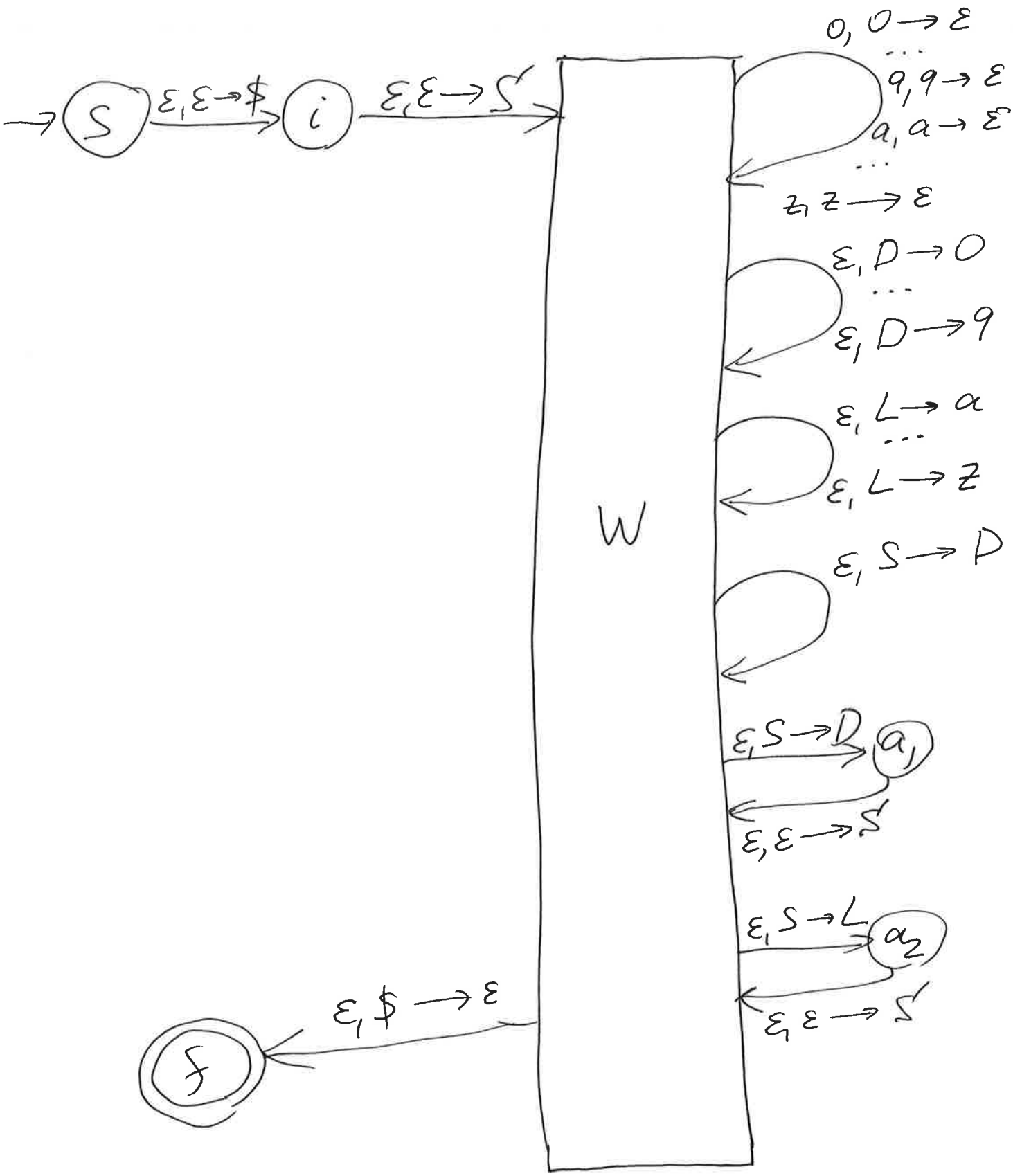
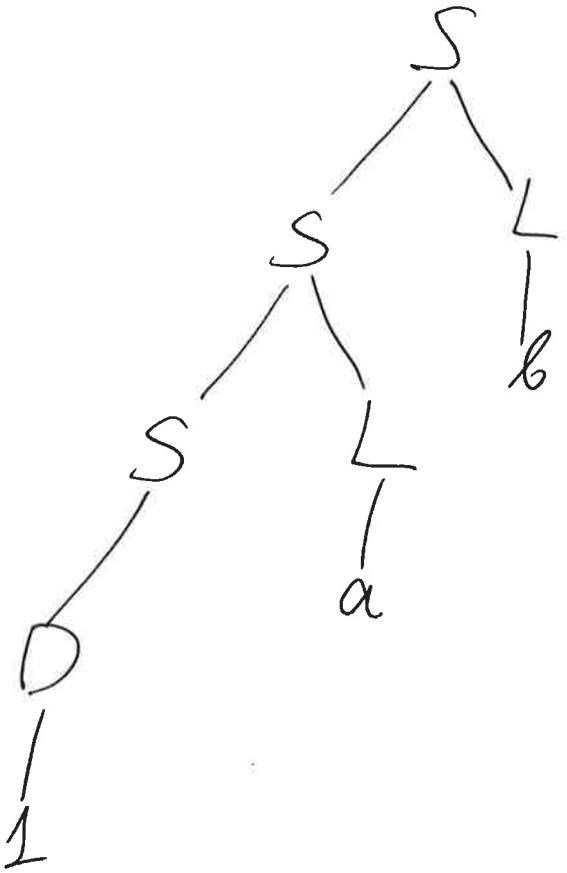
HW9, FALL 2024, P. 1



