

Heapsort Demo



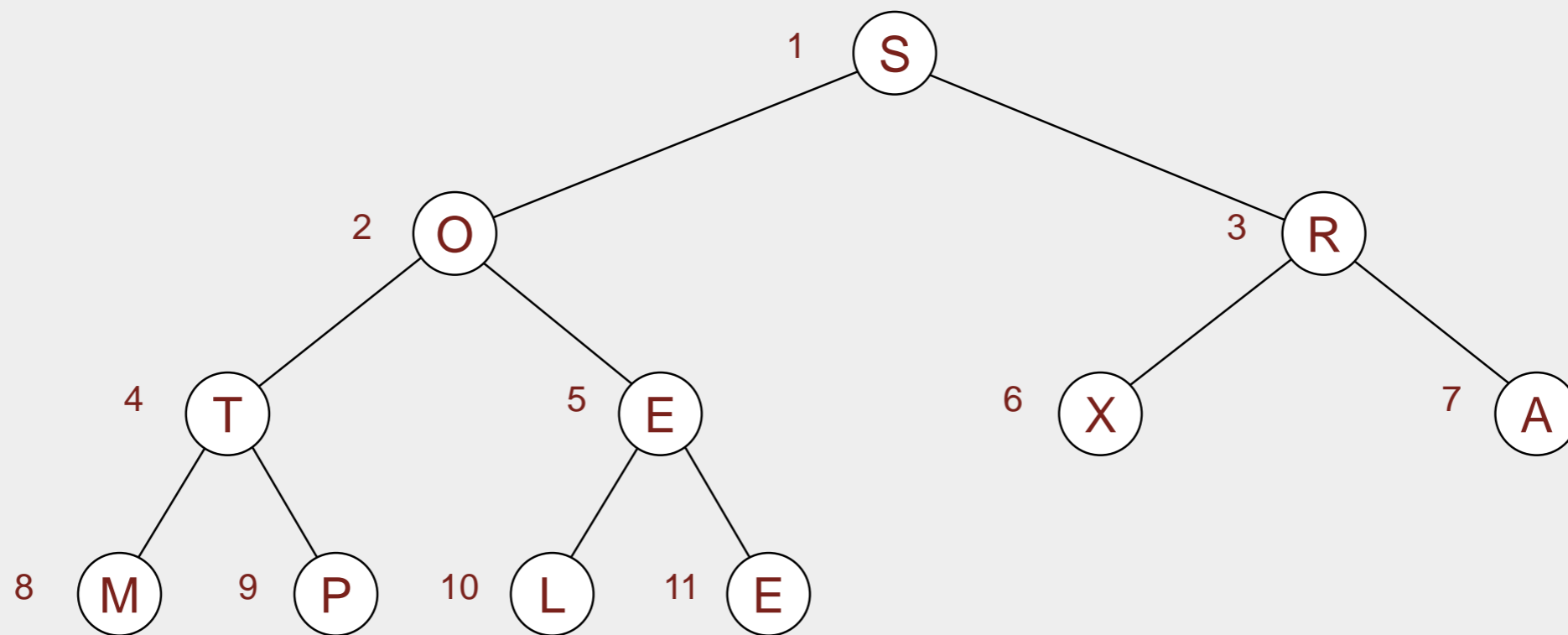
[click to begin demo](#)

Heapsort

Starting point. Array in arbitrary order.

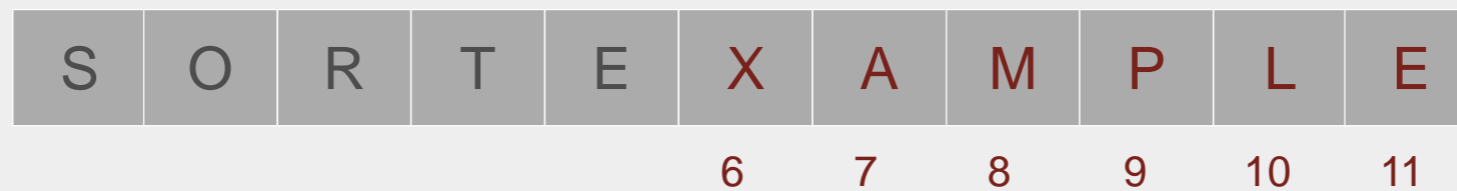
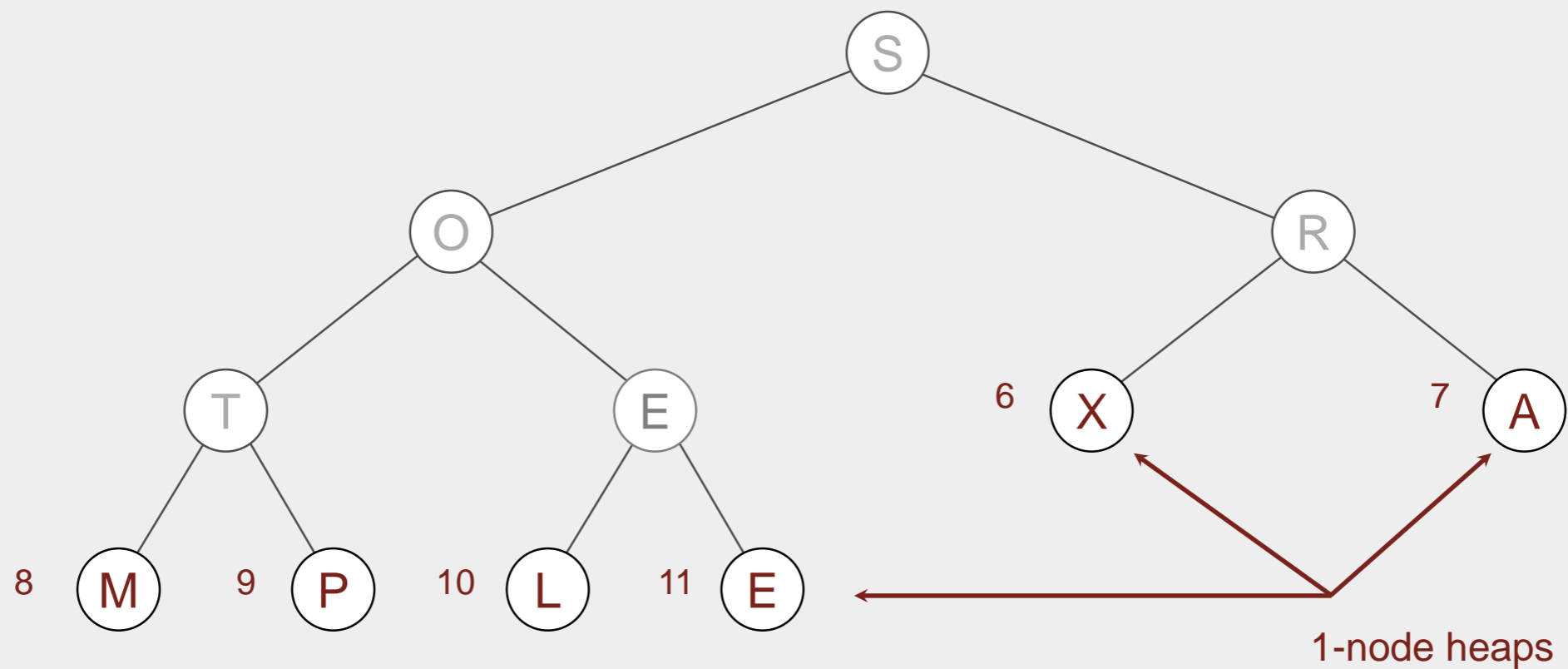


we assume array entries are indexed 1 to N



Heapsort

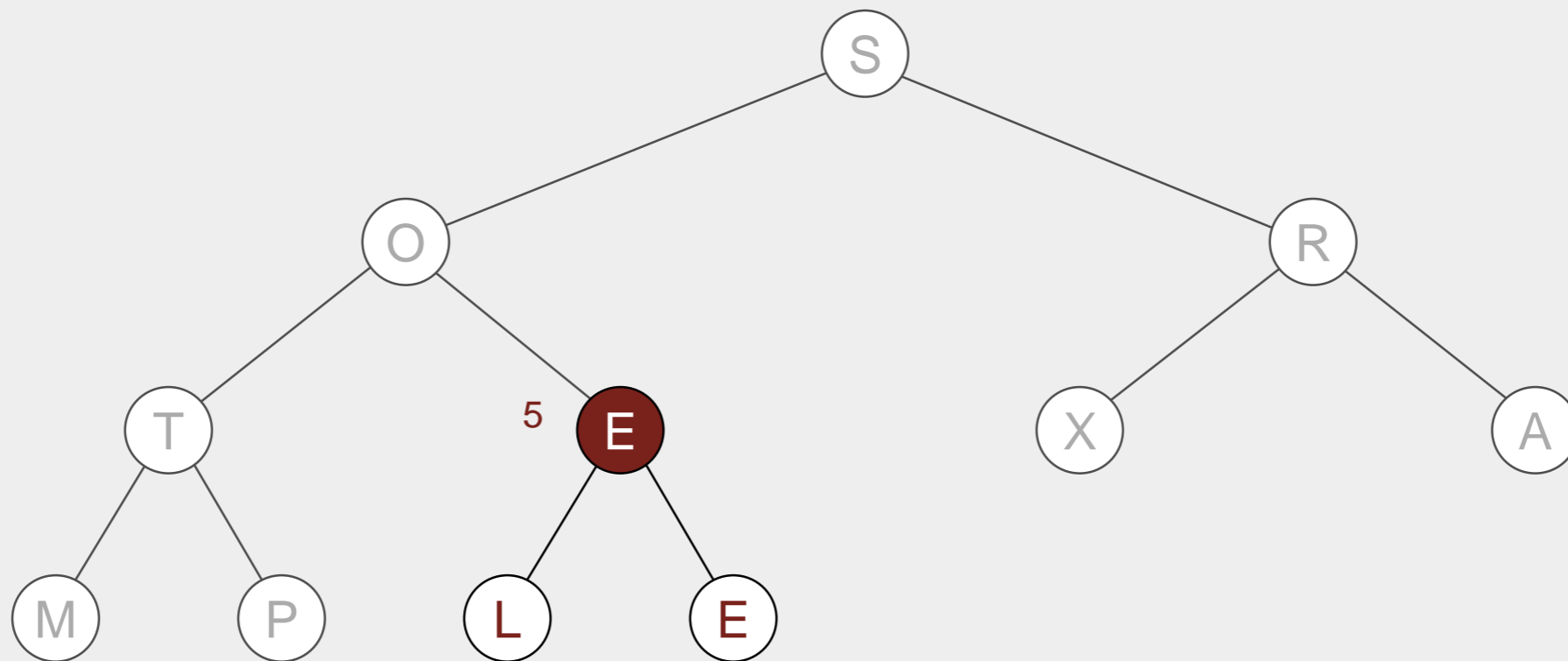
Heap construction. Build max heap using bottom-up method.



Heapsort

Heap construction. Build max heap using bottom-up method.

sink 5

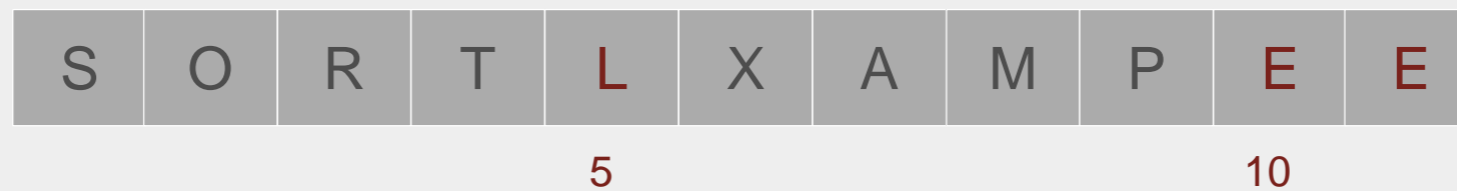
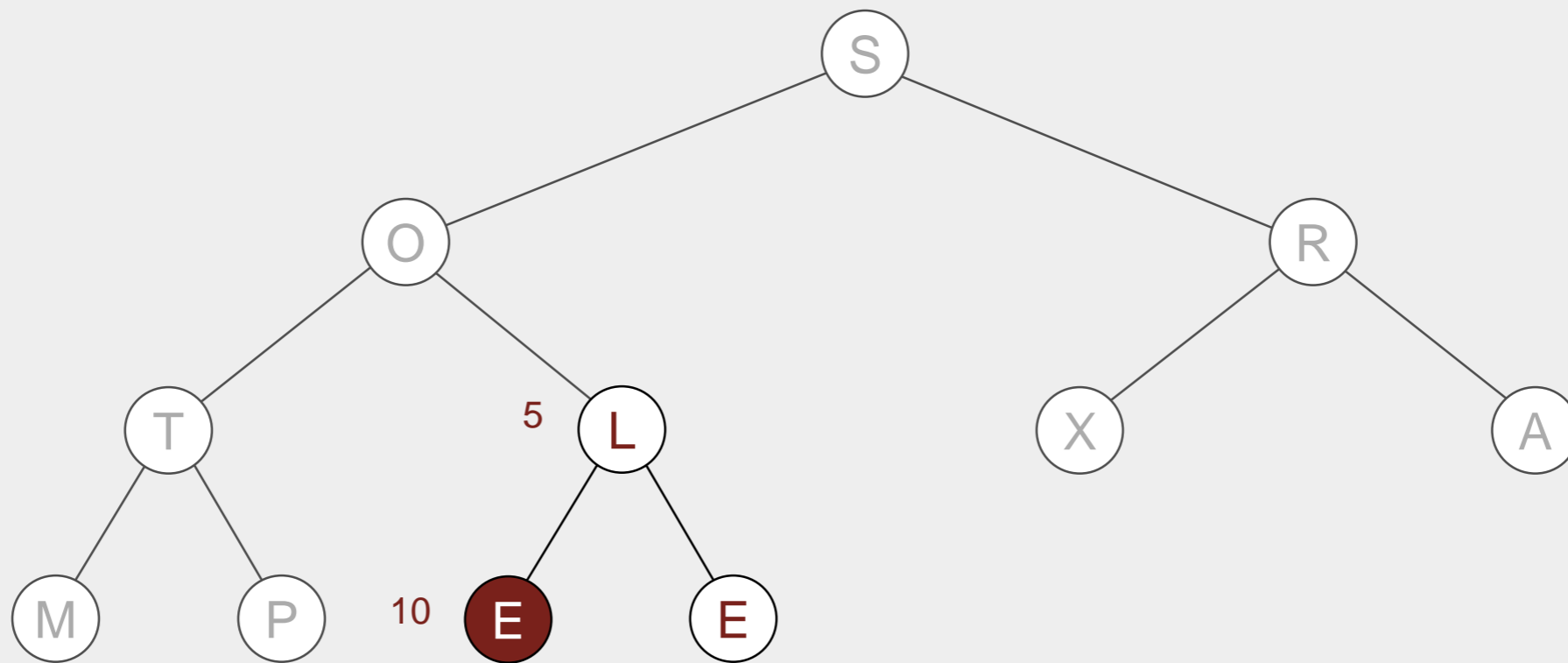


5

Heapsort

Heap construction. Build max heap using bottom-up method.

