CS585 NP CFG exercise, 10/25/16 Name: _____

Consider a 3 POS tag system

N: common noun OR proper noun
A: adjective
P: preposition (of, with, in, by …)

Here are two classes of noun phrases. For each,
1. Write a CFG system that can parse all of them as the nonterminal **NP**
2. Write the parse tree (derivation tree) for one included sequence length 3 or greater.

Base noun phrase

(A|N)* N

e.g.

N	car
AN	red car
AAN	big red car
ANN	full cabinet drawer

Make sure to exclude:
[bad!] NA
[bad!] A

Noun phrase with prepositional phrase

(for simplicity, we'll do a "determiner-less" form of prepositional object noun phrases.)

(A|N)* N (P (A|N)* N)*

e.g.

NPN	car with passengers
ANPN	red car with hubcaps
NPAN	car with stolen hubcaps
NPANPN	car with stolen hubcaps in brooklyn

Make sure to exclude:
[bad!] NPPN
[bad!] NPA
[bad!] APN

Hint: Introduce a new nonterminal PP, and design it to match P(A|N)*N