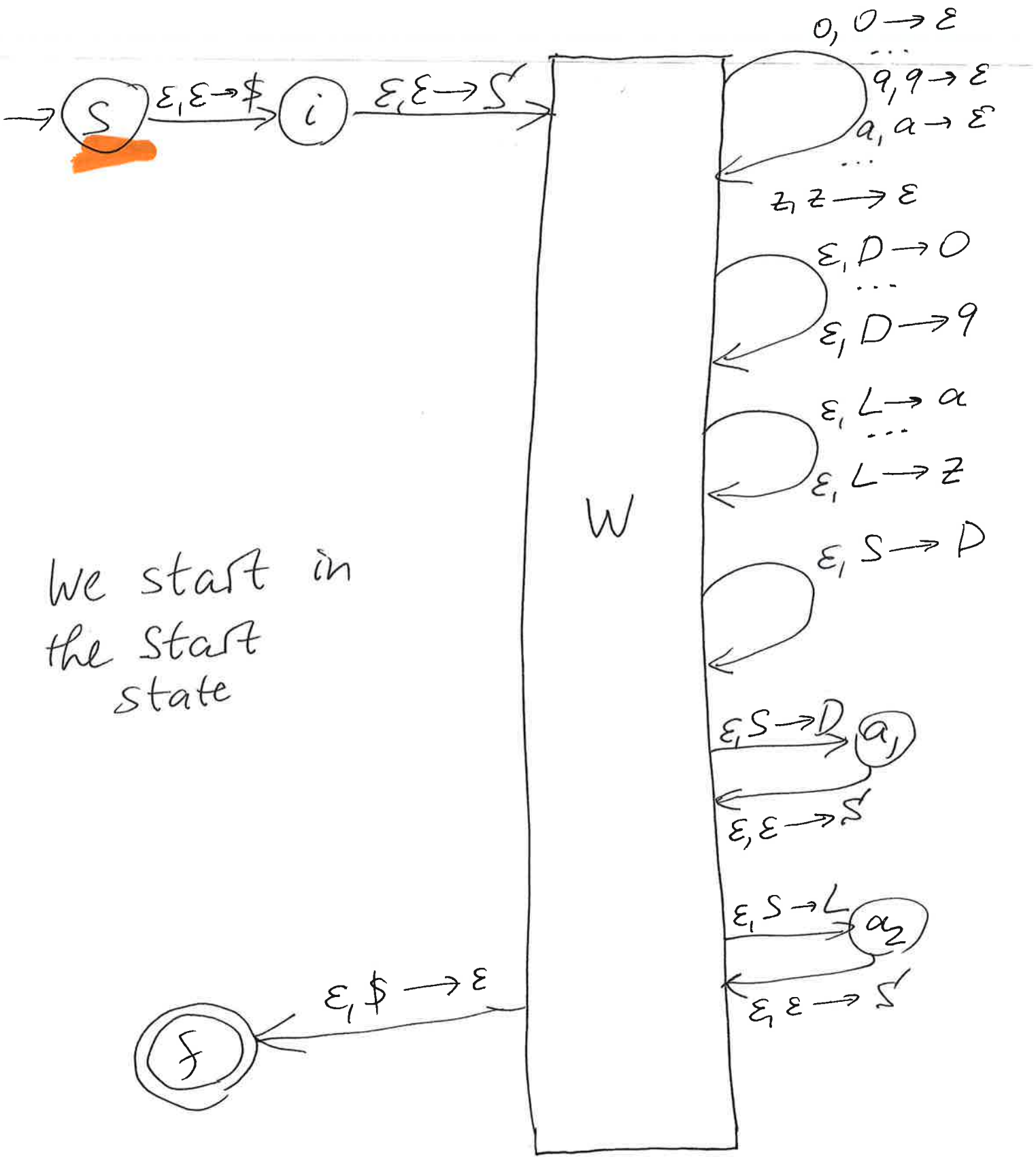
HW9, FALL 2024, P.2



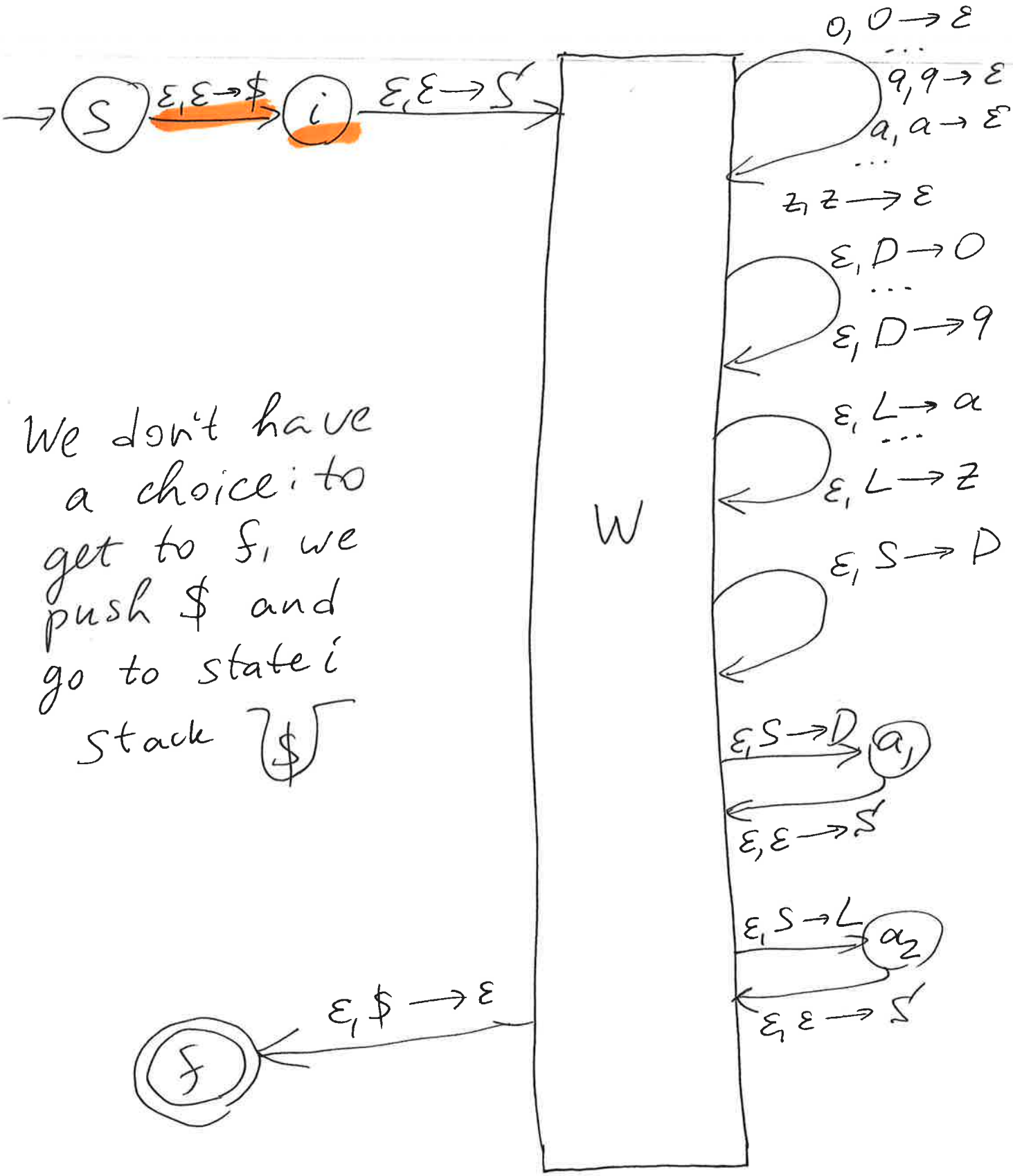
$\underline{S} \rightarrow \underline{S}L \rightarrow \underline{S}LL \rightarrow \underline{D}LL \rightarrow$