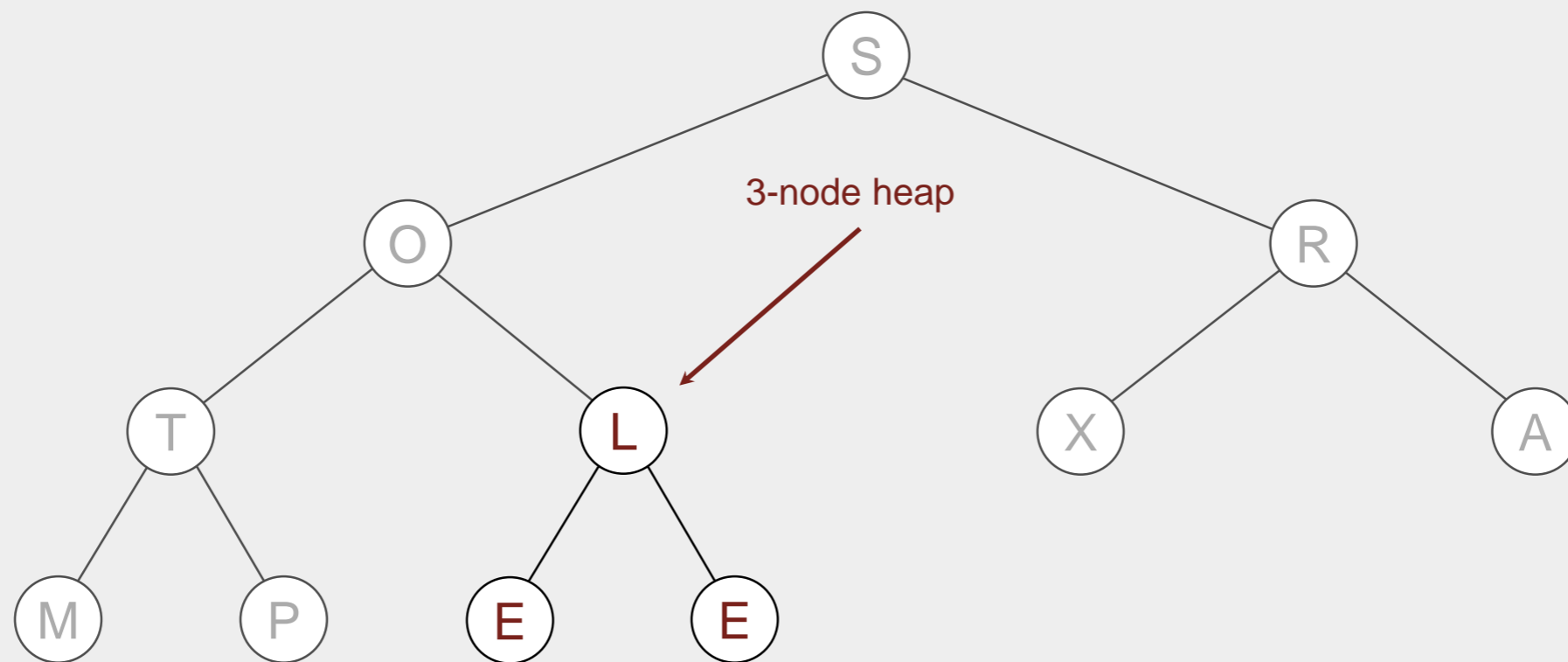
sink 5



Heapsort

Heap construction. Build max heap using bottom-up method.

sink 5

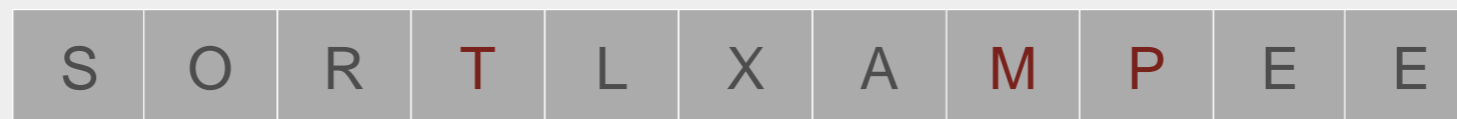
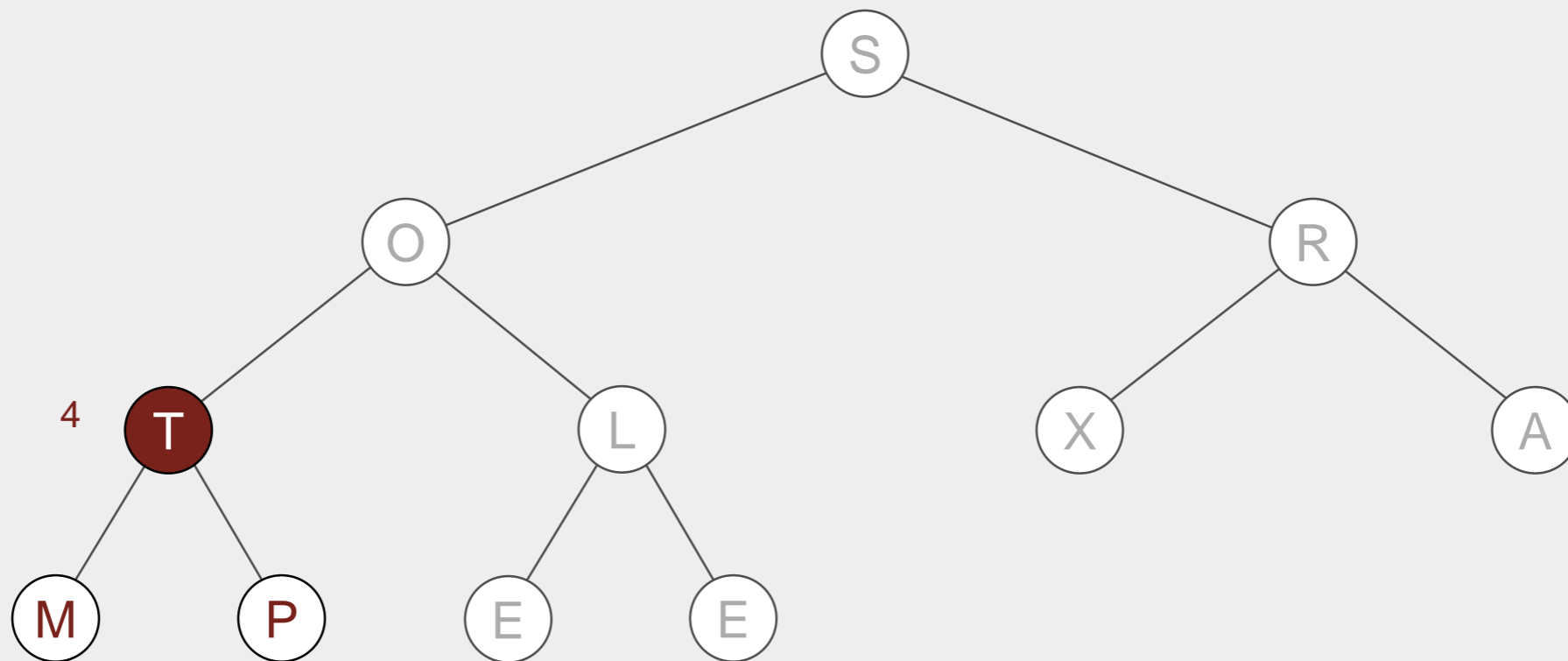


S	O	R	T	L	X	A	M	P	E	E
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Heapsort

Heap construction. Build max heap using bottom-up method.

sink 4

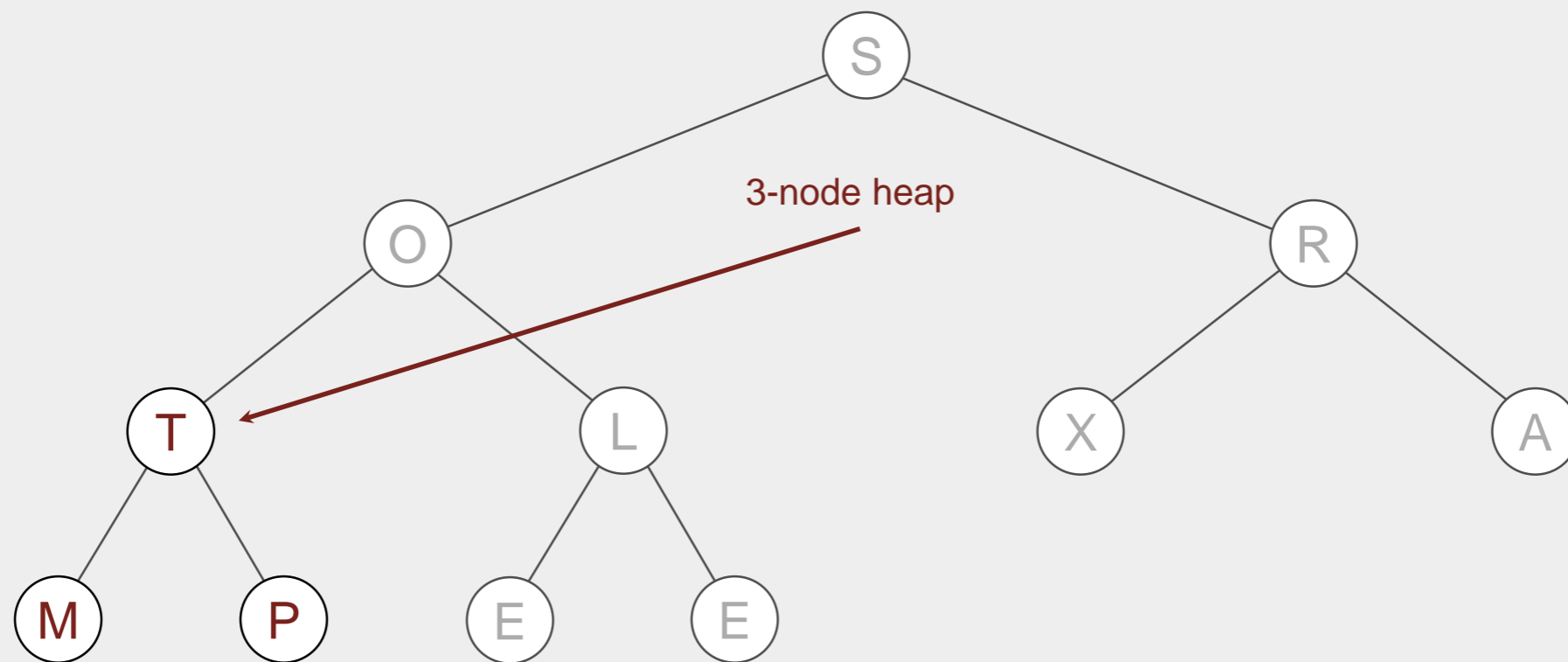


4

Heapsort

Heap construction. Build max heap using bottom-up method.

sink 4

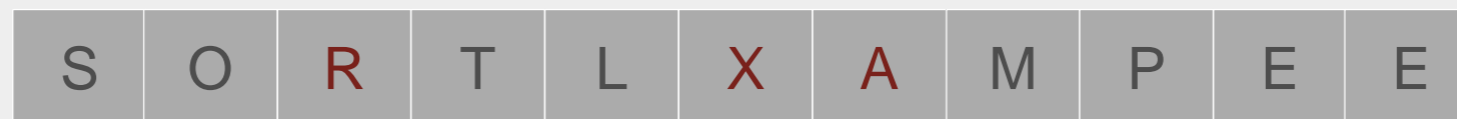
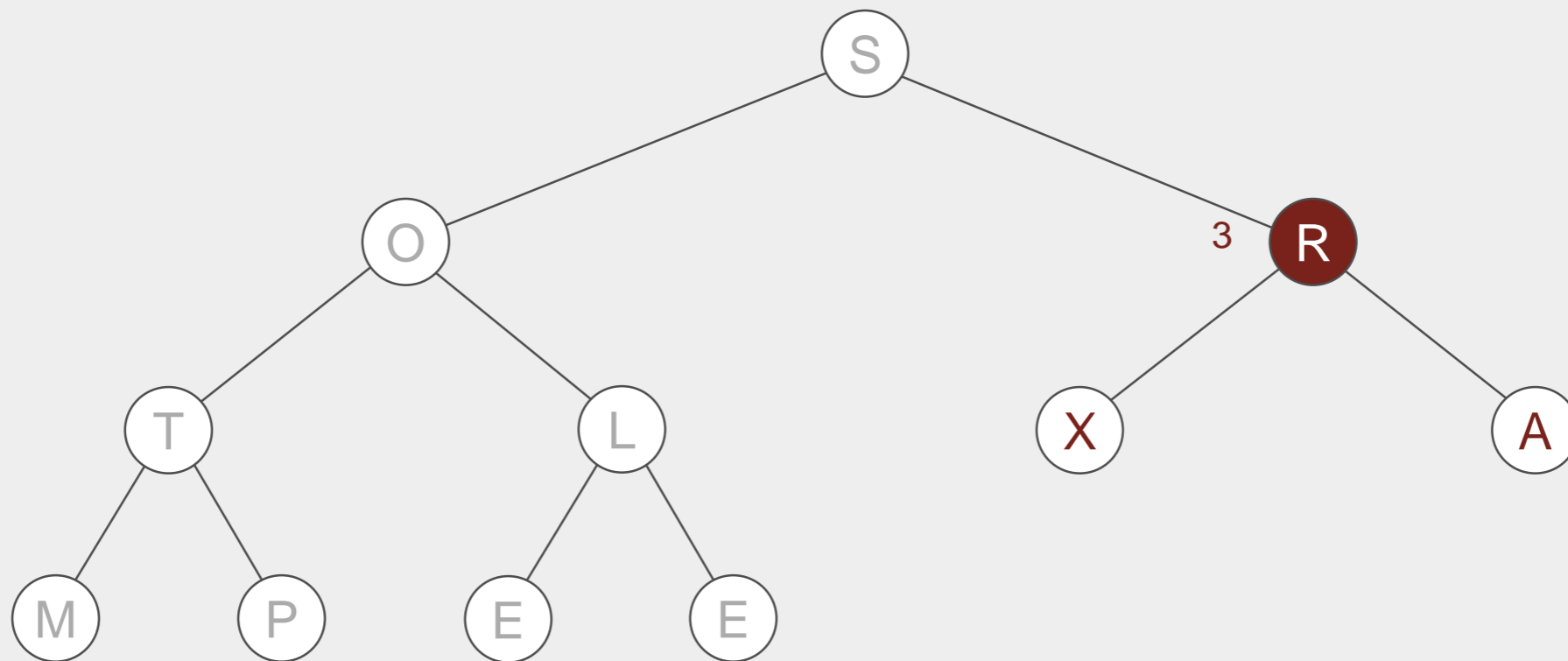


S	O	R	T	L	X	A	M	P	E	E
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Heapsort

Heap construction. Build max heap using bottom-up method.

sink 3

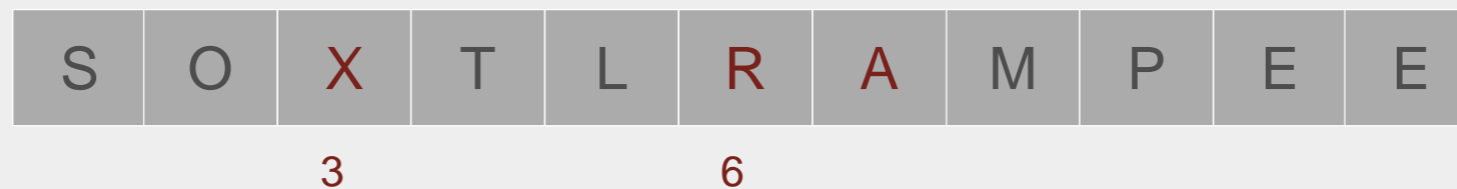
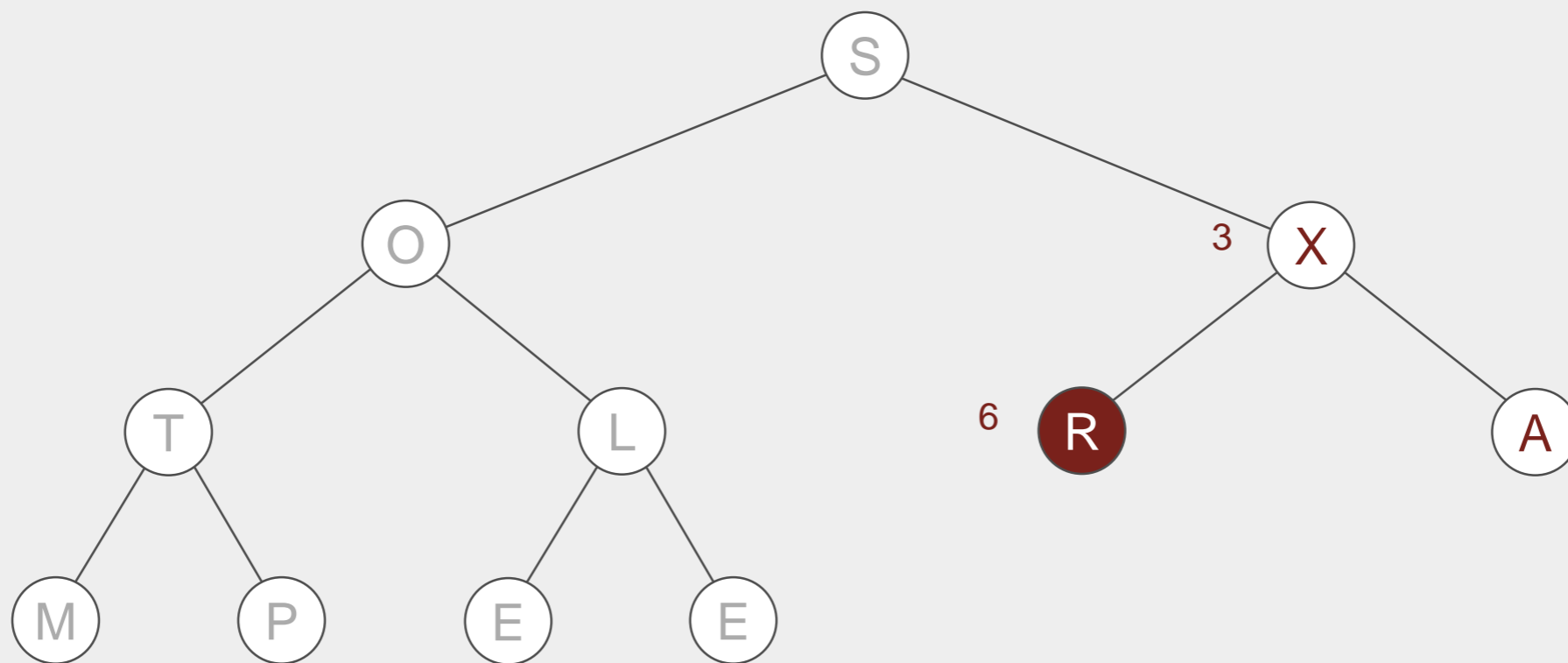


3

Heapsort

Heap construction. Build max heap using bottom-up method.

