```
S → $Z

$32Z → \bot | I$Z

Z → [A-G]D | _N

N → (b+#)A | [0-8]D

A → [0-8]D

D → $2Z | e4Z | e4Z | q8Z | h16Z | w32Z | $3Z | E6Z | Q12Z | H24Z
```

The red S symbolizes a char and is not a state. This is how we show the dotted Sixteenth note, like all other capital durations.

S is our start state; however, in the 2-state PDA automaton, S is represented by q0 and Z is represented by S. Additionally, all numbers here are symbolic and represent the amount of X's that should be in the stack. (e.g. $2 \rightarrow XX$, $4 \rightarrow XXXX$)