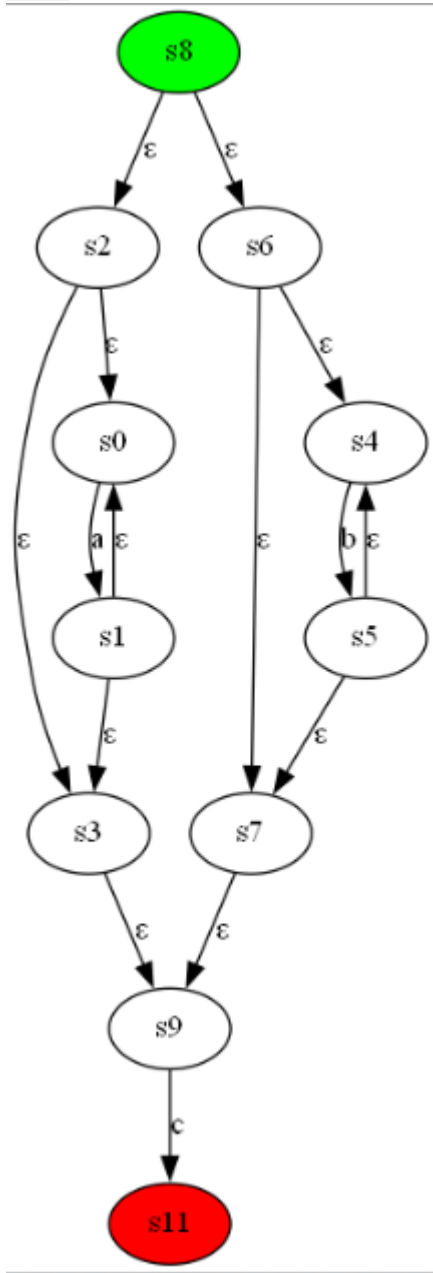
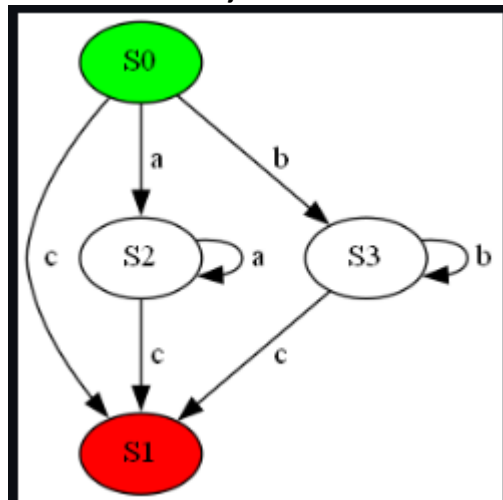


1.)  $(a^* | b^*)c$   
AFN



{'s8': {'ε': ['s2', 's6']}, 's2': {'ε': ['s3', 's0']}, 's3': {'ε': 's9'}, 's9': {'c': 's11'}, 's0': {'a': 's1'}, 's1': {'ε': ['s3', 's0']}, 's6': {'ε': ['s7', 's4']}, 's7': {'ε': 's9'}, 's4': {'b': 's5'}, 's5': {'ε': ['s7', 's4']}}

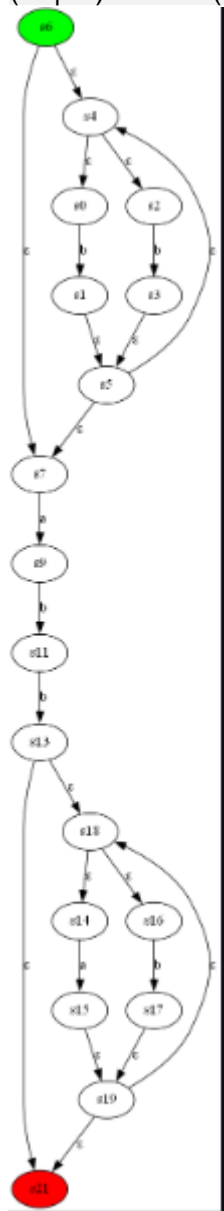
AFD -> Subconjuntos



Transitions:

{ 'S0': { 'c': 'S1', 'a': 'S2', 'b': 'S3' }, 'S3': { 'c': 'S1', 'b': 'S3' }, 'S1': { }, 'S2': { 'c': 'S1', 'a': 'S2' } }