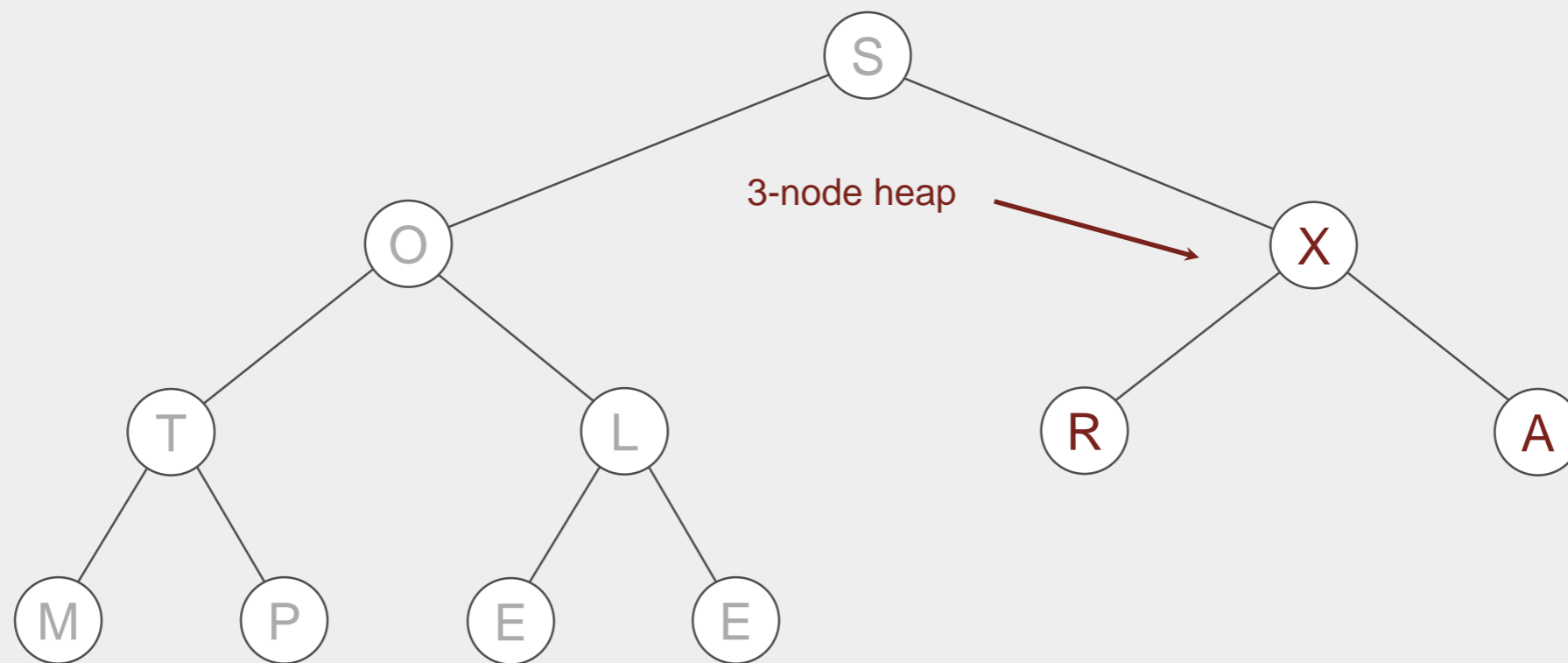
sink 3



Heapsort

Heap construction. Build max heap using bottom-up method.

sink 3

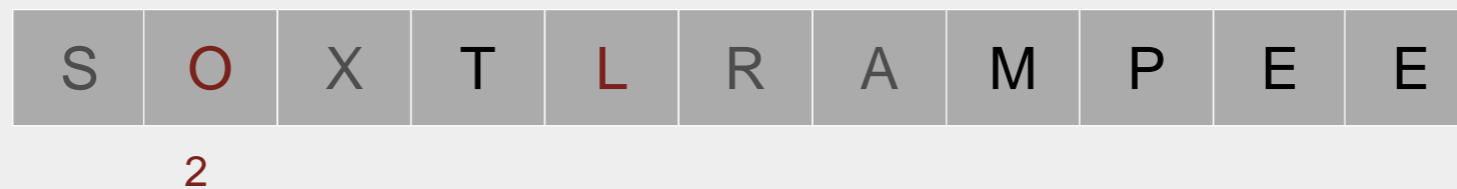
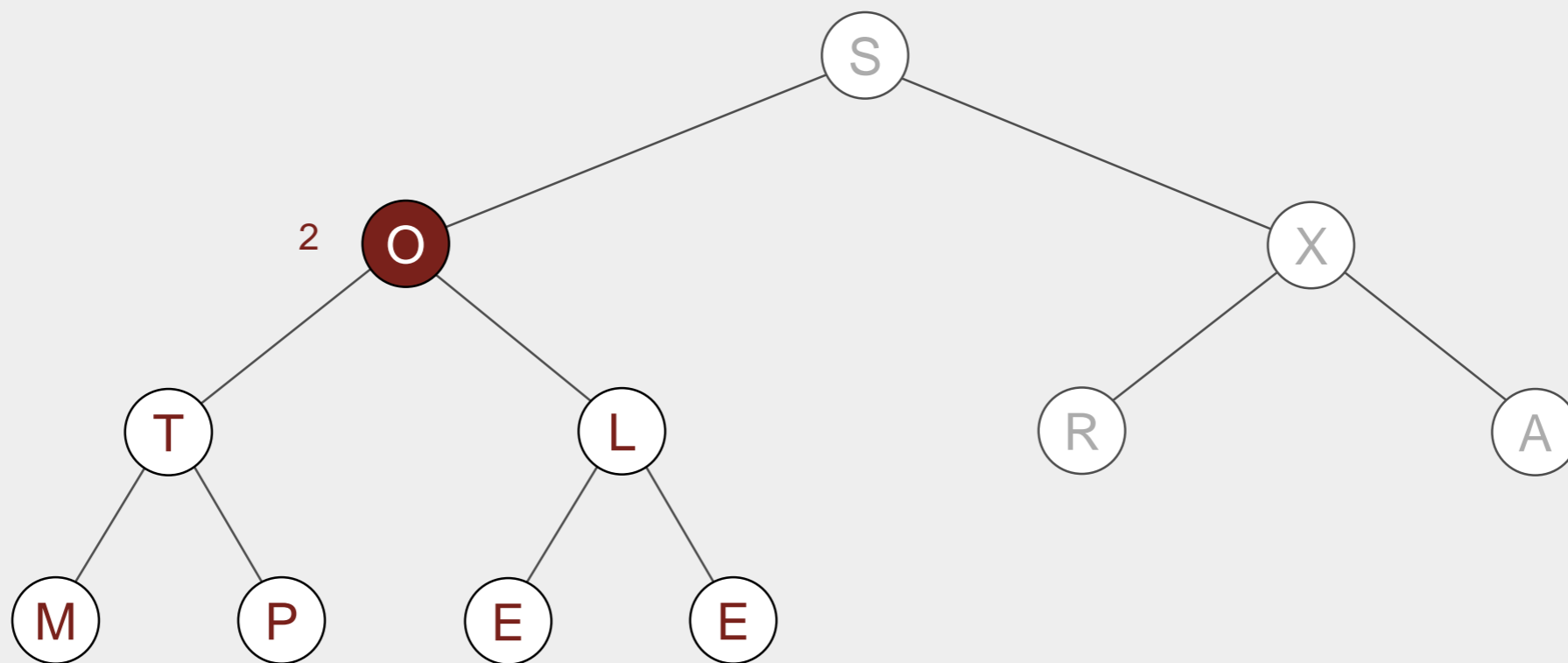


S	O	X	T	L	A	A	M	P	E	E
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Heapsort

Heap construction. Build max heap using bottom-up method.

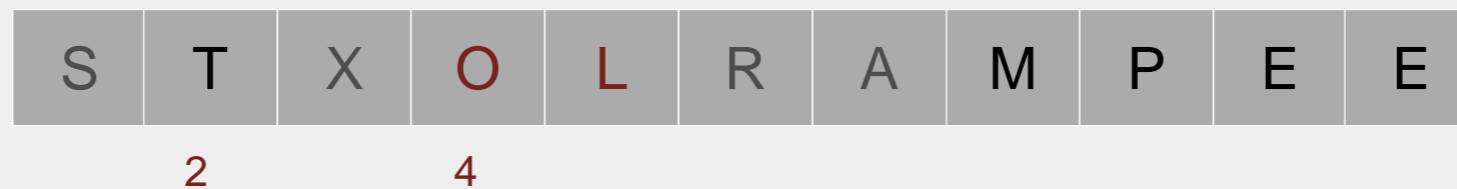
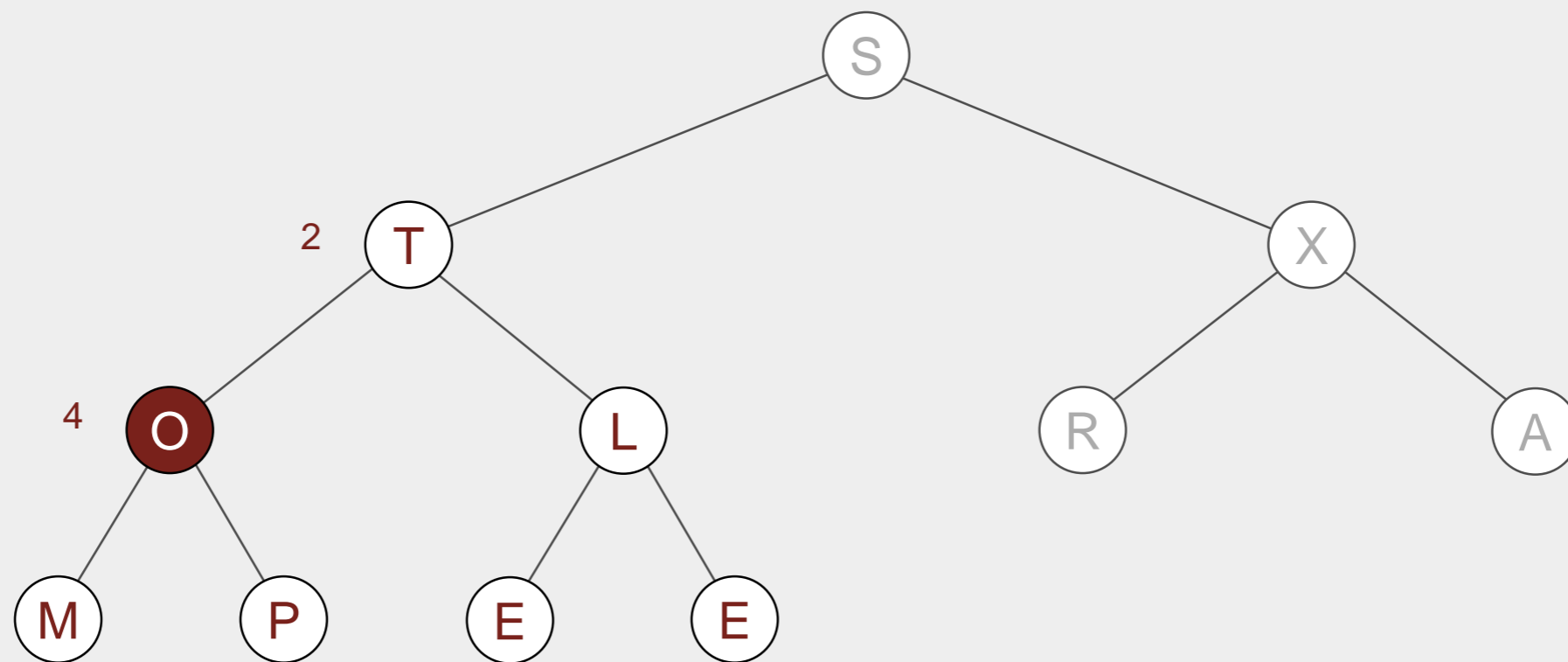
sink 2



Heapsort

Heap construction. Build max heap using bottom-up method.

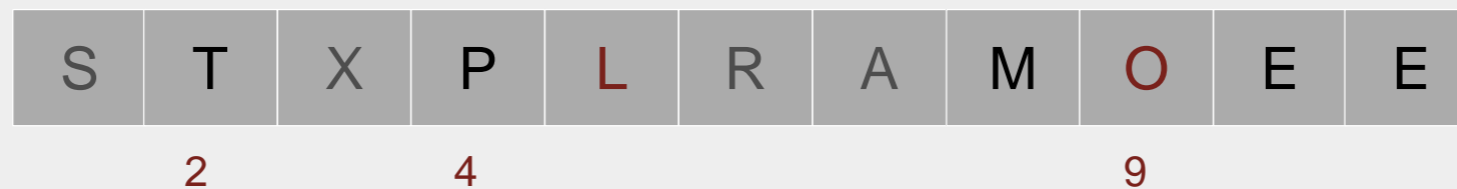
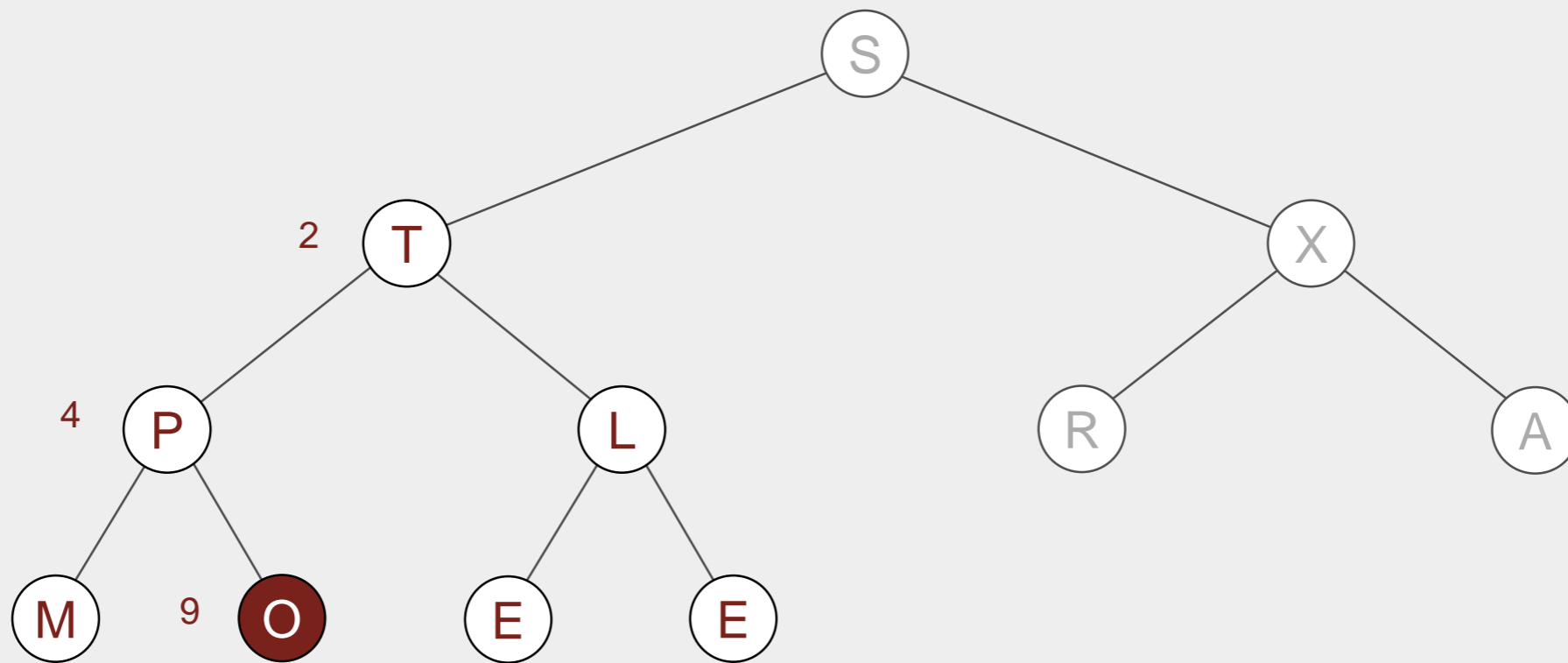
sink 2



Heapsort

Heap construction. Build max heap using bottom-up method.

