

2. where the PrepP is needed to complete the argument structure of a verb. For example:

a. *intransitive verb:* The baby lay in the crib.

b. *ditransitive verb:*⁸ Sue handed the letter to Mr. Blake.

Other verbs like *lay* are *lurk*, *live* (= reside), *head* (= set out for), and *arrive*. The verbs *come* and *go* are also of this type; however, the adverbial (often a PrepP) is frequently not explicitly stated because it is understood from the context. Some other verbs like *hand* are *give*, *tell*, *explain*, *send*, *transfer*, *show*, and *deliver*. We normally generate PrepP as the object noun predicate only with verbs like *put*, *place*, *set*, or *stand* and verbs like *elect* and *consider* when they are followed by *as*:

We put the vase on the table.

We elected Tim as the interim chair.

Again, what distinguishes object noun predicates from other object-like constituents is that they predicate something of the direct object: *The vase is on the table*; *Tim is interim chair*.

All other cases where the PrepP follows the verb are adverbial in origin and are generated under the adverbial node (Advl):

Mrs. Symms teaches kindergarten in Dallas.

Jack sells auto parts for a living.

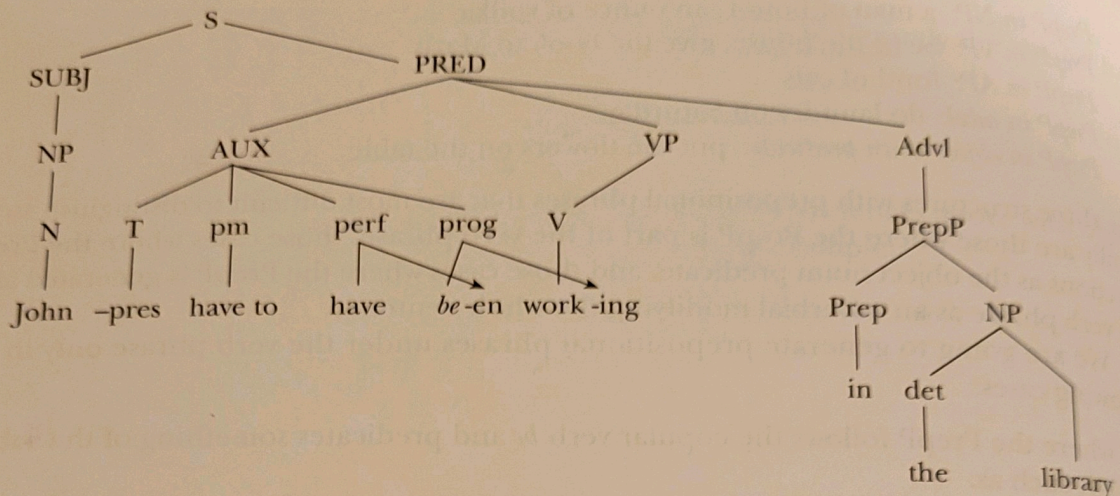
We canceled the picnic after the thunderstorm.

SENTENCE DERIVATION

Thus far, the only rules that we have applied are phrase structure rules. They generate the basic structure to which lexical items are added to complete the representation of the sentence. In many cases, minor changes must be made on the output of the phrase

structure rules in order to produce grammatical English sentences. This process is called mapping, and the changes are called mapping rules (as opposed to phrase structure rules). Consider the following sentence and its tree diagram:

John has to have been working in the library.



The output of the tree (i.e., the phrase structure rules) is

output: John -pres have to have be -en work -ing in the library

The first mapping rule that we apply to any sentence with a tense morpheme is to copy the person (i.e., 1, 2, or 3) and number (i.e., sg or pl) of the subject NP on the tense; this ensures correct subject-verb agreement. We want to emphasize that subject-verb agreement can apply only to sentences that have a tensed auxiliary.⁹ In actual fact, though, no verbs other than *be* ever require subject-verb agreement if past tense appears in the AUX rather than present tense. We abbreviate the operation of copying the subject person and number on the tense by writing simply “copy s/t”:

