① i) Define a CFG with $N = \{S, NP, VP, Det, N, Prp, V\}$ which can parse the sentences below:

- I like the cab
- He wants this job
- The cab ate her

ii) Draw the trees for these sentences

iii) Implement terminal splitting such that its possible to differentiate between subject and object pronouns

iv) Write out the new grammar.

② Can we use terminal splitting to help us resolve PP attachment as in:

I saw (the boy in the park)

vs.

I saw (the boy) in the park.

① . Write an equation for the probability of:

   VP(dumped, VBD) → VBD(dumped, VBD) NP(sacks, NNS) PP(into, P)

i.e. the probability of this tree piece:

   VP(dumped, VBD)

   VBD(dumped, VBD)   NP(sacks, NNS)   PP(into, P)