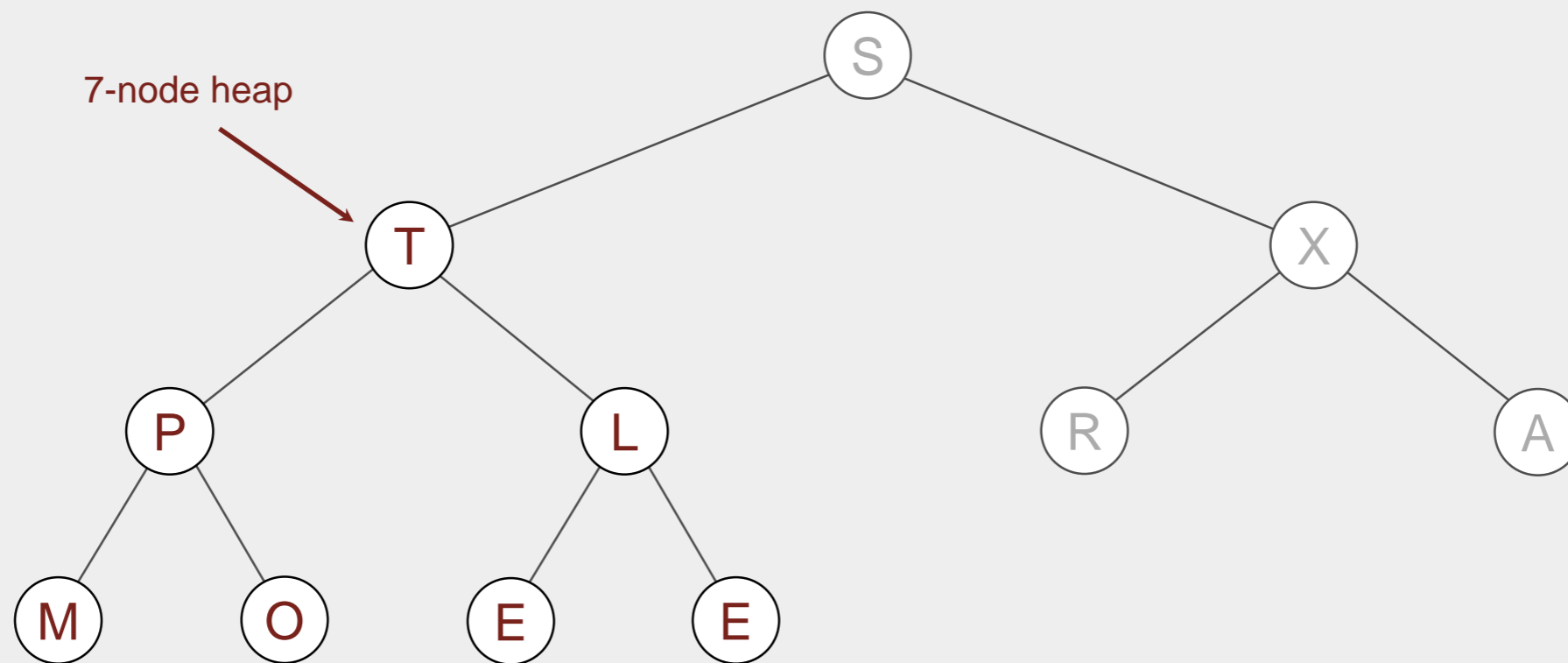
sink 2



Heapsort

Heap construction. Build max heap using bottom-up method.

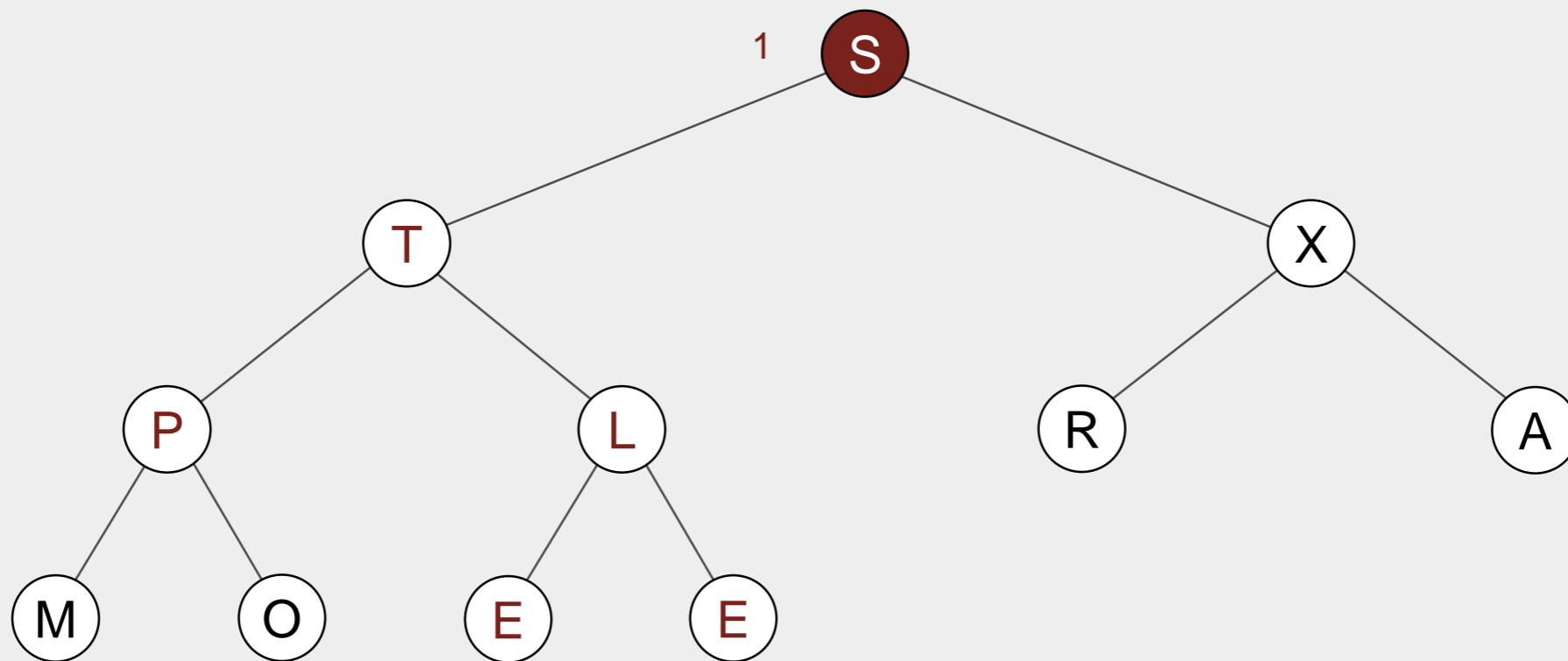
sink 2



Heapsort

Heap construction. Build max heap using bottom-up method.

sink 1

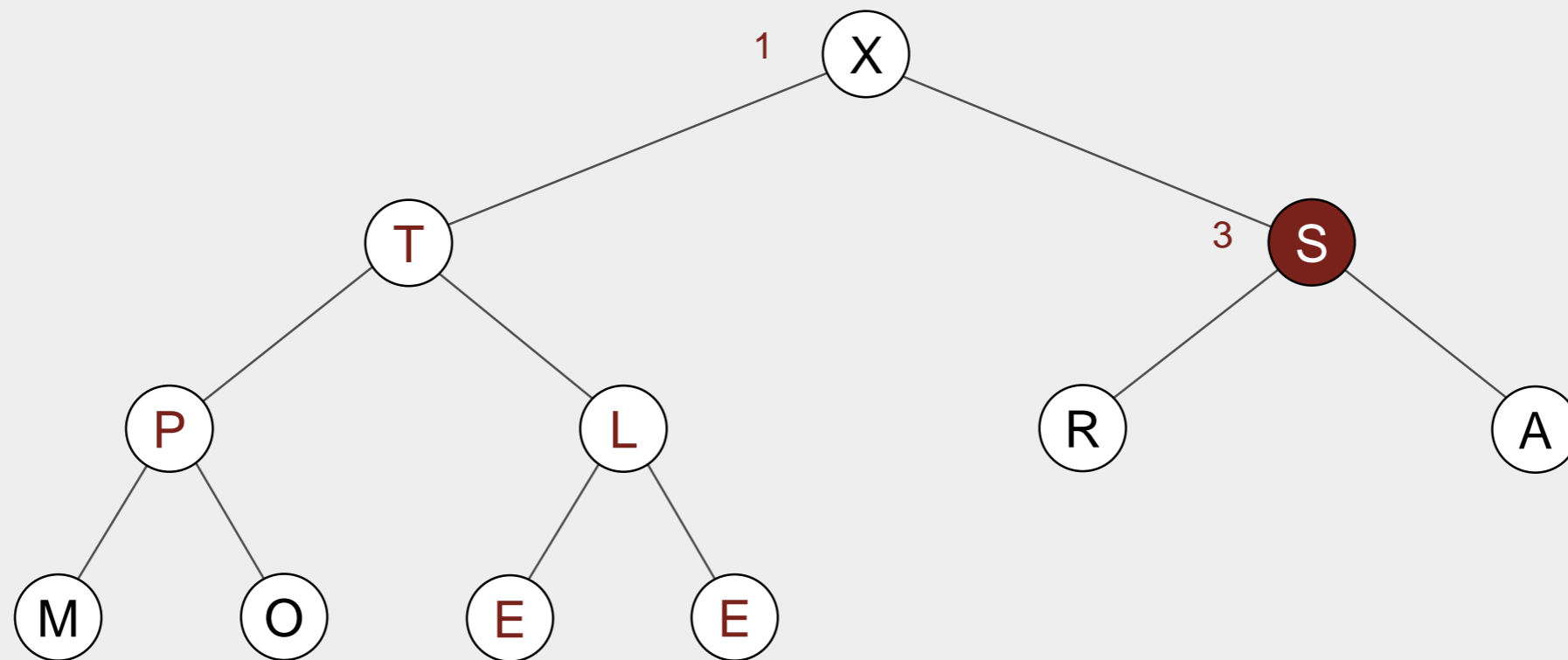


1

Heapsort

Heap construction. Build max heap using bottom-up method.

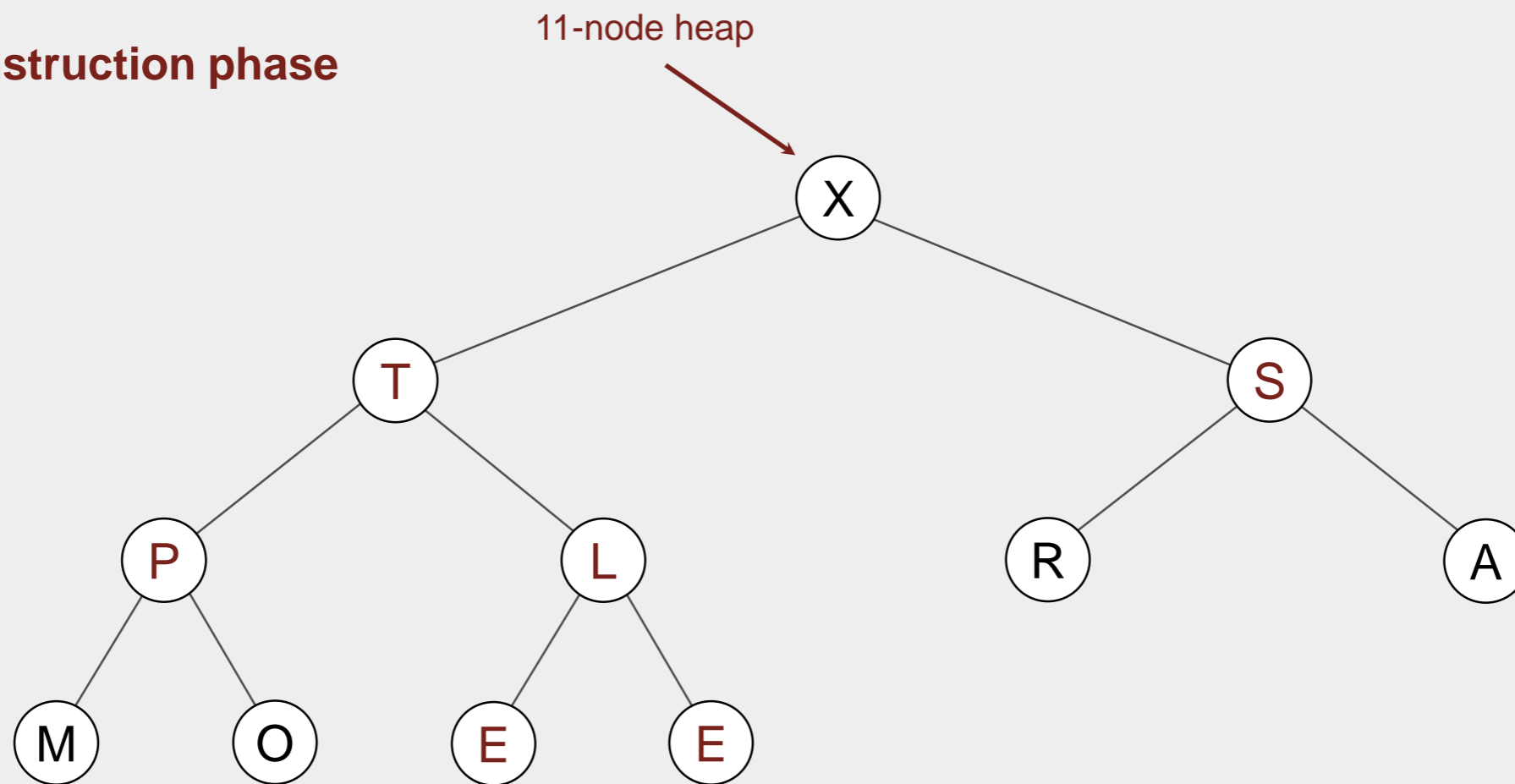
sink 1



Heapsort

Heap construction. Build max heap using bottom-up method.

end of construction phase

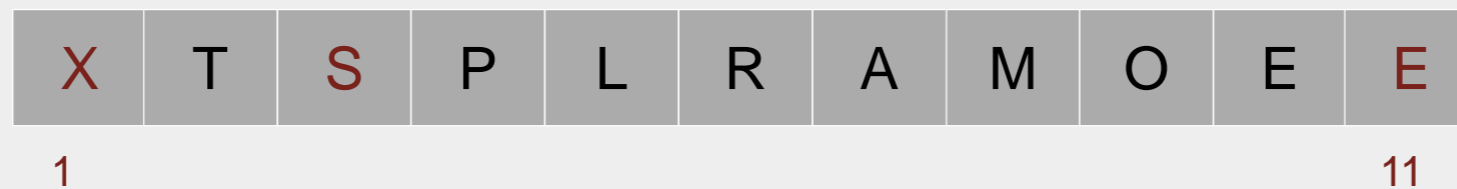
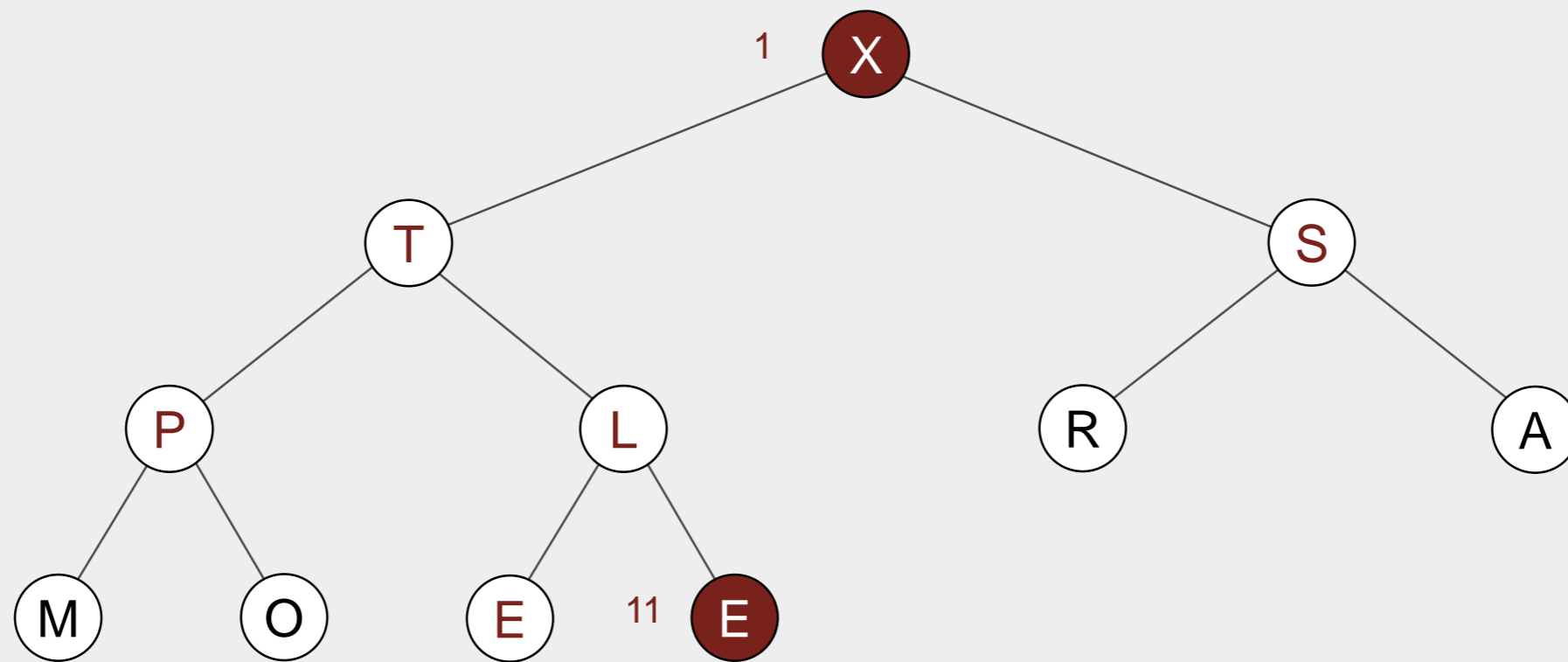


X	T	S	P	L	R	A	M	O	E	E
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Heapsort

Sortdown. Repeatedly delete the largest remaining item.