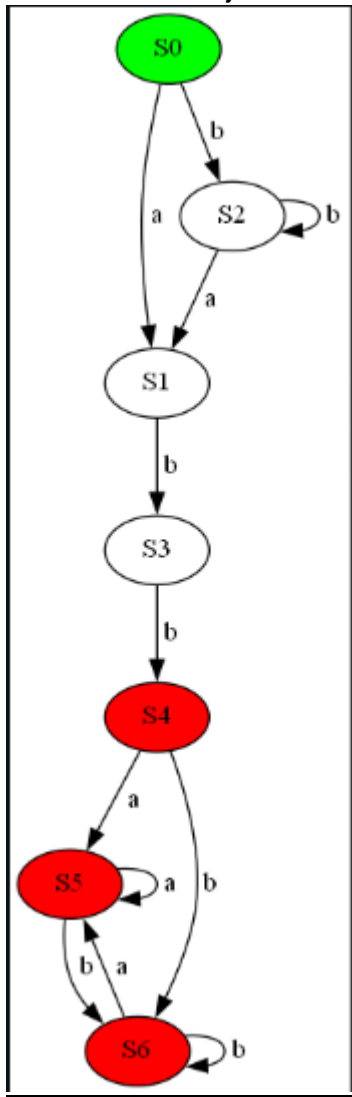
2.)  $(b|b)^*abb(a|b)^*$



Transitions:

{s6: {'ε': [s7, 's4']}, 's7': {'a': 's9'}, 's9': {'b': 's11'}, 's11': {'b': 's13'}, 's13': {'ε': [s21, 's18']}, 's18': {'ε': [s14, 's16']}, 's14': {'a': 's15'}, 's15': {'ε': 's19'}, 's19': {'ε': [s21, 's18']}, 's16': {'b': 's17'}, 's17': {'ε': 's19'}, 's4': {'ε': [s0, 's2']}, 's0': {'b': 's1'}, 's1': {'ε': 's5'}, 's5': {'ε': [s7, 's4']}, 's2': {'b': 's3'}, 's3': {'ε': 's5'}}

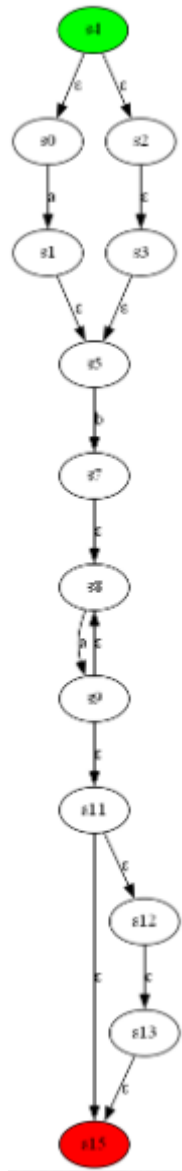
AFD -> Subconjuntos



Transitions

{ 'S0': { 'a': 'S1', 'b': 'S2' }, 'S1': { 'b': 'S3' }, 'S2': { 'a': 'S1', 'b': 'S2' }, 'S3': { 'b': 'S4' },  
'S4': { 'a': 'S5', 'b': 'S6' }, 'S6': { 'a': 'S5', 'b': 'S6' }, 'S5': { 'a': 'S5', 'b': 'S6' } }

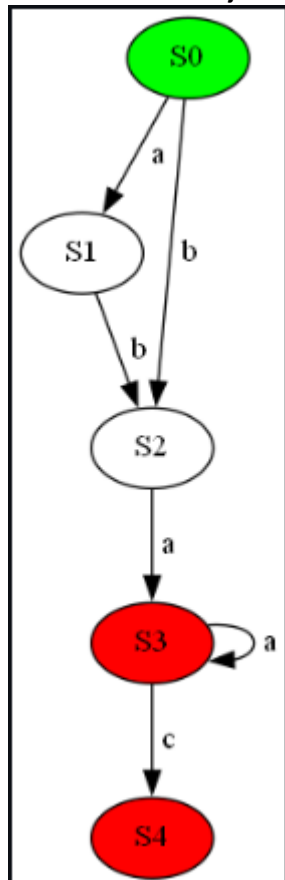
3.)  $(a | \epsilon) b (a +) c ?$



Transitions:

{s4: {'ε': [s0, s2]}, s0: {'a': s1}, s1: {'ε': s5}, s5: {'b': s7}, s7: {'ε': s8},  
 s8: {'a': s9}, s9: {'ε': [s11, s8]}, s11: {'ε': [s15,  
 s12]}, s12: {'ε': s13}, s13: {'ε': s15}, s2: {'ε': s3}, s3: {'ε': s5}}