$1\underline{L}L \rightarrow 1a\underline{L} \rightarrow 1ab$

HW9, FALL 2024, P. 3



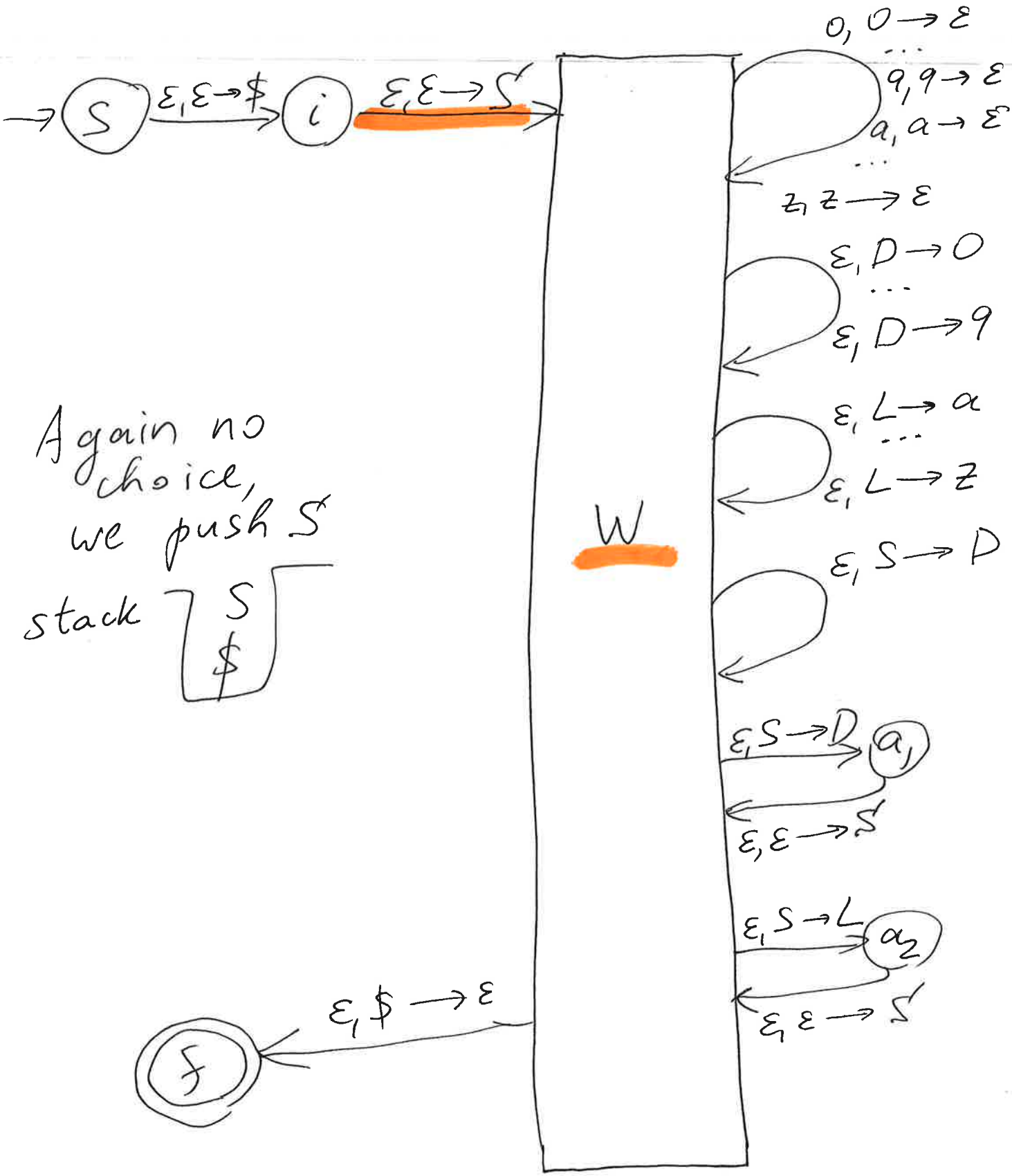
HW9, FALL 2024, P. 4

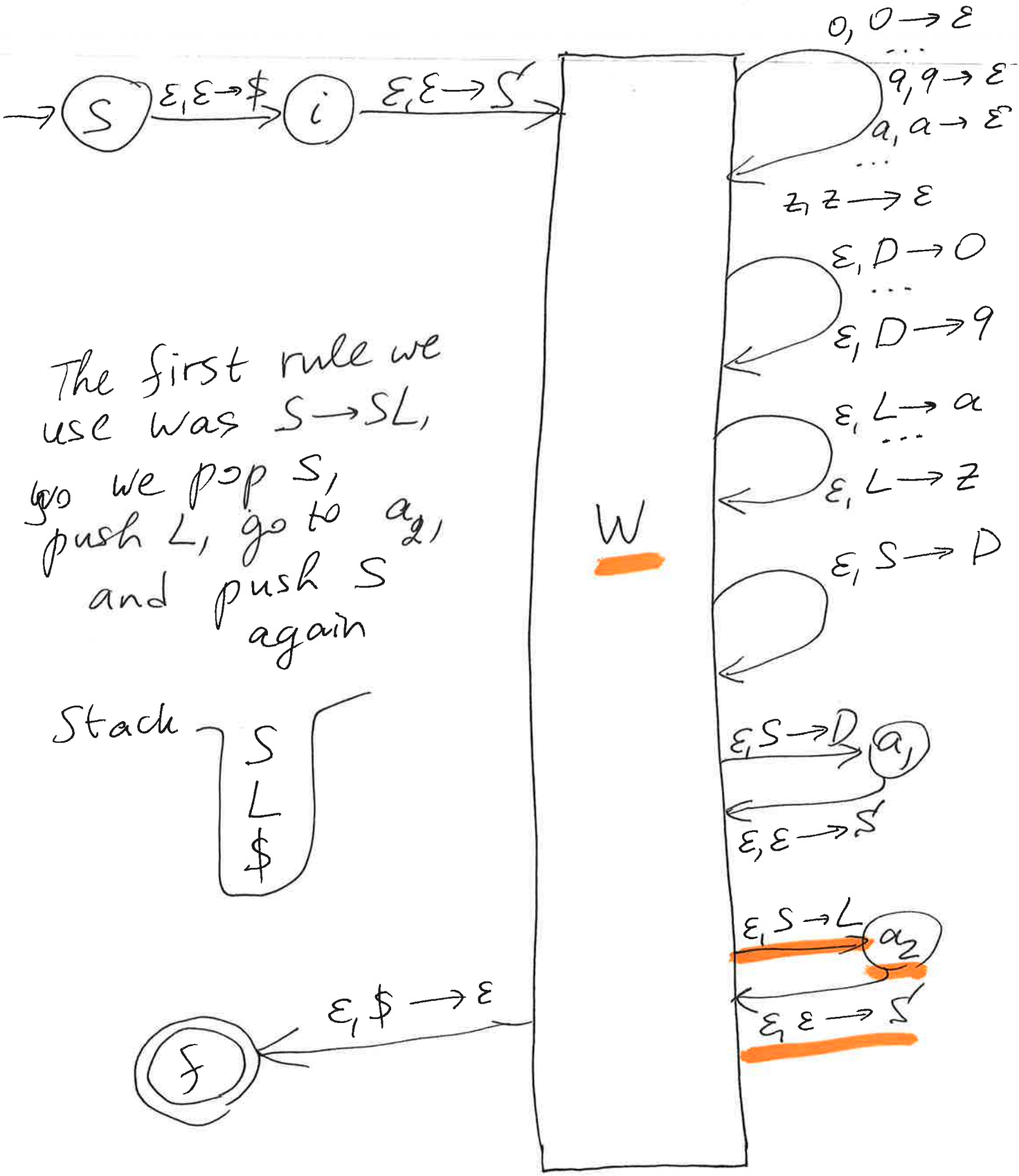