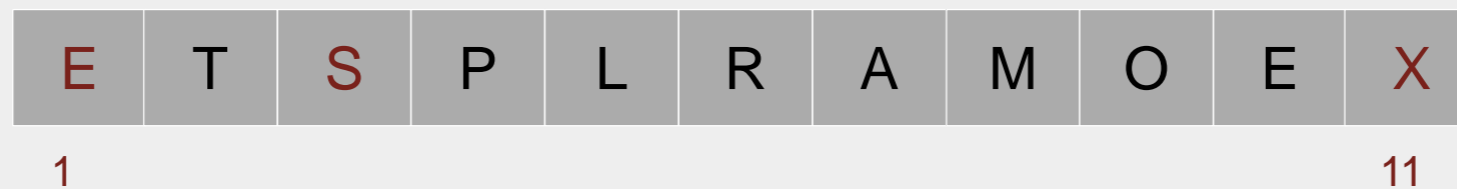
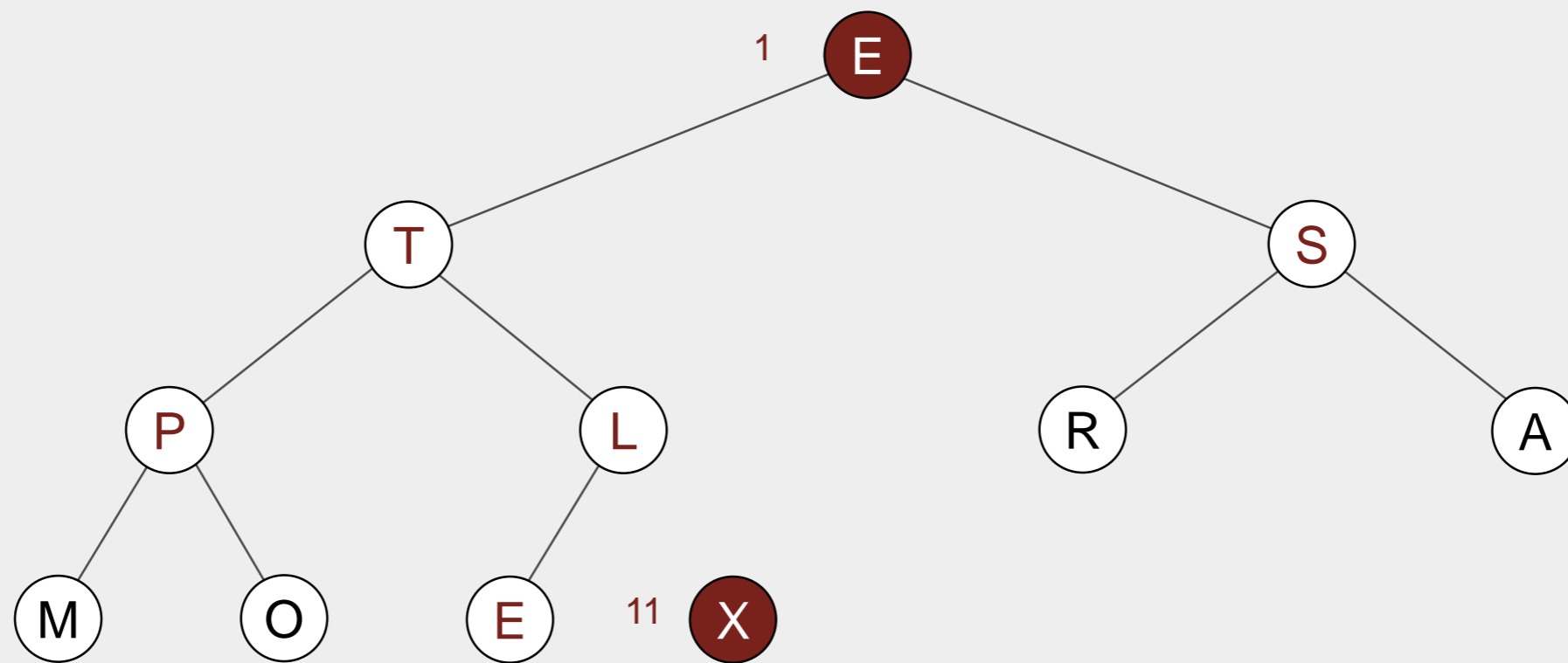
exchange 1 and 11



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

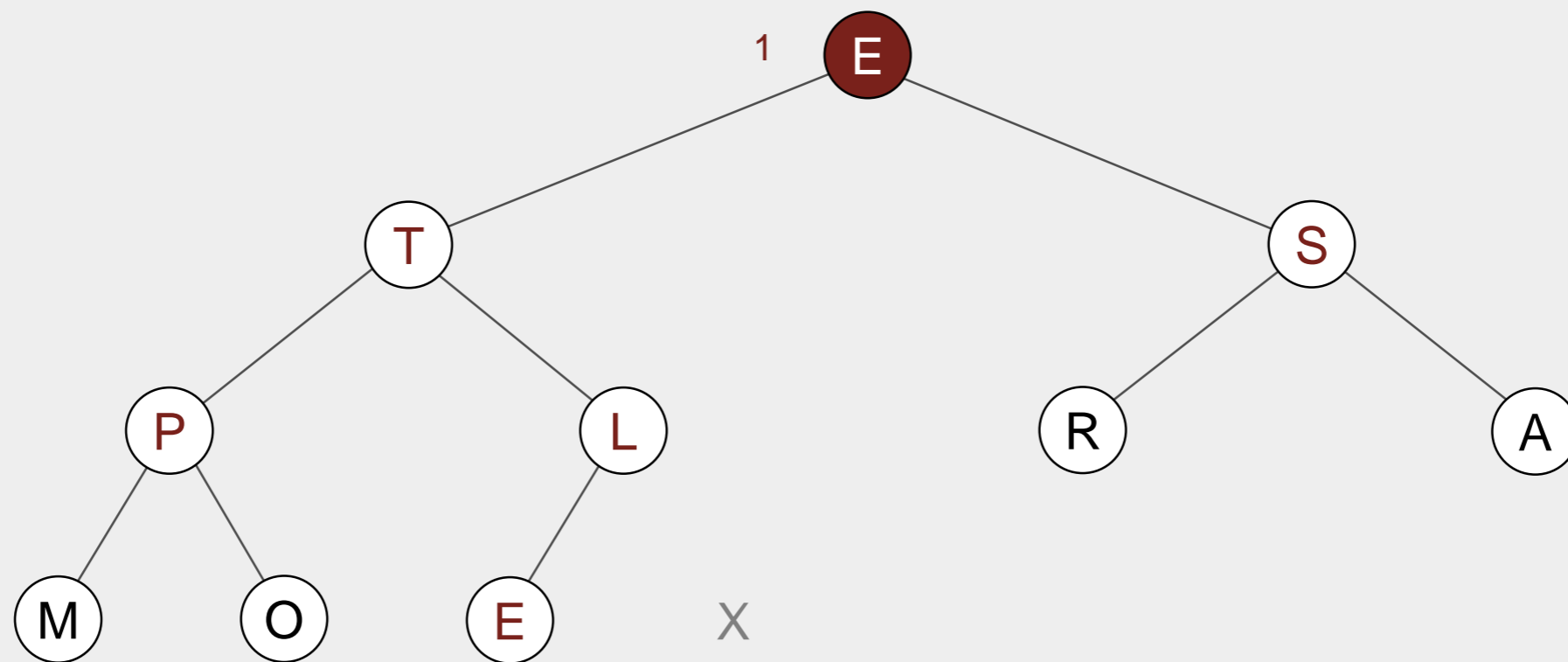
exchange 1 and 11



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

sink 1

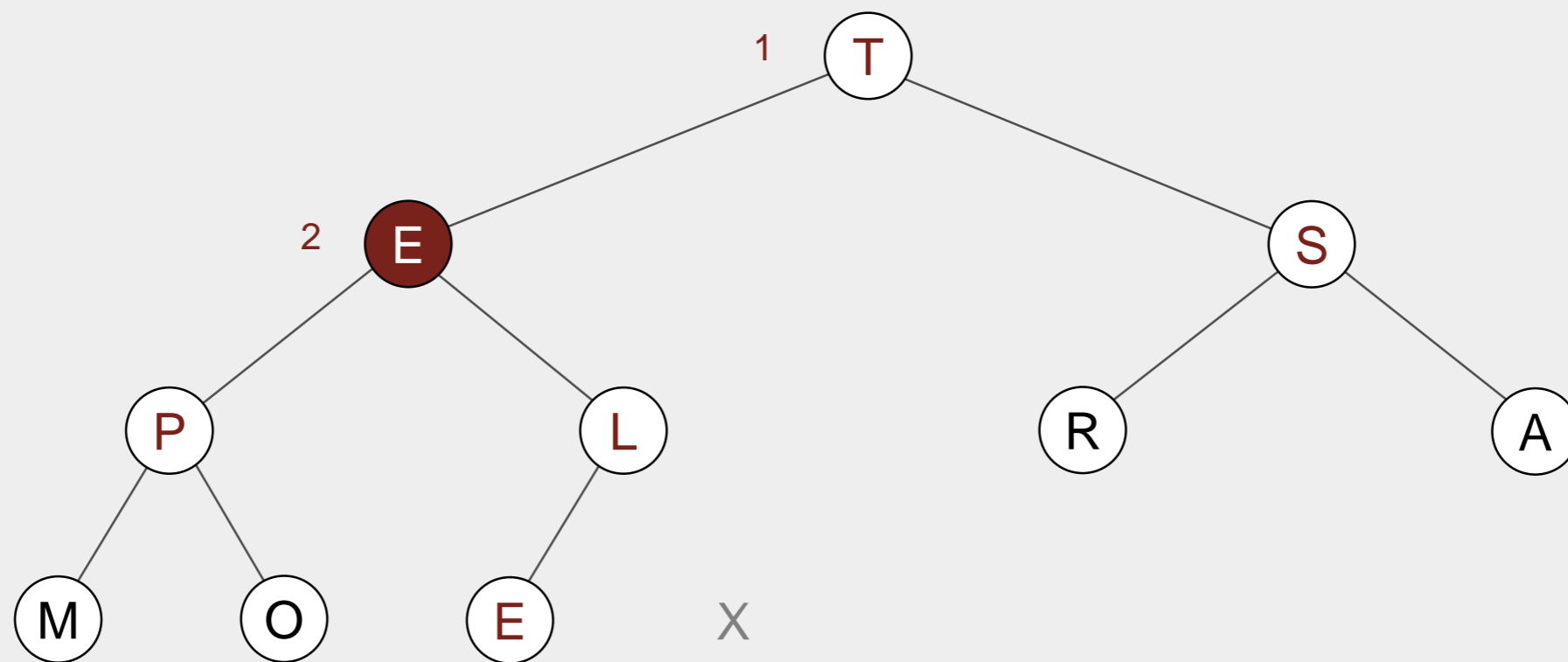


1

Heapsort

Sortdown. Repeatedly delete the largest remaining item.

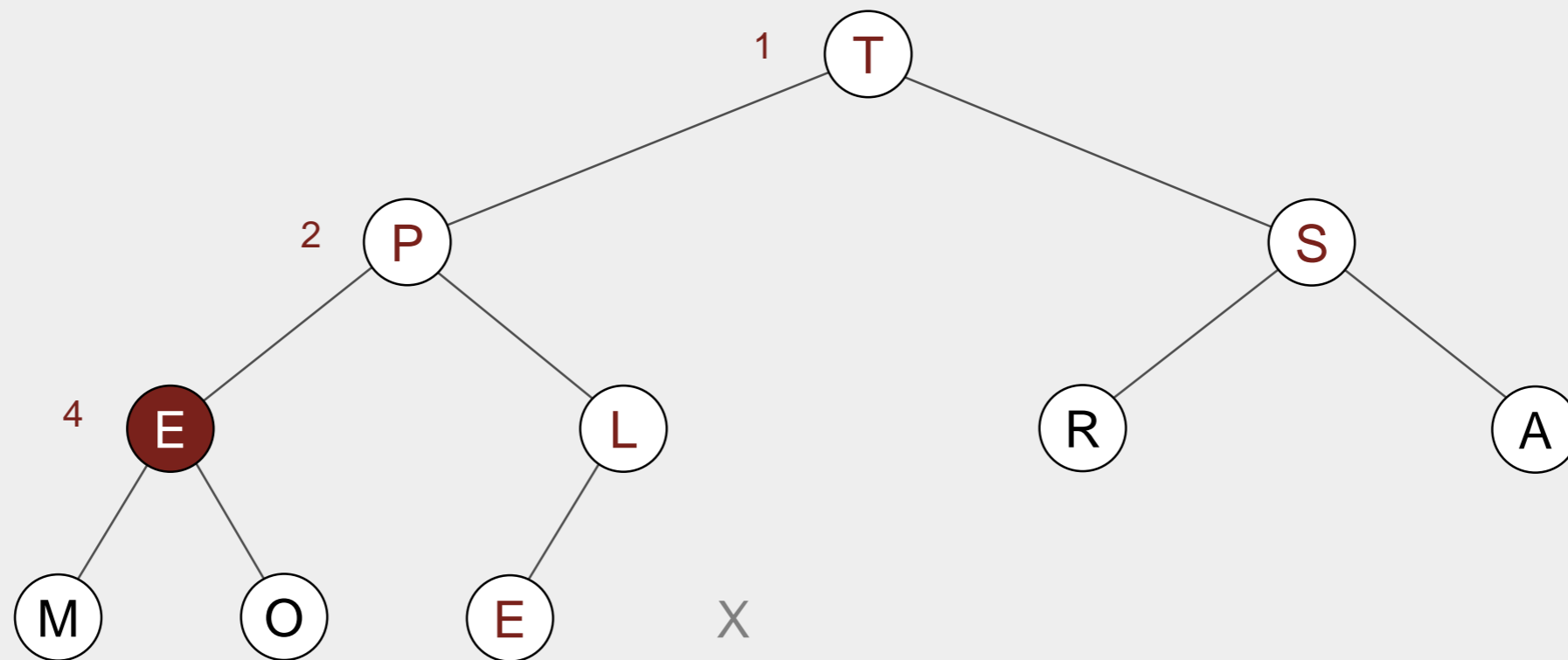
sink 1



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

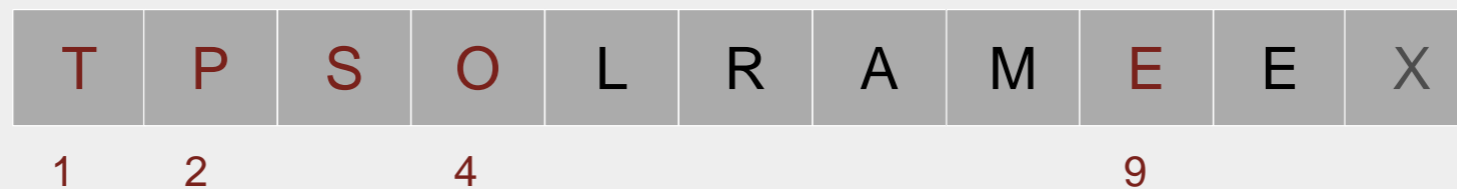
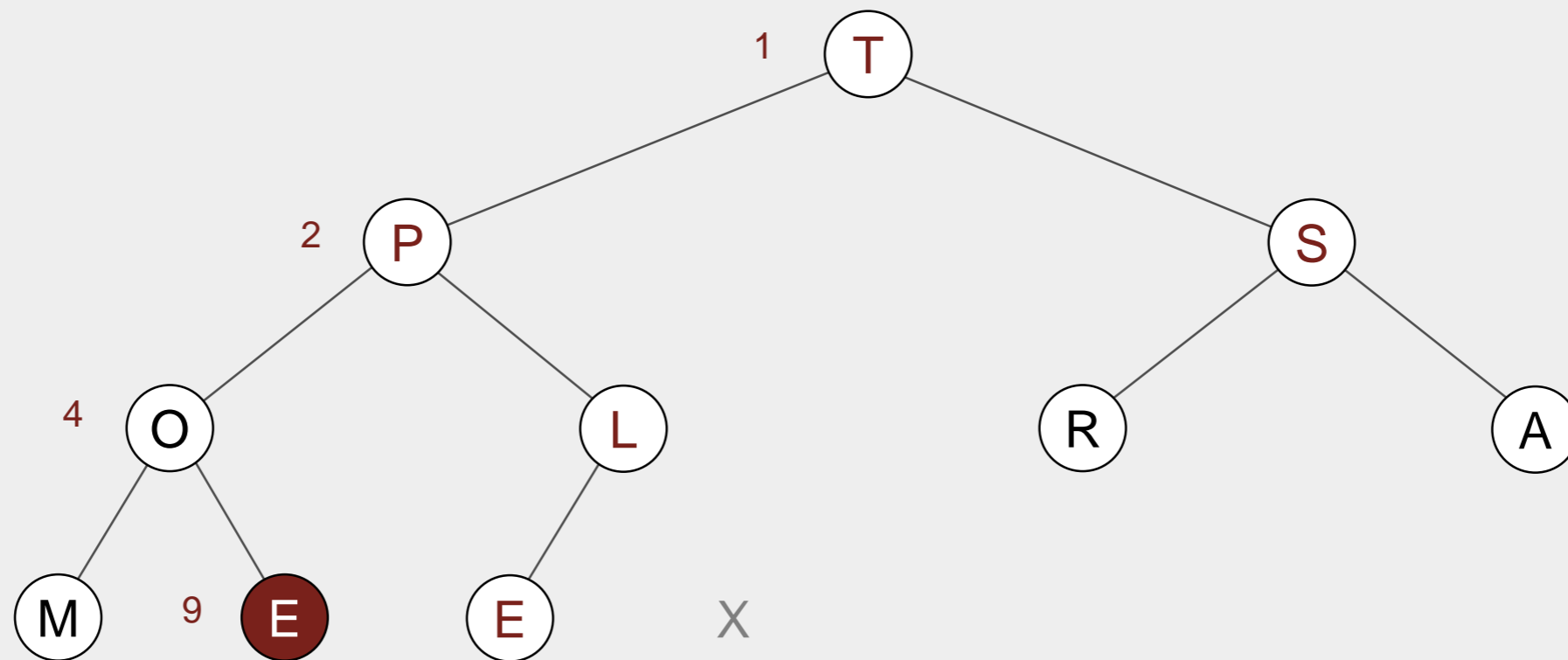
sink 1



