I. The following sentences look superficially similar.

(1) a. He looked up the number.
   b. He walked up the hill.

However, it turns out that they have rather different constituent structures. The most striking fact is that in (1a) but not in (1b) the word *up* can appear at the end of the sentence.

(2) a. He looked the number up.
   b. *He walked the hill up.

Traditionally, verbs that behave like *look up* are called phrasal verbs.

a. Think up three more examples of phrasal verbs, and three examples of verbs which are not phrasal but can appear in sentences like (1) with the same superficial structure. Then using various constituency tests, determine the constituent structure of your phrasal verbs and your non-phrasal verbs.

b. Phrasal verbs differ in their syntax from non-phrasal verbs in a number of other ways. For example, phrasal verbs with pronominal objects tend towards unacceptability if the prepositional element precedes the pronoun.

(3) a. He looked it up.
   b. *He looked up it.

Check whether this is true of your examples, and show any contrasts you find with non-phrasal verbs.

c. Determine how your phrasal verbs and your non-phrasal verbs pattern with respect to the placement of certain optional elements such as adverbials (*slowly*, *often*), simple prepositional phrases (*in the town*), and complex prepositional phrases (*as quickly as he could*). In an order like *V P NP*, the question of interest is whether optional elements may appear between the *V* and the *P* and between the *P* and the *NP*. It might be helpful to investigate both light and heavy NPs. Formulate a hypothesis that relates the pattern you find to the constituent structure of the two kinds of verbs.

d. What can be said about the constituency of the boldfaced sequences in cases like the following?

(4) a. He looked *the number up*.
   b. They ate *it up*. 
II. I said in class that CPs could function both as complements and adjuncts. It is generally assumed that the CP in (5a) is a complement of the noun and that the CP in (5b) is an adjunct on the NP.

(5) a. The rumor \([CP\text{ that Markus is a werewolf}]\)
   b. The rumor \([CP\text{ that Markus spread}]\)

Can you find any empirical evidence to support this claim?

III. Result clauses are known to have both narrow-scope and wide-scope readings.

(6) Narrow Scope
   a. Susan said he ate so much chocolate that John got sick.
   b. Susan said he was so stupid that John would leave his keys at home.
   c. Susan said he went to the cinema so much that John has little money left.

(7) Wide Scope
   a. She said John ate so much chocolate that he got angry with Susan.
   b. She said John was so stupid that he got angry with Susan.
   c. She said John went to the cinema so much that he got angry with Susan.

Using pronominal coreference judgements as well as constituency diagnostics determine if the Narrow Scope and Wide Scope readings correspond to different attachment heights for the result clause. Identify which reading goes with which structure.