We don't have a choice: to get to f, we push $ and go to state i

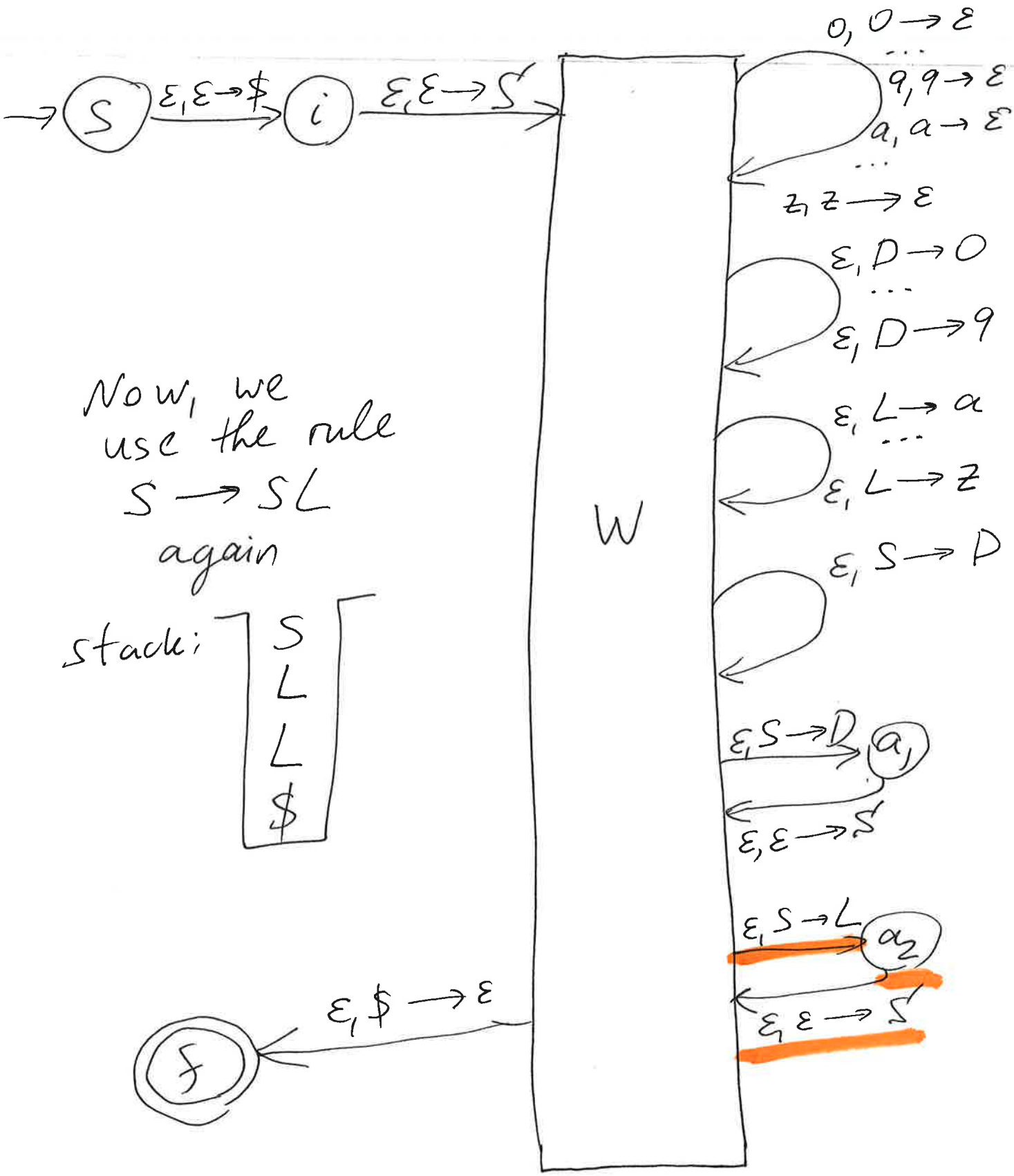
stack $

HW9, FALL 2024, P. 5

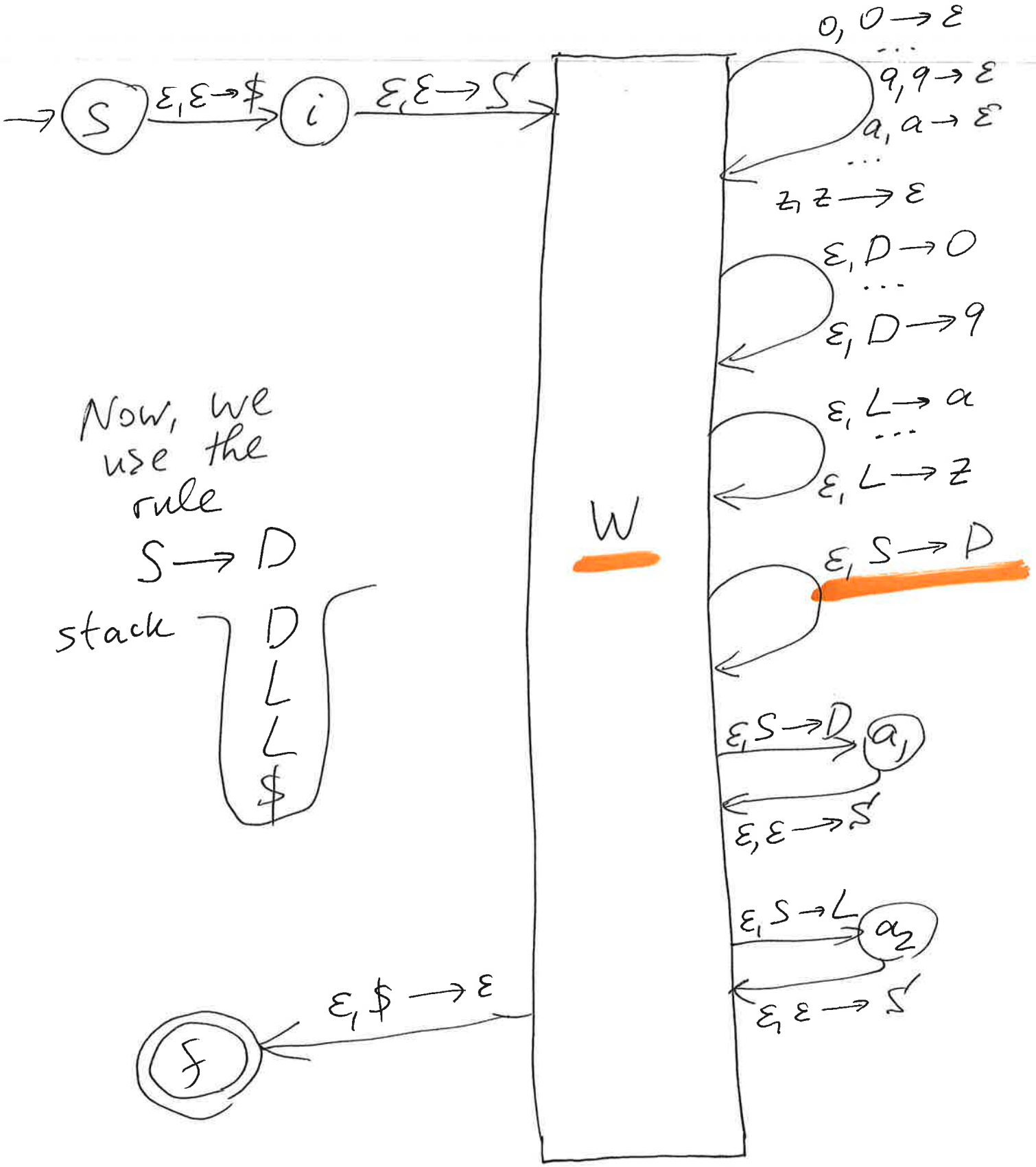



0, 0 → ε
...
9, 9 → ε
a, a → ε
...
z, z → ε
ε, D → 0
...
ε, D → 9
ε, L → a
...
ε, L → z
ε, S → D
ε, S → L
ε, $ → ε
ε, ε → S
W
S
i
f
a1
a2
The first rule we use was S → SL, so we pop S, push L, go to a2, and push S again
Stack
S
L
$