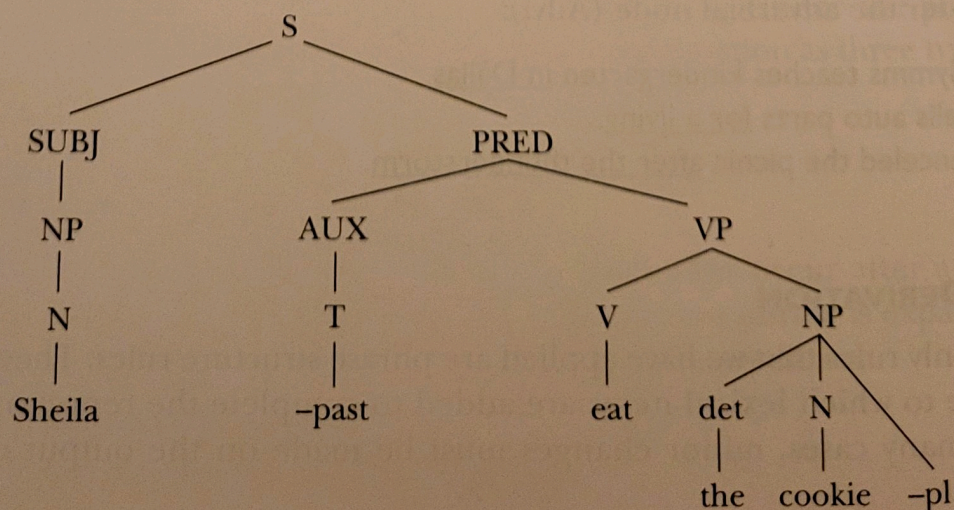
copy s/t: John -pres [+ 3 + sg] have to have be -en work -ing in the library

Finally, morphological rules apply to produce the correct surface form.

morphological rules: John has to have been working in the library.

Let us consider another example with a less complex auxiliary:

Sheila ate the cookies.



Here, the output of the phrase structure rules is

output: Sheila -past eat the cookie -pl

We again copy the person and number of the subject NP on the tense morpheme; however, since the tense is -past and the verb is not *be*, this will not have any morphological consequences in terms of overt subject-verb agreement:

copy s/t: Sheila -past [+ 3 + sg] eat the cookie -pl

Then we apply morphological rules and get

morphological rules: Sheila ate the cookies.

We provide many more tree diagrams and mappings in subsequent chapters.

