LIN177 / Seunghyup Alex Oh (916201993)
HW#4

(1) Grammar Part 1.

```
% enter your rules

s --> np, vp.
np --> det, n.
vp --> vp, pp.
vp --> v, np.
pp --> p, np.
np --> np, pp.

% enter your lexical rules

n --> [dogs].
n --> [cats].
n --> [garden].
det --> [the].
p --> [in].
v --> [chased].
```

(2) Grammar Part 2.

```
% enter your rules

s(s(NP, VP)) --> np(NP), vp(VP).
np(np(DET, N)) --> det(DET), n(N).
vp(vp(VP, PP)) --> vp(VP), pp(PP).
vp(vp(V, NP)) --> v(V), np(NP).
pp(pp(P, NP)) --> p(P), np(NP).
np(np(NP, PP)) --> np(NP), pp(PP).

% enter your lexical rules

n(n(dogs)) --> [dogs].
n(n(cats)) --> [cats].
n(n(garden)) --> [garden].
det(det(the)) --> [the].
v(v(chased)) --> [chased].
p(p(in)) --> [in].
```

(3) Table for Part 3

Number of PPs	Number of possible trees
0	1
1	2
2	5
3	14
4	42

(4) Catalan number (sequence) relates the number of PPs and the number of trees.