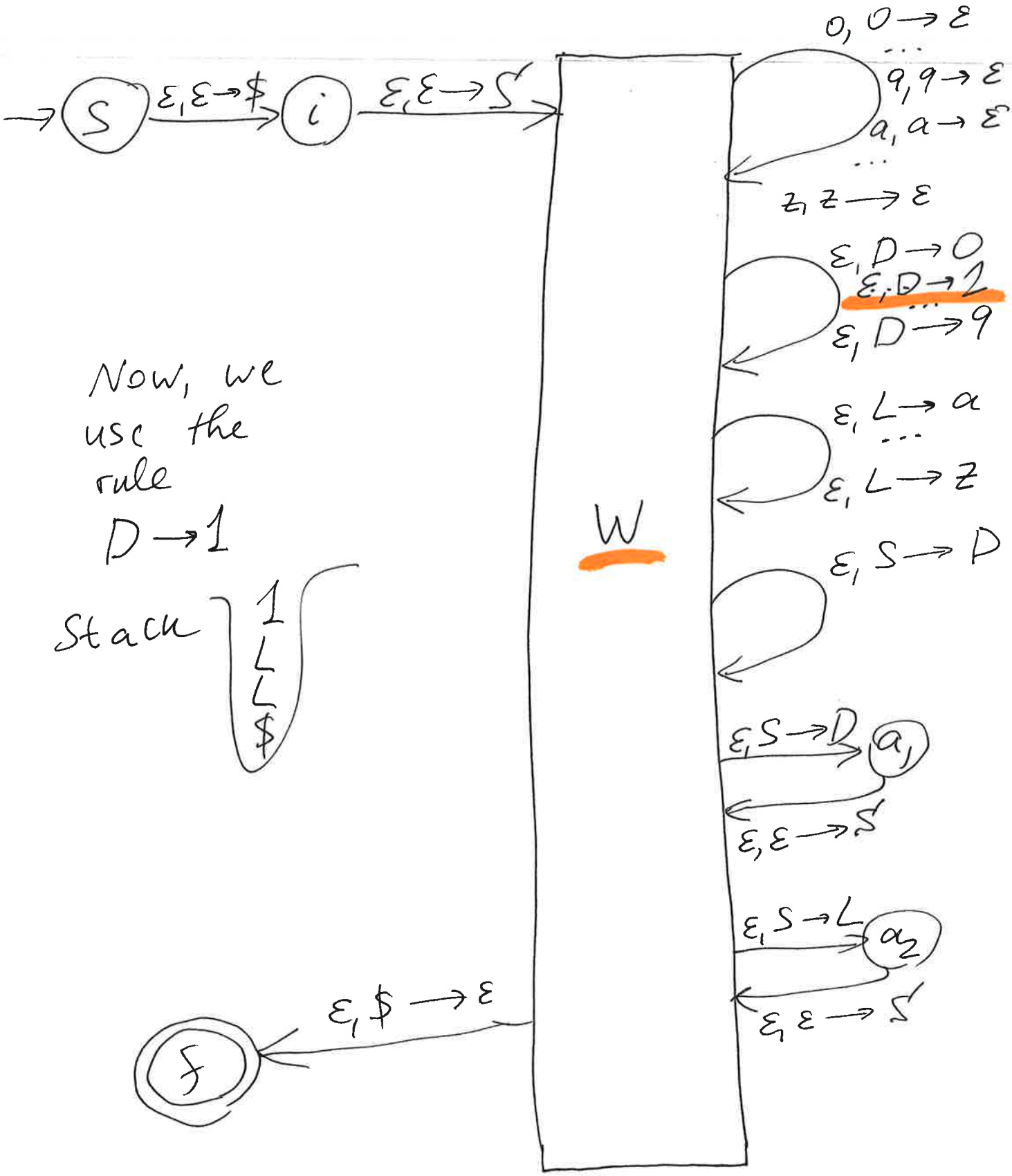
HW9, FALL 2024, P. 7

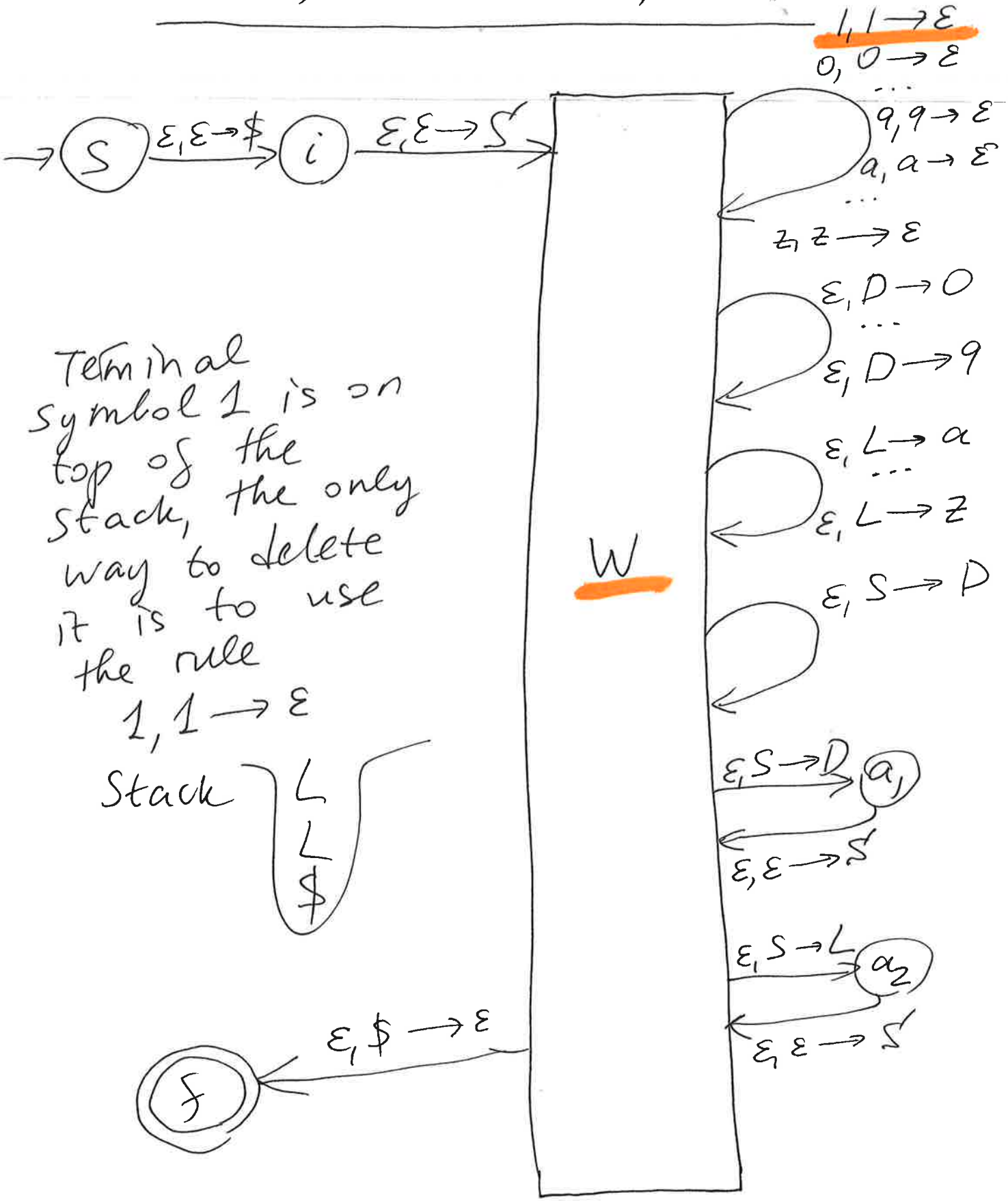


HW9, FALL 2024, P.8

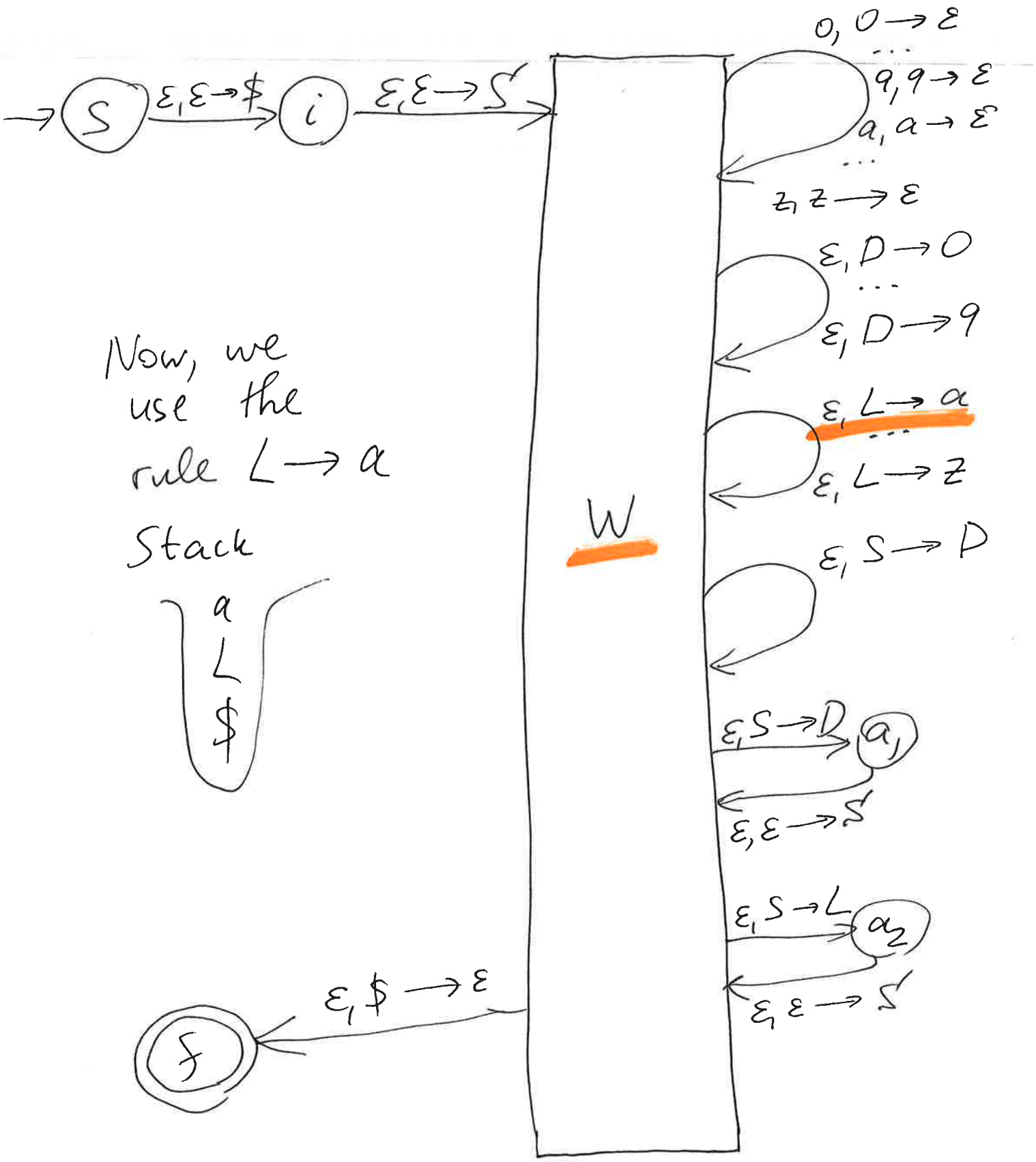


HW9, FALL 2024, P. 9

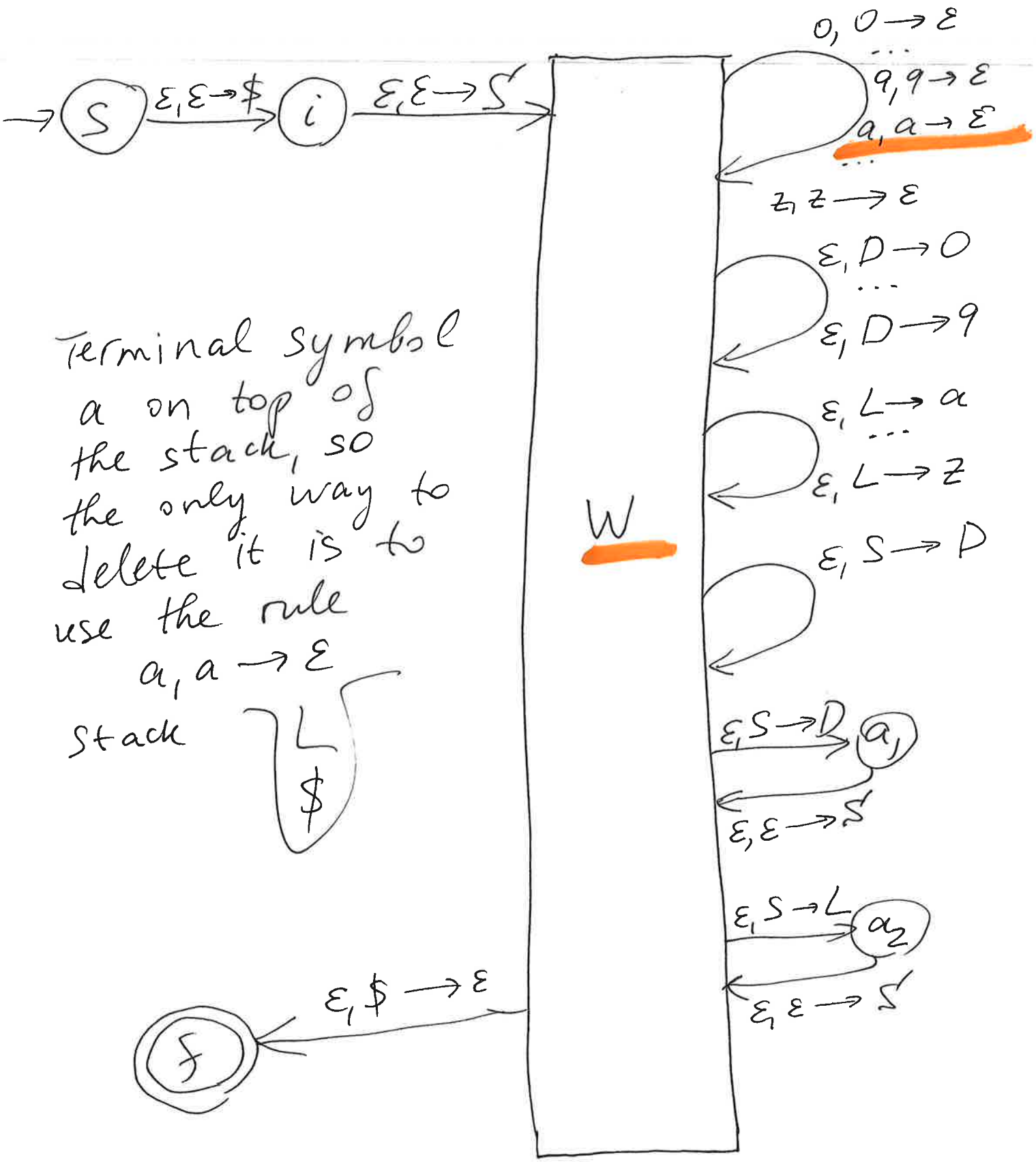



1, 1 → ε
0, 0 → ε
...
9, 9 → ε
a, a → ε
...
z, z → ε
ε, D → 0
...
ε, D → 9
ε, L → a
...
ε, L → z
ε, S → D
ε, S → L
S
ε, ε → $
i
ε, ε → S
W
a1
ε, ε → S
ε, S → L
a2
ε, ε → S
ε, $ → ε
f
Terminal symbol 1 is on top of the stack, the only way to delete it is to use the rule
1, 1 → ε
Stack
L
L
$