Heapsort

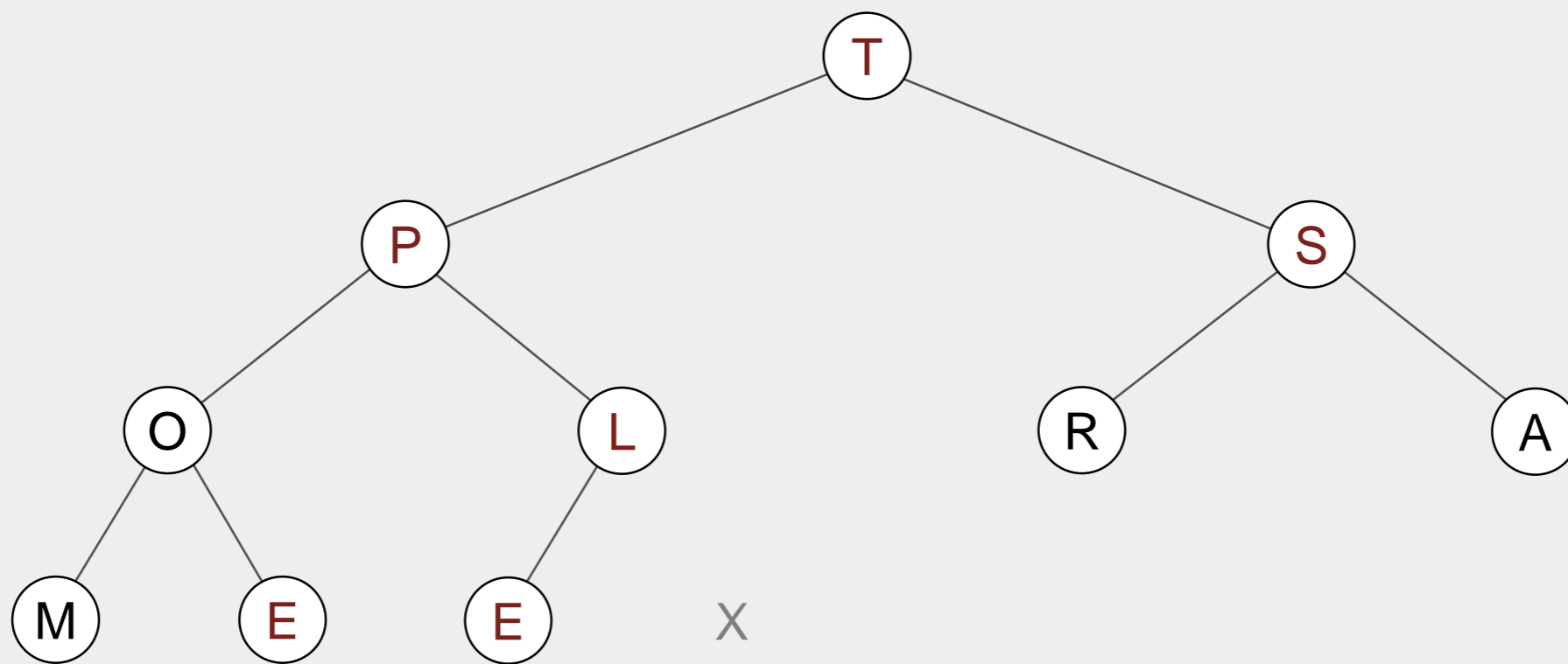
Sortdown. Repeatedly delete the largest remaining item.

sink 1



Heapsort

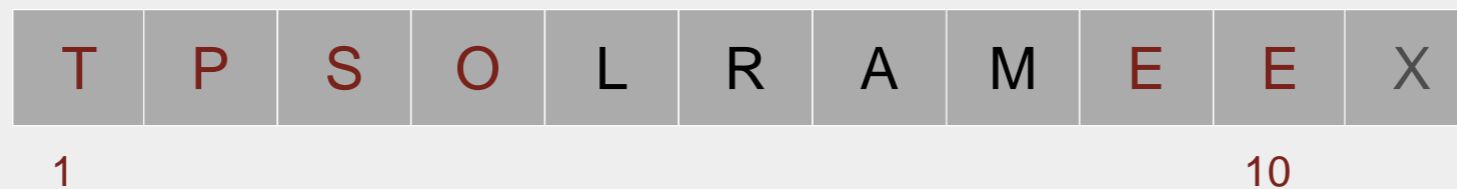
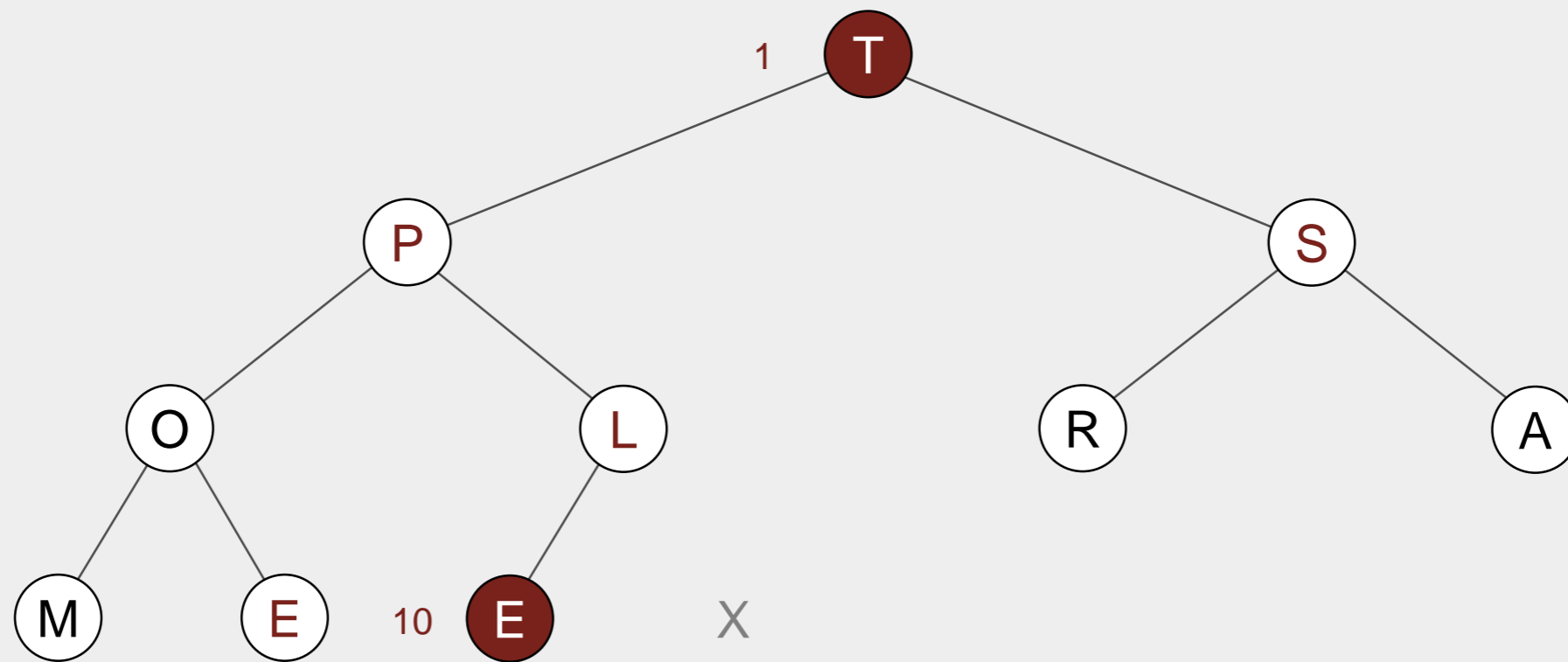
Sortdown. Repeatedly delete the largest remaining item.



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

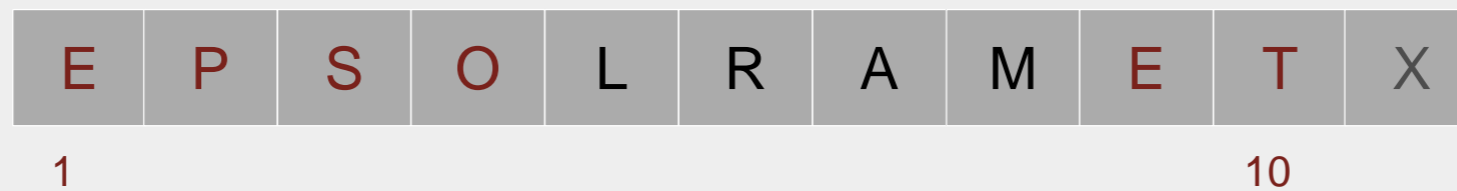
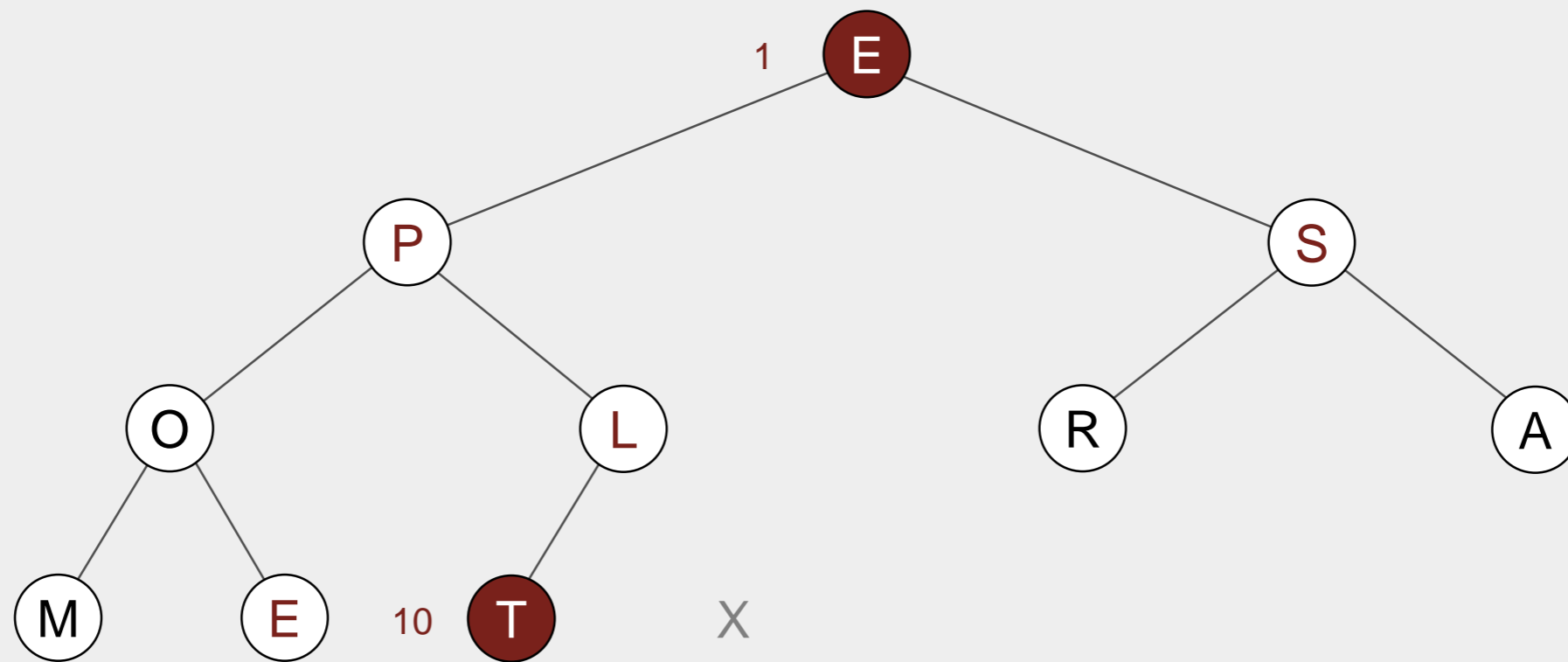
exchange 1 and 10