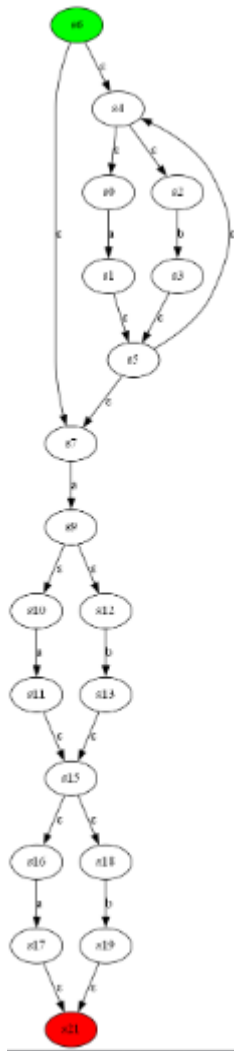
AFD -> Subconjuntos



Transitions:

{ 'S0': { 'a': 'S1', 'b': 'S2' }, 'S1': { 'b': 'S2' }, 'S2': { 'a': 'S3' }, 'S3': { 'a': 'S3', 'c': 'S4' }, 'S4': {} }

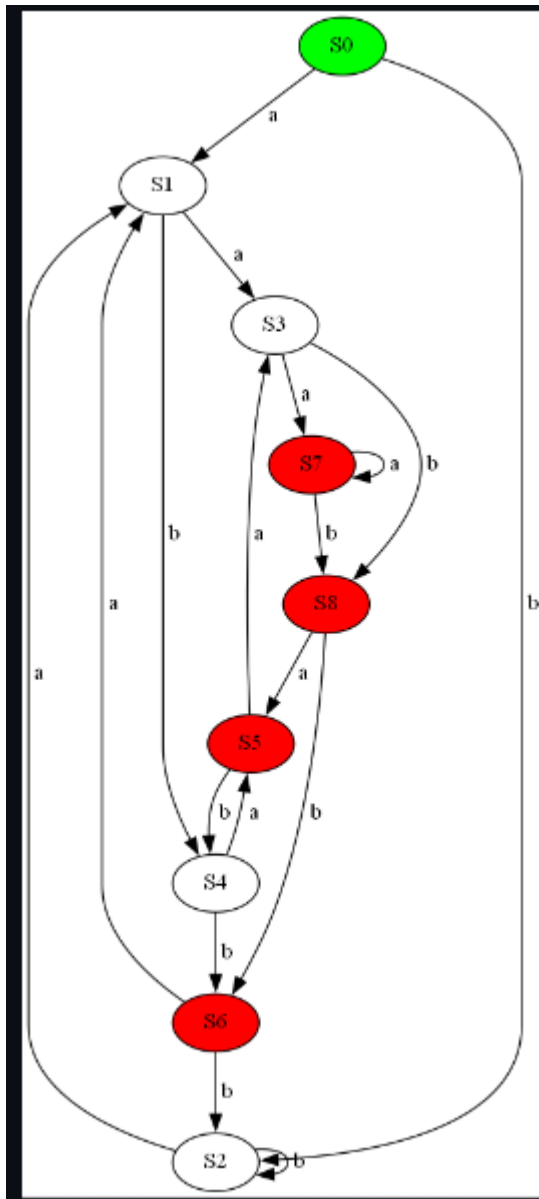
4.)  $(a|b)^* a (a|b) (a|b)$



Transitions:

{s6: {'ε': [s7, 's4']}, 's7': {'a': 's9'}, 's9': {'ε': [s10, 's12']}, 's10': {'a': 's11'}, 's11': {'ε': 's15'}, 's15': {'ε': [s16, 's18']}, 's16': {'a': 's17'}, 's17': {'ε': 's21'}, 's18': {'b': 's19'}, 's19': {'ε': 's21'}, 's12': {'b': 's13'}, 's13': {'ε': 's15'}, 's4': {'ε': [s0, 's2']}, 's0': {'a': 's1'}, 's1': {'ε': 's5'}, 's5': {'ε': [s7, 's4']}, 's2': {'b': 's3'}, 's3': {'ε': 's5'}}

AFD -> Subconjuntos



Transitions:

{ 'S0': { 'a': 'S1', 'b': 'S2' }, 'S2': { 'a': 'S1', 'b': 'S2' }, 'S1': { 'a': 'S3', 'b': 'S4' }, 'S4': { 'a': 'S5', 'b': 'S6' }, 'S3': { 'a': 'S7', 'b': 'S8' }, 'S6': { 'a': 'S1', 'b': 'S2' }, 'S7': { 'a': 'S7', 'b': 'S8' }, 'S5': { 'a': 'S3', 'b': 'S4' }, 'S8': { 'a': 'S5', 'b': 'S6' } }