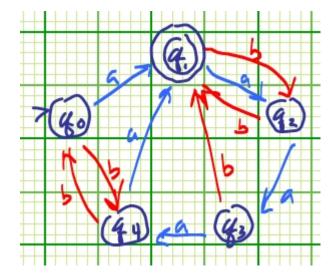
SIGN:

1. (3 pts) Suppose that the output of the CYK algorithm is given below.

What are all the various S rules which G could have which justified placing S on top?

2. (3 pts) Consider the following diagram of a Deterministic Finite Automaton.



Give 2 strings of length 4 in L(M).

Write the transition function of L in tabular form.

3. (4 pts) Design a deterministic finite automaton for the language of all strings on $\{a,b\}$ which have an even number of a's, start with an a, and in which the substring bb does not occur.

You may give your machine in tabular form, or as a diagram, either using incomplete determinism or not.

Make sure that you indicate your design principles.