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

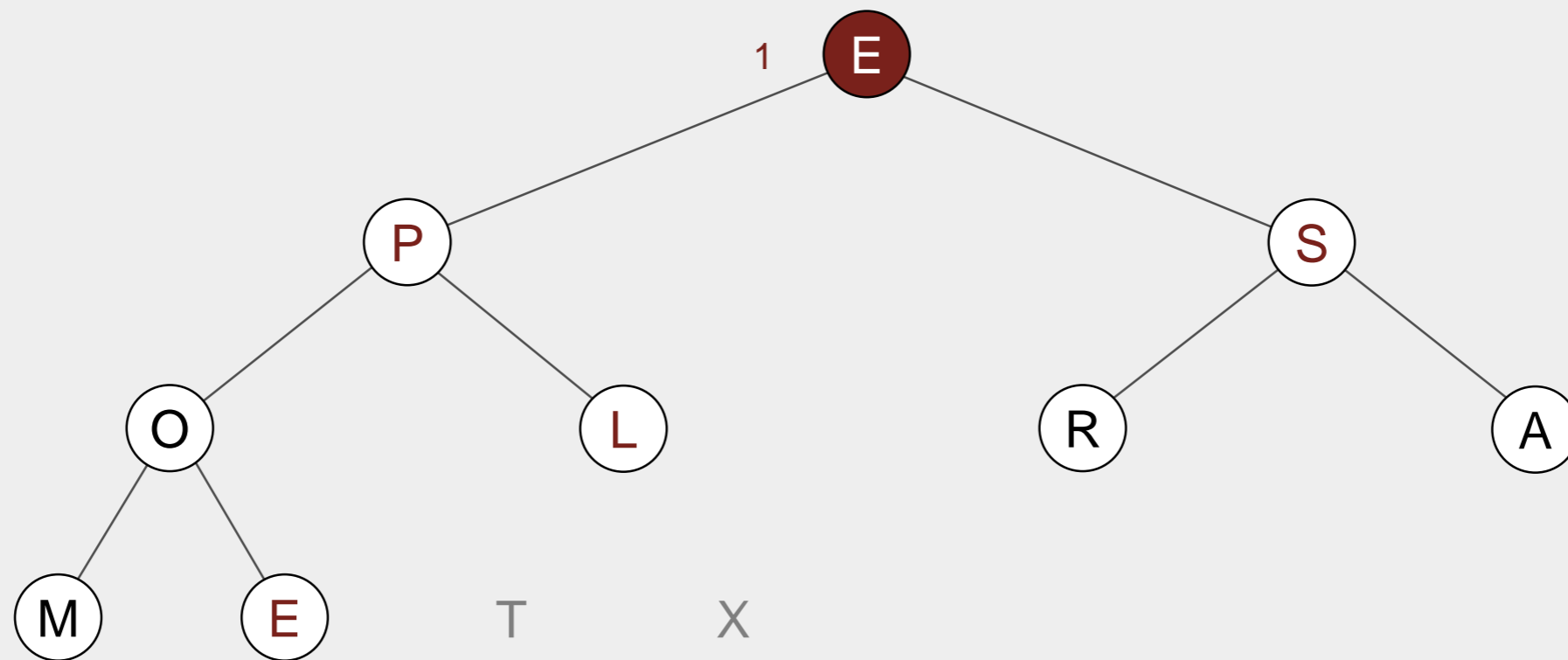
exchange 1 and 10



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

sink 1

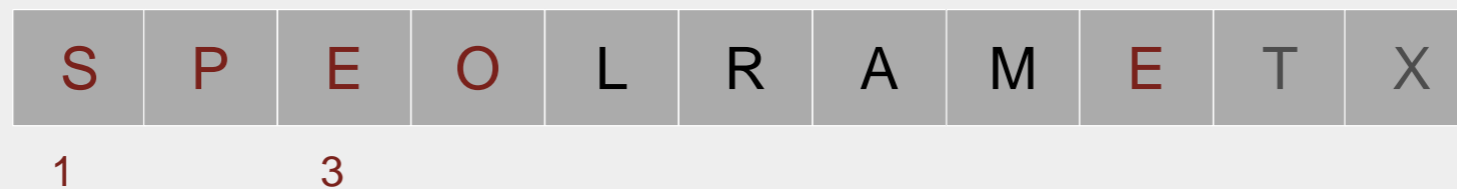
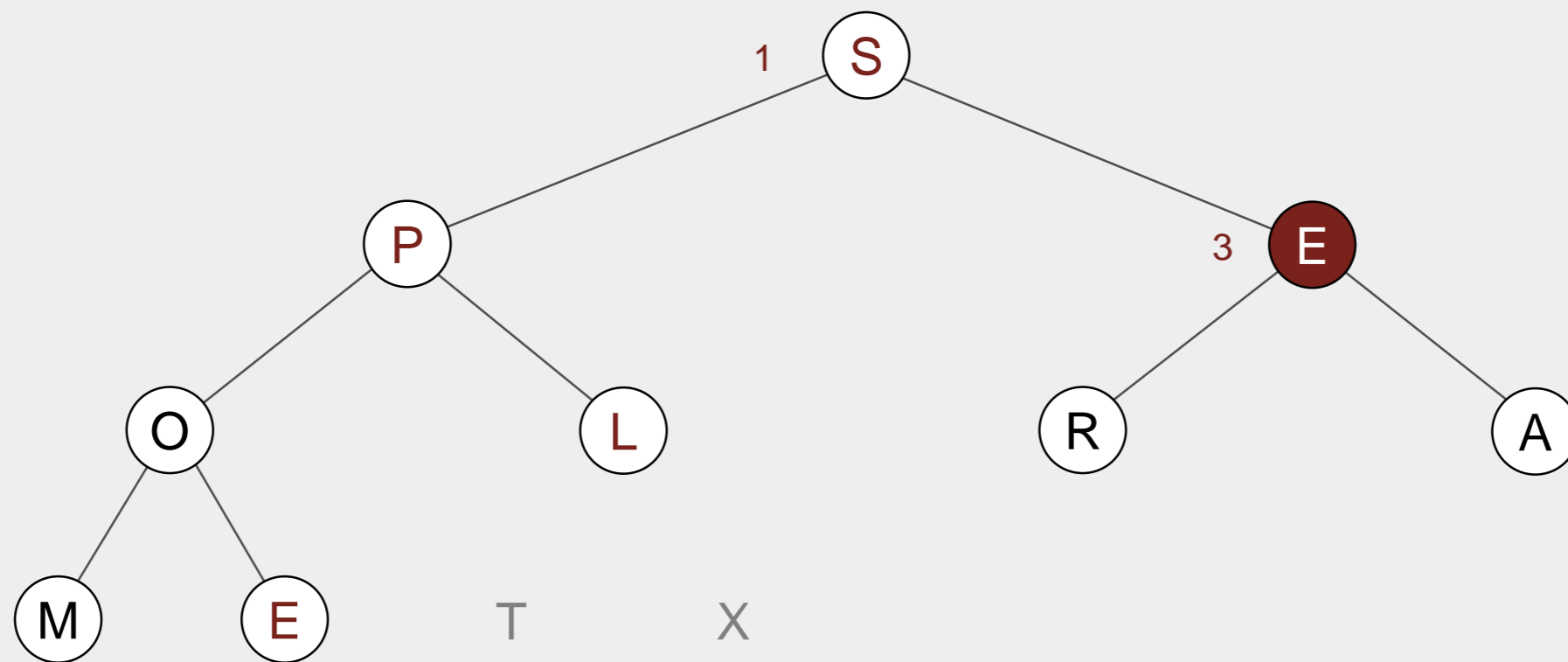


1

Heapsort

Sortdown. Repeatedly delete the largest remaining item.

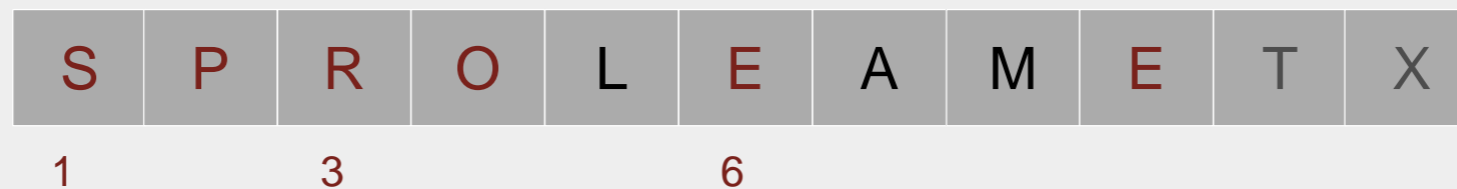
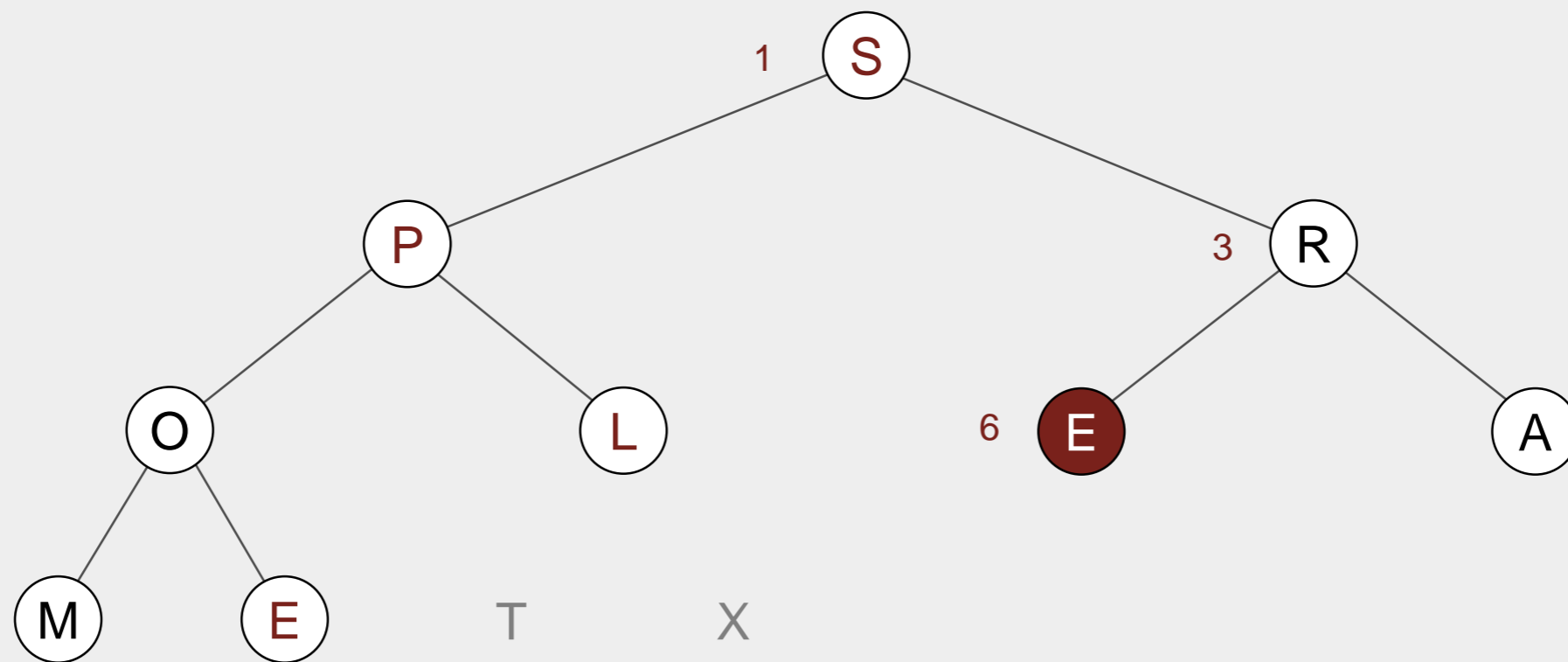
sink 1



Heapsort

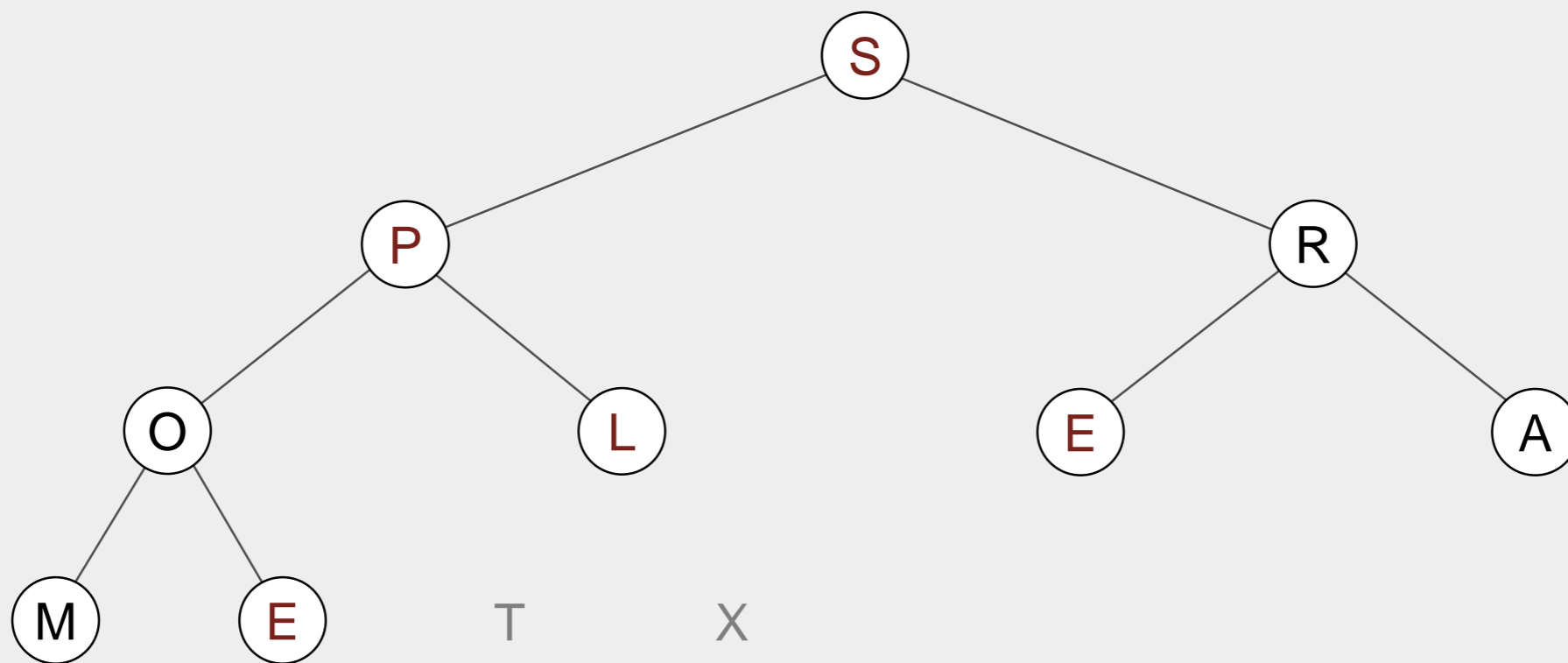
Sortdown. Repeatedly delete the largest remaining item.

sink 1



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

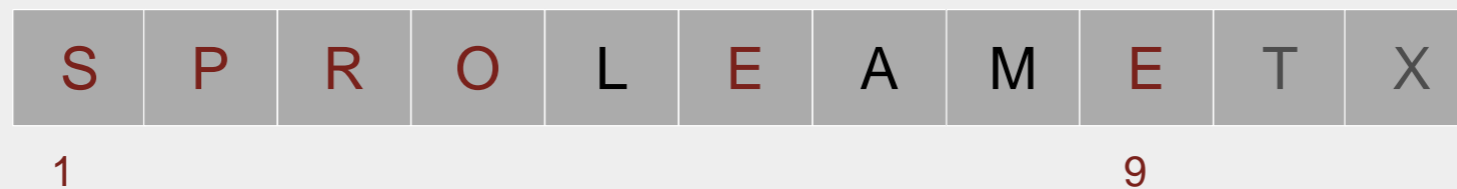
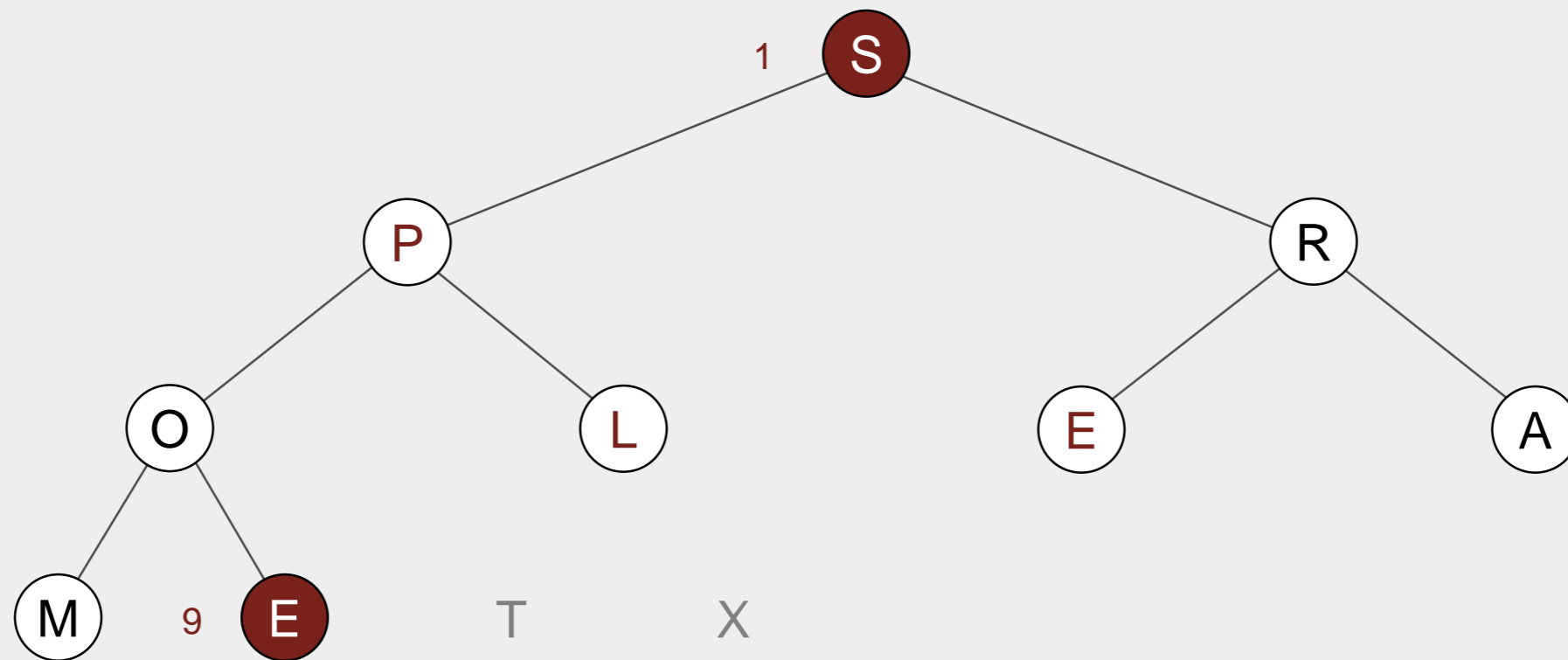


S	P	R	O	L	E	A	M	E	T	X
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Heapsort

Sortdown. Repeatedly delete the largest remaining item.

