

Graph 1: State Machine

```
digraph finite_state_machine {  
    rankdir=LR  
    size="8,5"  
  
    node [shape=doublecircle]  
    LR_0  
    LR_3  
    LR_4  
    LR_8  
  
    node [shape=circle]  
    LR_0 -> LR_2 [label="SS(B)"]  
    LR_0 -> LR_1 [label="SS(S)"]  
    LR_1 -> LR_3 [label="S($end)"]  
    LR_2 -> LR_6 [label="SS(b)"]  
    LR_2 -> LR_5 [label="SS(a)"]  
    LR_2 -> LR_4 [label="S(A)"]  
    LR_5 -> LR_7 [label="S(b)"]  
    LR_5 -> LR_5 [label="S(a)"]  
    LR_6 -> LR_6 [label="S(b)"]  
    LR_6 -> LR_5 [label="S(a)"]  
    LR_7 -> LR_8 [label="S(b)"]  
    LR_7 -> LR_5 [label="S(a)"]  
    LR_8 -> LR_6 [label="S(b)"]  
    LR_8 -> LR_5 [label="S(a)"]  
}
```

