# Context Free Grammar

1. { w ∈ {0, 1}∗ | w contains at least three 1s }
2. { w ∈ {0, 1}∗ | w = wR and |w| is even } Where R indicates reverse.
3. { w ∈ {0, 1}∗ | the length of w is odd and the middle symbol is 0 }
4. { aibjck | i, j, k ≥ 0, and i = j or i = k}
5. { aibjck | i, j, k ≥ 0 and i + j = k }
6. The language A of strings of properly balanced left and right brackets: every left bracket can be paired with a unique subsequent right bracket, and every right bracket can be paired with a unique preceding left bracket. Moreover, the string between any such pair has the same property.

For example, [ ] [ [ [ ] [ ] ] [ ] ] ∈ A.

1. { anbn | n,m ≥ 1 }
2. Strings of length exactly 2.
3. Strings of length at least 2.
4. Strings of length at most 2.
5. Strings of even/odd length (2 different CFGs)
6. Strings that start and end with same/different symbols (2 different CFGs)
7. { anbn cmdm | n,m ≥ 1 }
8. { anbm+ncm | n,m ≥ 1 }