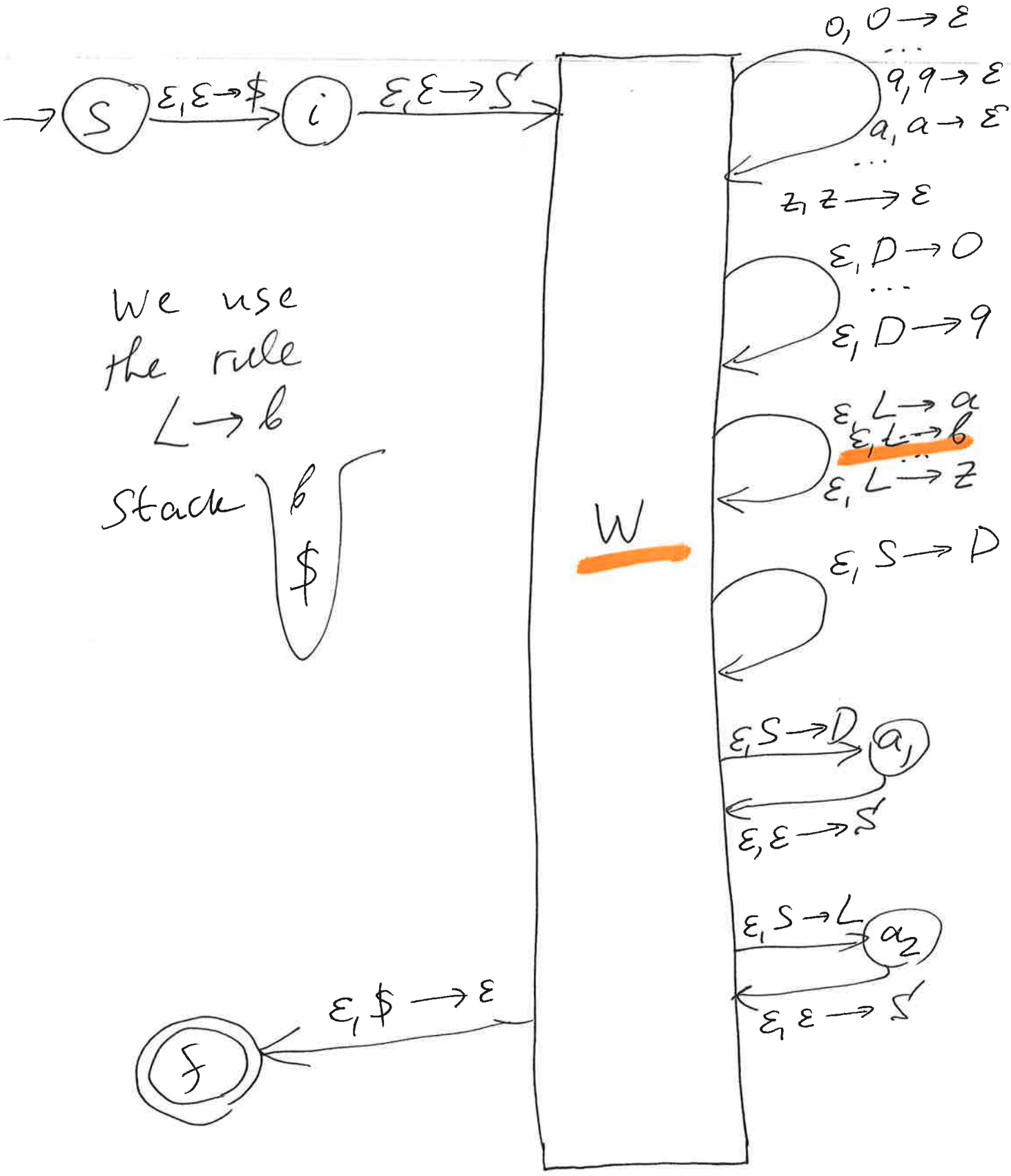
HW9, FALL 2024, P. 11



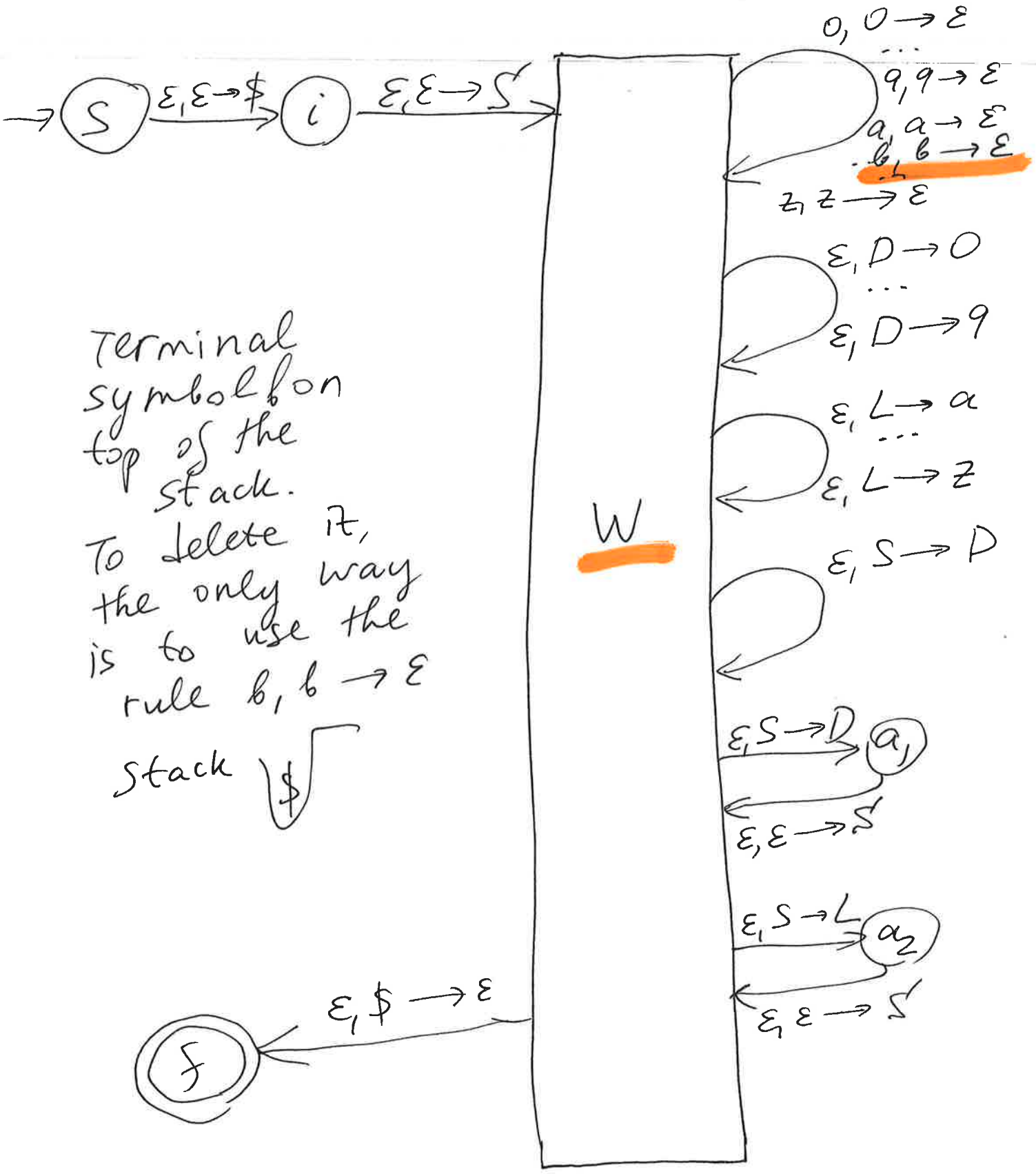
HW9, FALL 2024, P. 12



HW9, FALL 2024, P. 13



HW9, FALL 2024, P. 14



HW9, FALL 2024, P. 15