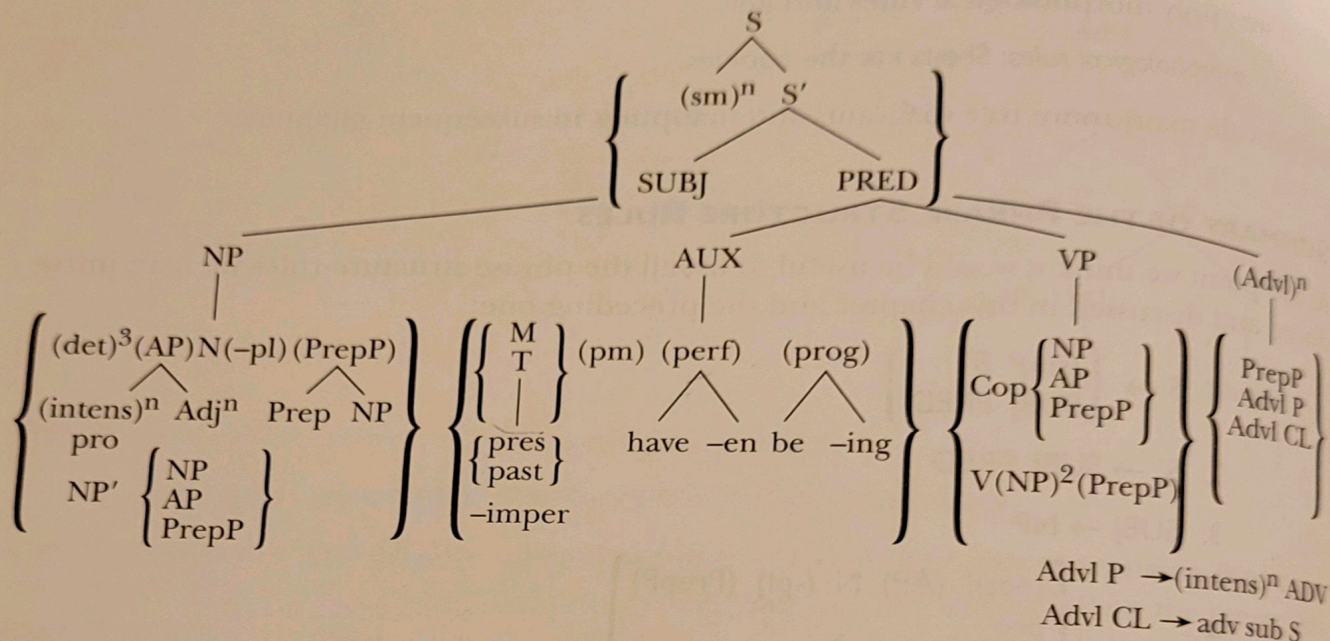
SUMMARY OF THE PHRASE STRUCTURE RULES

At this point we think it would be useful to list all the phrase structure rules we have introduced and discussed in this chapter and the preceding one:

1. $S \rightarrow \left\{ \begin{array}{l} (\text{sm})^n S' \\ \text{SUBJ PRED} \end{array} \right\}$
2. $S' \rightarrow \text{SUBJ PRED}$
3. $\text{SUBJ} \rightarrow \text{NP}$
4. $\text{NP} \rightarrow \left\{ \begin{array}{l} (\text{det})^3 (\text{AP}) \text{N} (-\text{pl}) (\text{PrepP}) \\ \text{pro} \\ \text{NP}' \left\{ \begin{array}{l} \text{NP} \\ \text{AP} \\ \text{PrepP} \end{array} \right\} \end{array} \right\}$
5. $\text{AP} \rightarrow (\text{intens})^n \text{ADJ}^n (\text{PrepP})$
6. $\text{PrepP} \rightarrow \text{Prep NP}$
7. $\text{PRED} \rightarrow \text{AUX VP} (\text{Advl})^n$
8. $\text{Advl} \rightarrow \left\{ \begin{array}{l} \text{Advl CL} \\ \text{Advl P} \\ \text{PrepP} \end{array} \right\}$
9. $\text{Advl CL} \rightarrow \text{adv sub S}$
10. $\text{Advl P} \rightarrow (\text{intens})^n \text{ADV}$
11. $\text{AUX} \rightarrow \left\{ \begin{array}{l} \left\{ \begin{array}{l} \text{T} \\ \text{M} \end{array} \right\} (\text{pm}) (\text{perf}) (\text{prog}) \\ -\text{imper} \end{array} \right\}$
12. $\text{T} \rightarrow \left\{ \begin{array}{l} -\text{past} \\ -\text{pres} \end{array} \right\}$
13. $\text{perf} \rightarrow \text{have} \dots -\text{en}$
14. $\text{prog} \rightarrow \text{be} \dots -\text{ing}$

15. $VP \rightarrow \left\{ \begin{array}{l} \text{cop } \left\{ \begin{array}{l} NP \\ AP \\ PrepP \end{array} \right\} \\ V \quad (NP)^2 (PrepP) \end{array} \right\}$
16. $NP' \rightarrow \left\{ \begin{array}{l} (\text{det})^3 (AP) N (-\text{pl}) (PrepP) \\ \text{pro} \end{array} \right\}$

These rules can also be summarized in a tree-like fashion following Clark (1997):



CONCLUSION

This concludes our presentation of the basic phrase structure rules of English grammar. Additional rules and further expansions of the rules will be added from time to time in subsequent chapters as needed. To conclude this chapter we refer back to the diagram presented in the preceding chapter which showed how the phrase structure rules—in combination with lexical choices—can describe the underlying structure of all English sentences. The addition of mapping rules and morphological rules, as needed, account for the more familiar surface structure of these sentences. This flow of rules represents the sequence of rules we will be using in this text.

