

Based on the following Japanese sentences, write no more than seven phrase structure rules which describe them.

- (1) a. Gakusei-ga sono hon-o yonda.
students-nom that book-acc read.
'Students read that book.'
- b. Boku-ga tomodachi ni kono hon-o yatta.
I-nom friends to this book-acc gave.
'I gave this book to friends.'
- c. Boku-ga hachi-ji goro tomodachi ni kono hon-o yatta.
I-nom 8-o'clock about friends to this book-acc gave.
'I gave this book to friends at about 8 O'Clock.'
- d. Mary-ga Kyoto ni itta.
Mary-nom Kyoto to went.
'Mary went to Kyoto.'
- e. Mary-ga Tokyo kara Kyoto ni itta.
Mary-nom Tokyo from Kyoto to went.
'Mary went to Kyoto from Tokyo.'
- f. Mary-ga ni-ji ni Tokyo kara Kyoto ni itta.
Mary-nom 2-o'clock at Tokyo from Kyoto to went.
'Mary went to Kyoto from Tokyo at 2 O'Clock.'
- g. Mary-ga densha de ni-ji ni Tokyo kara Kyoto ni itta.
Mary-nom train by 2-o'clock at Tokyo from Kyoto to went
'Mary went to Kyoto from Tokyo at 2 O'Clock by train.'
- h. Sono otokonoko-ga shooyoosei-o butta.
that boy-nom elf-acc hit.
'That guy hit an elf.'
- i. Sono otokonoko-ga booshi de shooyoosei-o butta.
that boy-nom hat with elf-acc hit.
'That guy hit an elf with a hat.'
- j. Sono otokonoko-ga ookii booshi de iyana shooyoosei-o butta.
that boy-nom big hat with nasty elf-acc hit.
'That guy hit a nasty elf with a big hat.'

- k. Sono otokonoko-ga ookii shiroi booshi de ranbouna iyana shooyoosei-o
 that boy-nom big white hat with rambunctious nasty elf-acc
 butta.
 hit
 ‘That guy hit the rambunctious nasty elf with a big white hat.’
- l. Sensei-no tomodachi-ga natto-o tabeta.
 teacher-gen friends-nom natto-acc ate
 ‘The teacher’s friends ate natto.’
- m. Shooyoosei-ga sono genkina gakusei-no atarashi kuruma-o tatakikowashita.
 elf-nom that spunky student-gen new car-acc destroyed
 ‘An elf destroyed that spunky student’s new car.’

Here is some (hopefully) helpful advice:

- The so-called “case particles,” *ga*, *o* and *no* are morphemes that attach to the end of a phrase. They indicate, roughly, whether a NP is a subject or an object or an indirect object. (*ga* attaches to subjects, *o* attaches to objects, and *ni* attaches to indirect objects.) They are rather like the possessive, or genitive, *s* that we find in English NPs like *Mary’s hat*. You can assume that these Case markers are put onto NPs by something other than the phrase structure rules. So just ignore them.
- Japanese NPs can have a singular noun in them and nothing else. The equivalent of *Woman left* is grammatical in Japanese. When this happens, the noun can be understood as either “the woman” or “a woman.” In fact, because singular and plural nouns look the same (there is no plural suffix like the one we have in English), these singular nouns could also mean “the women” or just “women.” (To understand a Japanese speaker involves a lot of guessing.)
- Assume that the category of every Japanese word is the same as the English word used to translate it. So, for example, *sono* is a Determiner, *itta* is a Verb, *ni* is a Preposition, *genkina* is an Adjective, *gakusei* is a Noun, and so on.
- The rule for a Japanese sentence is, just as in English, $S \rightarrow NP VP$.
- There is not enough information in these sentences to know where the various phrases of Japanese are. A useful guiding principle is to make these sentences look as much like their English translations as possible — except, of course, where they obviously differ. Assume, in other words, that Japanese has NPs and VPs and PPs more or less like English does, though obviously how the words are arranged within these phrases is different. Some examples: *sono okokonoko* is an NP, *eki de* is a PP and *sono hon-o yonda* is a VP.
- Make sure your rules can produce all the examples.

Parse the following sentences.

- (2) a. Jerry asked whether the building had fallen into the street.
- b. A woman explained to the man's child that syntax bothers her.