

## Some easy extensions to our grammar

So far, we have the following rules:

- |                             |                                     |
|-----------------------------|-------------------------------------|
| (i) $S \rightarrow DP VP$   | GENERATE SENTENCE                   |
| (ii) $VP \rightarrow VP PP$ | VERBAL MODIFIER                     |
| (iii) $VP \rightarrow V DP$ | TRANSITIVE VERB 1                   |
| (iv) $PP \rightarrow P DP$  | PREPOSITIONAL PHRASE                |
| (v) $DP \rightarrow D N$    | DETERMINER PHRASE W/UNMODIFIED NOUN |

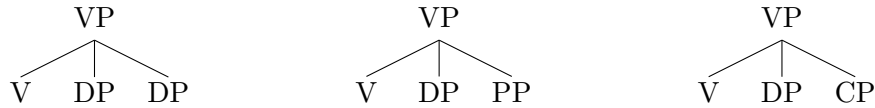
This generates a lot of sentences; however, with not that much work, we can get a lot more. Consider the different subcategorizations of verbs from Monday. We've changed the NPs (noun phrases) to DPs (determiner phrases) in the notation: on Monday, we used NP to make it more intuitive what 'kind' of argument it was. Now that we have ~28 more minutes of syntactic instruction, we know that these should be called DPs instead because they behave like determiners with regard to their distribution. For the notation below, assume all verbs have subjects, so anything subscripted refers to arguments which come **after** the verb in order — i.e.  $V_{\{DP\}}$  refers to a verb that has only one argument that follows it, and that argument is a DP.

Subcategory	Example
$V_{\{\emptyset\}}$	<i>leave, sleep</i>
$V_{\{DP\}}$	<i>hit, devour</i>
$V_{\{DP/CP\}}$	<i>ask, state</i>
$V_{\{DP, DP\}}$	<i>spare</i>
$V_{\{DP, PP\}}$	<i>put</i>
$V_{\{DP, DP/PP\}}$	<i>give, send</i>
$V_{\{DP, DP/PP/CP\}}$	<i>tell</i>

- |                                 |                     |
|---------------------------------|---------------------|
| (vi) $VP \rightarrow V CP$      | TRANSITIVE VERB 2   |
| (vii) $VP \rightarrow V DP DP$  | DITRANSITIVE VERB 1 |
| (viii) $VP \rightarrow V DP PP$ | DITRANSITIVE VERB 2 |
| (viv) $VP \rightarrow V DP CP$  | DITRANSITIVE VERB 3 |

Note that the last two subcategories of verbs in the table above don't introduce new rules: when *give* has two DP arguments, it uses rule (vii); when *give* has a DP followed by a PP, it uses rule (viii). So, there has been some amount of data reduction (which is the goal).

For the ditransitive verbs, note what these rules imply for the structure... it's ternary branching. Many people will argue for strictly binary branching structures, but we will be content with having this structure. We're showing you this so that you don't think it is impossible; there is nothing in the theory / formalism which precludes it.