TEACHING SUGGESTIONS

1. Form. The important thing to stress with the progressive and perfect aspects is that both are formed with two constituents that are not next to each other in the surface structure:

- progressive—a form of be plus the present participle (-ing) attached to the main verb
- perfect—a form of have plus the past participle (-en) attached to the following verb

A common error committed by ESL/EFL students is to omit one of the two necessary constituents when forming one of the aspects (i.e., the auxiliary verb or the participial inflection). To help your students better understand this fact, ask them to memorize three sentences that you have written on the blackboard. Make sure that the sentences contain

perfect and progressive aspects. Ask the students to close their eyes. While they are not looking, erase certain words or inflections. When the students open their eyes again, they have to guess what is missing. Repeat this procedure several times with different sentences (maybe some of the students can suggest example sentences).

2. Form. Another problem arises when the ESL/EFL student has to learn to deal with all the irregular past tense and past participle forms. The regular past participle forms, like the regular past tense, cause no undue hardship. This is because both are formed with the addition of the *ed* inflectional affix for all persons and numbers:

I walked	we walked	I have walked	we have walked
you walked	you walked	you have walked	you have walked
he/she/it walked	they walked	he/she/it has walked	they have walked

However, many different irregular forms of past tense verbs and past participles will have to be presented as separate vocabulary items—a few introduced from time to time in a 10-minute portion of a class hour.

A good way of organizing such a lesson is to introduce together those past tense verbs and past participles that conform to the same phonological pattern. For example:

Verbs that pattern like *blow, blew, blown*
 pres past past participle

These can all be presented together. The following is one way this could be accomplished:

- a. Teacher writes the following paragraph on the blackboard and then reads it out loud.

Yesterday the wind blew very hard. It had never blown that hard before. I knew when it first began that it would be bad for my garden. The plants that grew out in the open were hurt badly. Only a few which had already grown strong survived the windstorm. If I had only known, I would have planted them closer to my house.

- b. Teacher has students read the paragraph once out loud and discusses with class any new vocabulary. Teacher calls particular attention to the past tense and past participle forms of the underlined verbs:

blow	blew	blown
grow	grew	grown
know	knew	known

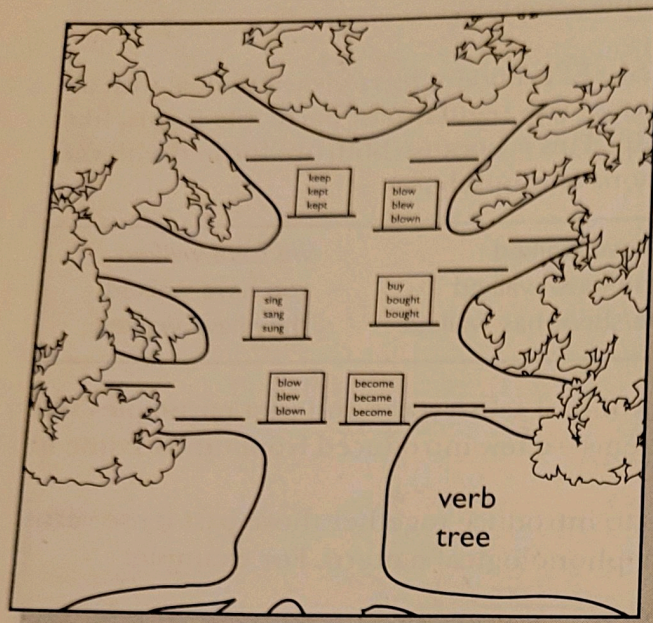
- c. Teacher gives students an exercise where students have to supply the correct form of a given infinitive verb for a number of sentences. For example:

(to grow) I have never _____ tulips before.

(to throw) After waiting a moment, the pitcher _____ the ball to the catcher.

