

For #1, (and) are terminal symbols in the grammar — they are not part of the production rule syntax and should be treated the same as p , q , and the other letters and symbols.

For both reading (determining the language accepted by) and writing (creating) pushdown automata, keep in mind the two elements and the role each plays:

- The state transitions consume the input string, and states are used for tracking specific numbers and sequences of symbols.
- The stack is used for matching — one symbol with another, or a count of symbols with another count.

A third principle for constructing pushdown automata is *keep it simple*. If you only need to match or consume symbols — no counting! — then you don't need more states.