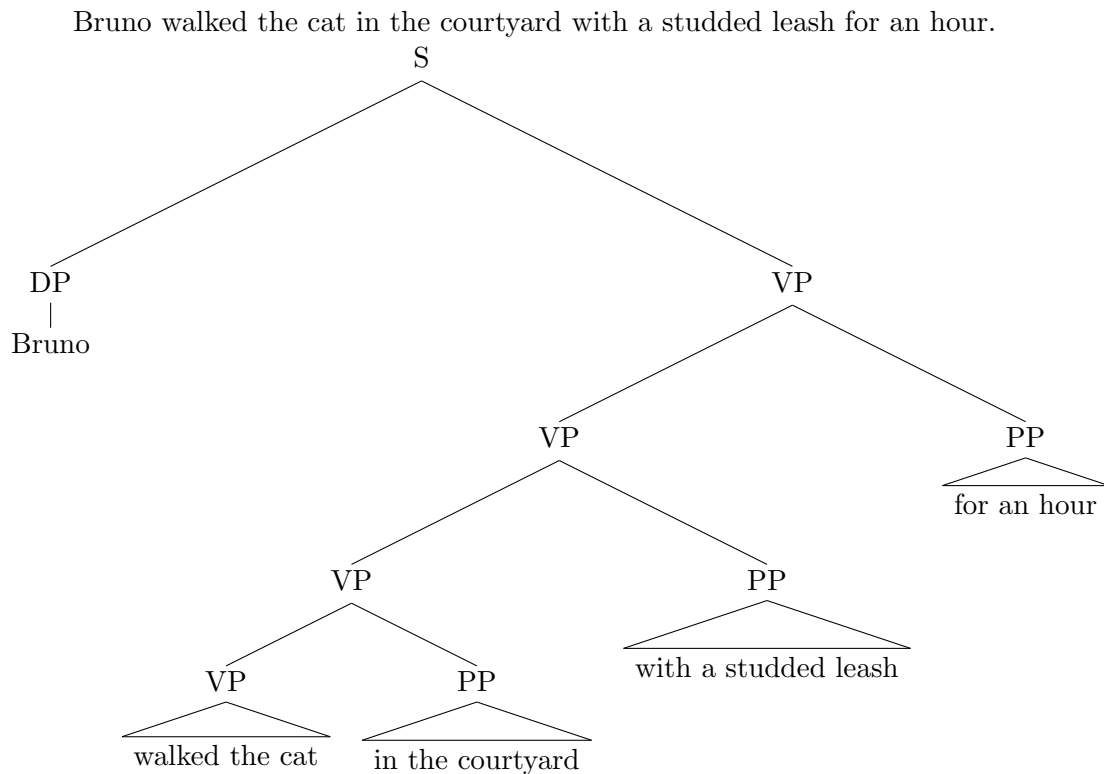


## Recursion

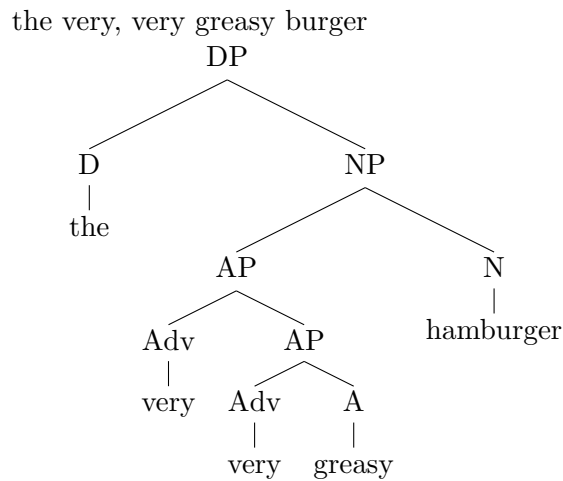
Another thing to note about our rules is that one has recursion, rule (ii); in other words, what is on the left side of the arrow appears on the right side as well

$$X \rightarrow X \quad Y$$

and this means we can have an infinite amount of applications of this rule. This is actually what we want, though, since we can add as many modifiers onto a verb phrase as possible — we are only constrained by our cognitive abilities to comprehend such long sentences.



We would want this for adjectives and adverbs as well.



### Your turn

Now, we will take the training wheels off. We would like to be able to generate sentences like these (recall that *that* is a complementizer C and is the head of a complementizer phrase CP; the word *no* is a determiner D):

- a. I hear the drizzle of the rain.
- b. I hear the colors in the flowers.
- c. We suffered a rare, rare blue.
- d. I heard that this life is a play with no rehearsal.

Write rules which will account for this data, and state which rules would be involved for our grammar to generate each one of the sentences. In addition, write any additional rules to generate the structure above for *the very, very greasy hamburger*.

We like these sentences as well. Call *and* a member of the category Conj. Try to come up with (a) rule(s) so that our grammar can generate these sentences.

- e. I arranged them for you and me.
- f. You hate it and debate it.

If you have finished and are wanting to do more, you can come up with rules for generating adverbs at the sentence and VP level; or, try to think of other data our grammar doesn't generate yet and provide rules if possible.