**Homework 3 Questions**

# **Problem 1**: (20 points) Use CKY Algorithm to decide if is in if the grammar for G is:

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## Completed CKY Triangular Table:

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## Steps using CKY Algorithm:

### Row 1

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### Row 2

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### Row 3

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### Row 4

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### Row 5

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## Conclusion:

Using the CKY algorithm and triangular table, I was able to prove that the string is in . After successfully populating the table, I can verify . Since the start symbol,, then .

# **Problem 2**: (20 points) In each section below, give the sequence of configurations that Turing Machine enters when started on the indicated input string.

Diagram

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|  |  |
| --- | --- |
| 7-Tuple () | |
|  | Set of States |
|  | Input Alphabet |
|  | Tape Alphabet |
|  | Start State |
|  | Set of Accept States |
|  | Set of Reject States |

## - Rejected

### (starting state)

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### Halted, invalid input for , Enters

## - Accepted

### (starting state)

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Diagram

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Diagram

Description automatically generated

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Diagram

Description automatically generated

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Table

Description automatically generated with medium confidence

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Table

Description automatically generated

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Table

Description automatically generated

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Diagram

Description automatically generated

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Diagram

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Diagram

Description automatically generated

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Table

Description automatically generated with medium confidence

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Table

Description automatically generated