3. Form. Olson and Shalek (1981) suggest that game-type activities be used to practice past participles. One of their ideas is to use a tree with many branches as a visual prop for a verb conjugation game. Each tree branch has several pockets for cards, and on each branch the pocket closest to the trunk has been filled with a card that gives one example of the verb conjugation pattern that the branch represents. The class (or a group) is then

given a stack of cards that must be put into the remaining pockets in the tree branches. Sample cards are as follows (note that all three verb forms should be visible even when the card is placed in the pocket):



blow
blew
blown

sing
sang
sung
--

buy
bought
bought

keep
kept
kept
--

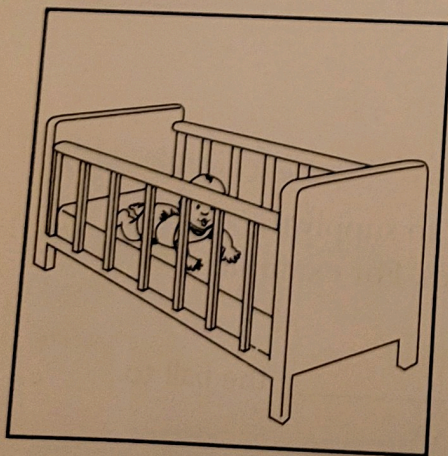
become
became
become

4. Form. With regard to verbs that take an obligatory predicate adverb of direction or position, Valerie Sandoval (personal communication) suggests two exercises:

a. Have students identify and complete any ungrammatical sentences, such as the following:

1. John put the books
2. Here are the flowers
3. The baby cried
4. The tired old woman lay

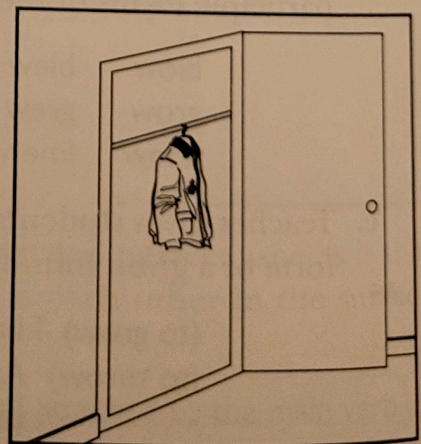
b. Have students complete sentences using visual aids such as the following:



The baby lay...



Ann put the flowers...



Roy hung his coat...

EXERCISES**Test your knowledge of the structures introduced.**

1. Provide an original example sentence illustrating each of the following terms. Underline the pertinent word(s) in your example.
 - a. imperative
 - b. modal
 - c. verb with two objects
 - d. phrasal modal
 - e. perfect aspect
 - f. progressive aspect
 - g. object noun predicate
2. Draw tree diagrams for the following sentences, using the phrase structure rules and mapping rules given in this chapter:
 - a. The quiet girls talked after the teachers left.
 - b. Surely John exercises on Sunday.
 - c. The baby cried because she was hungry.
 - d. Ian is going to take that class next term.
 - e. Anne could have been doing her homework.
 - f. Fortunately his brothers work very quietly.
 - g. Perhaps Mary has been studying in the library.
 - h. We gave some candy to the children.
 - i. Ralph put the chairs in the hallway.

Test your ability to apply what you know.

3. The following sentences contain errors that are commonly made by ESL/EFL learners. How would you make your students aware of these problems? What exercises would you use to practice the correct pattern and prevent such errors from recurring?
 - a. *She can swims very fast.
 - b. *Jane is jump rope.
 - c. *Bob will to come tomorrow.
 - d. *The man been to Chicago twice.
 - e. *Sarah put the books.
4. Although phrase structure rules should not be presented to ESL/EFL students in the forms given in this chapter, they do yield important insights into English structure. One of the insights that should be emphasized in grammar classes has to do with the composition of the progressive aspect. In light of the following errors by different ESL learners attempting to form the progressive aspect, what should be emphasized for each of them?
 - a. *She running now.
 - b. *She is run now.
5. One of your students asks you why a certain grammar text claims that English has no future tense. This student feels that English *has* a future tense. How would you answer this question?

BIBLIOGRAPHY**References**

- Clark, R. (1997). Class notes, English Structures. School for International Training, Brattleboro, Vt.
- Olson, C., and S. Shalek (1981). Games and Activities Based on Grammatical Areas Which Are Problems for the Intermediate ESL Student. Unpublished manuscript, School for International Training, Brattleboro, Vt.
- van Riemsdijk, H. and E. Williams (1986). *Introduction to the Theory of Grammar*. Cambridge, Mass: MIT Press.