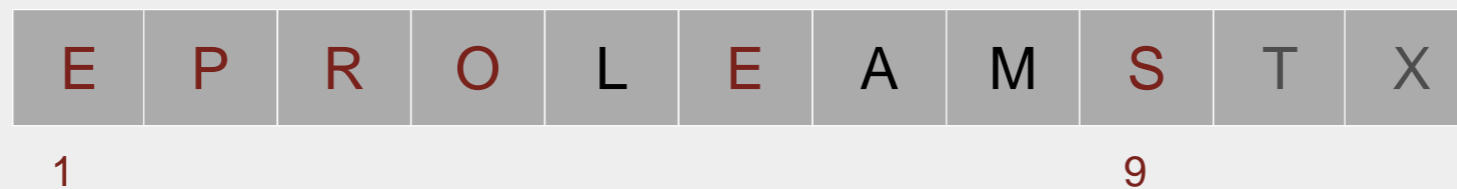
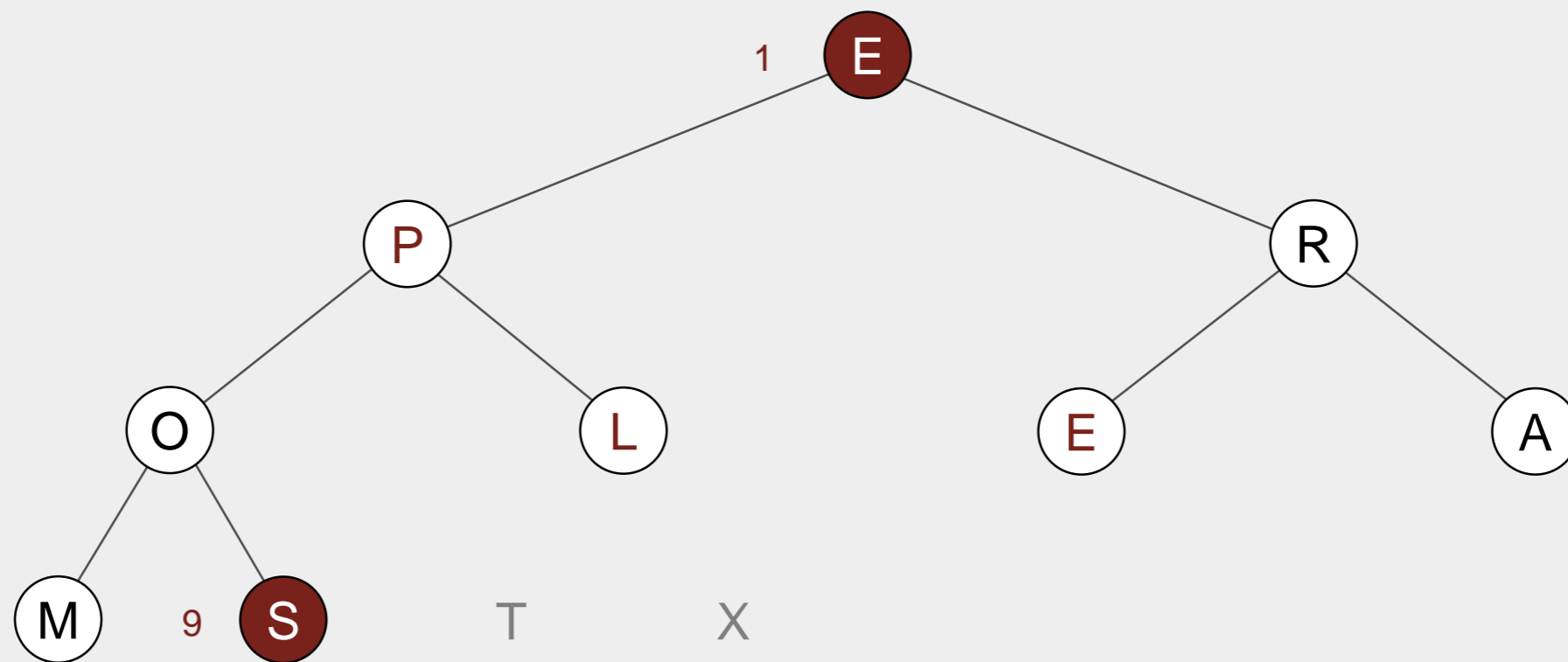
exchange 1 and 9



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

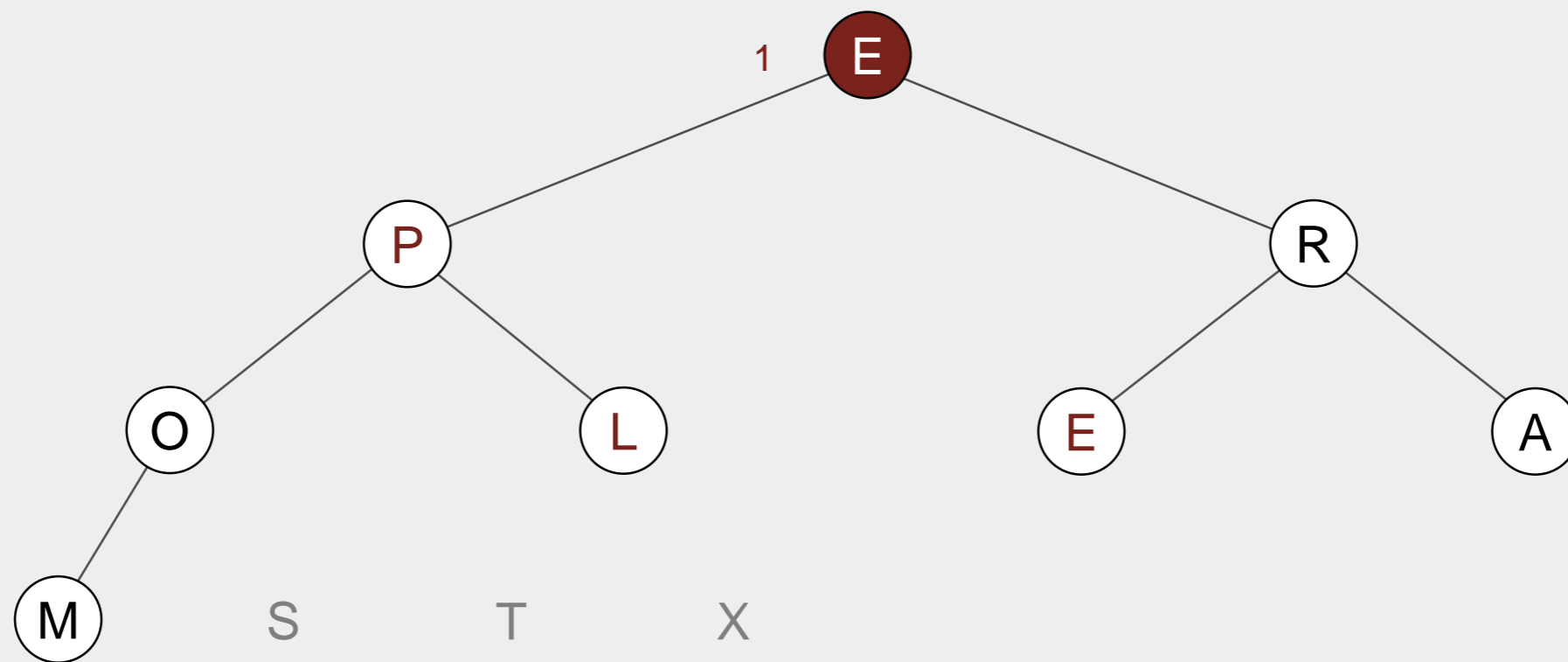
exchange 1 and 9



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

sink 1

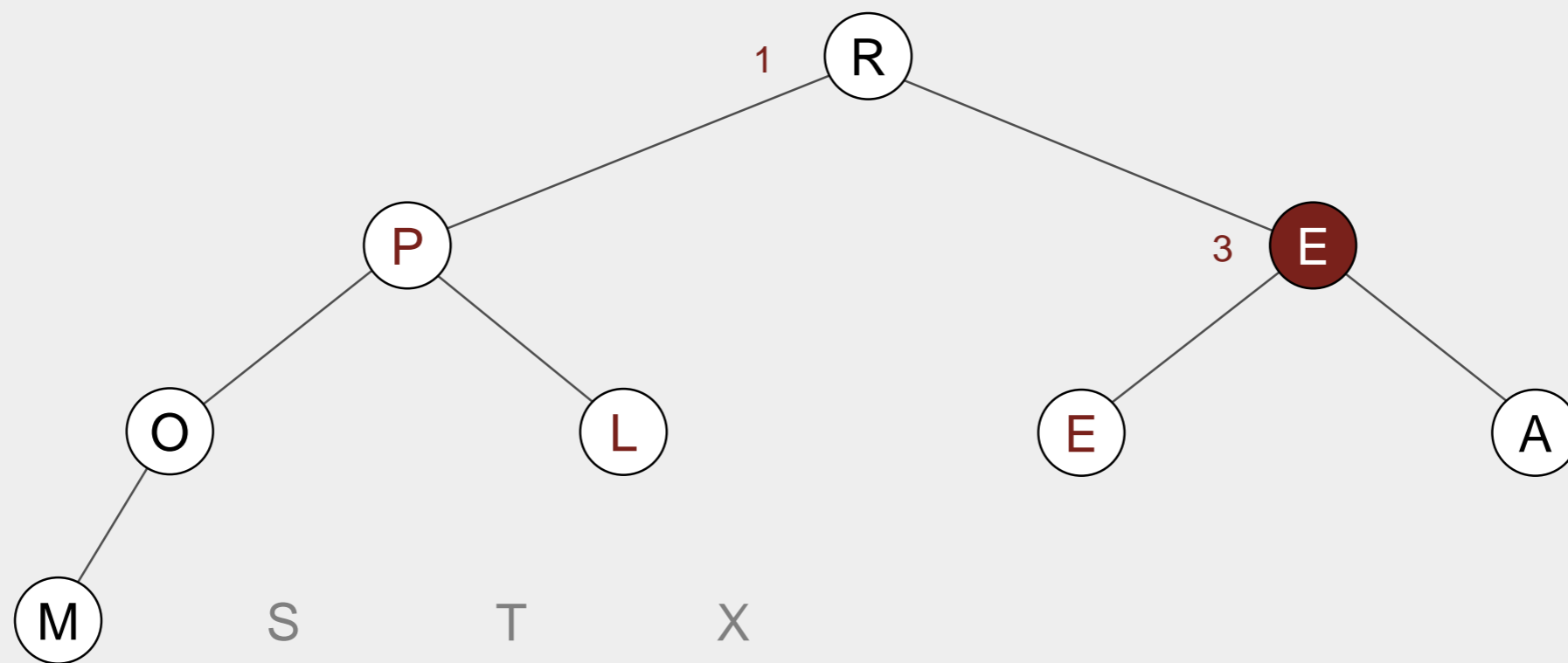


1

Heapsort

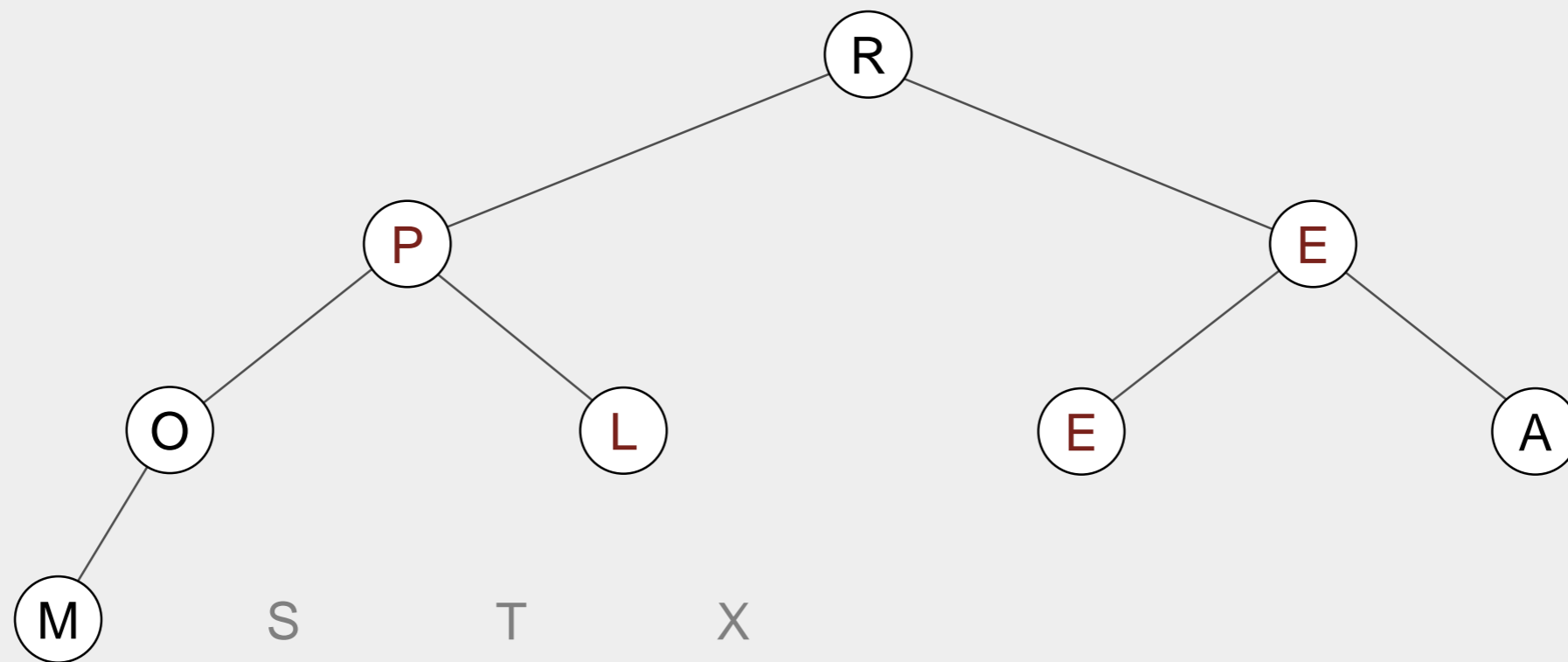
Sortdown. Repeatedly delete the largest remaining item.

sink 1



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

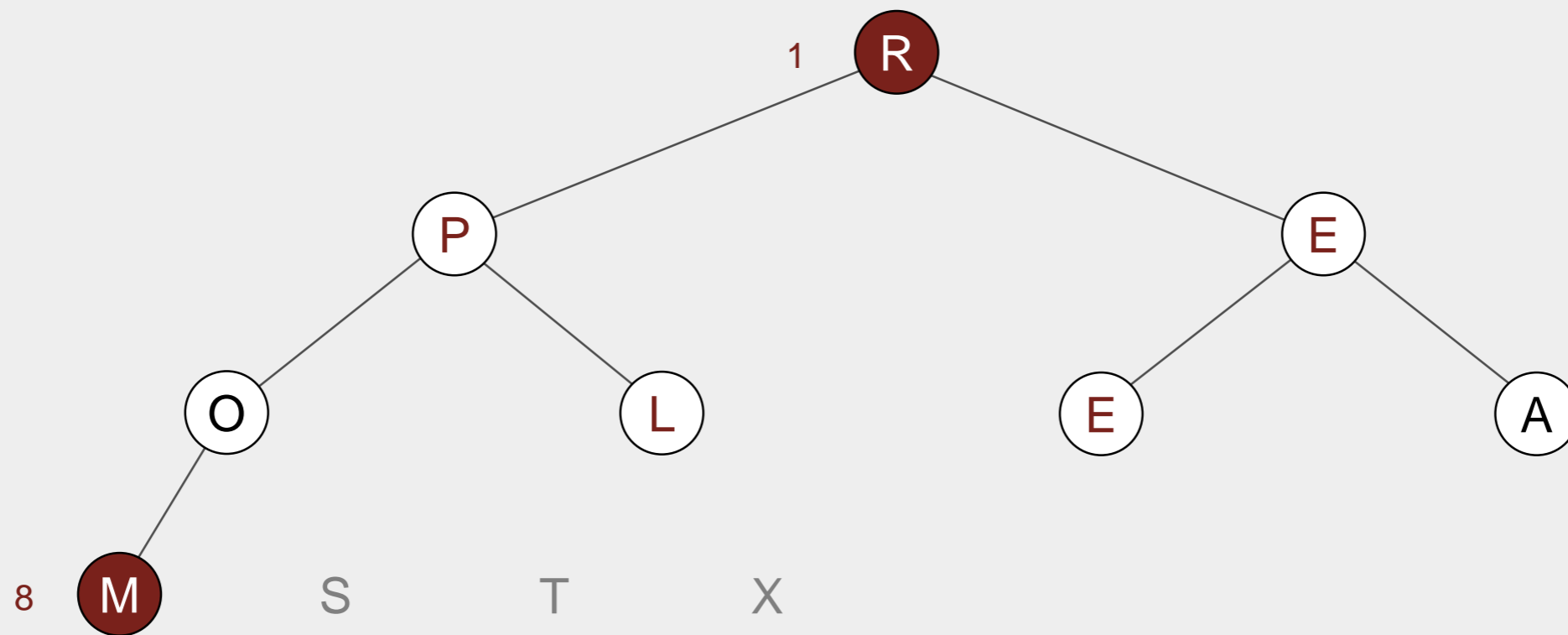


R	P	E	O	L	E	A	M	S	T	X
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Heapsort

Sortdown. Repeatedly delete the largest remaining item.

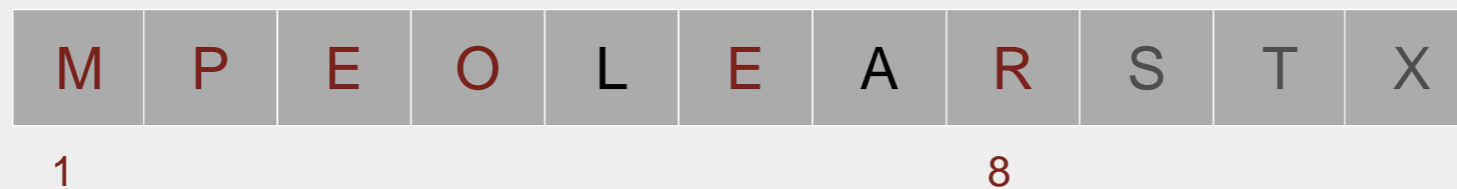
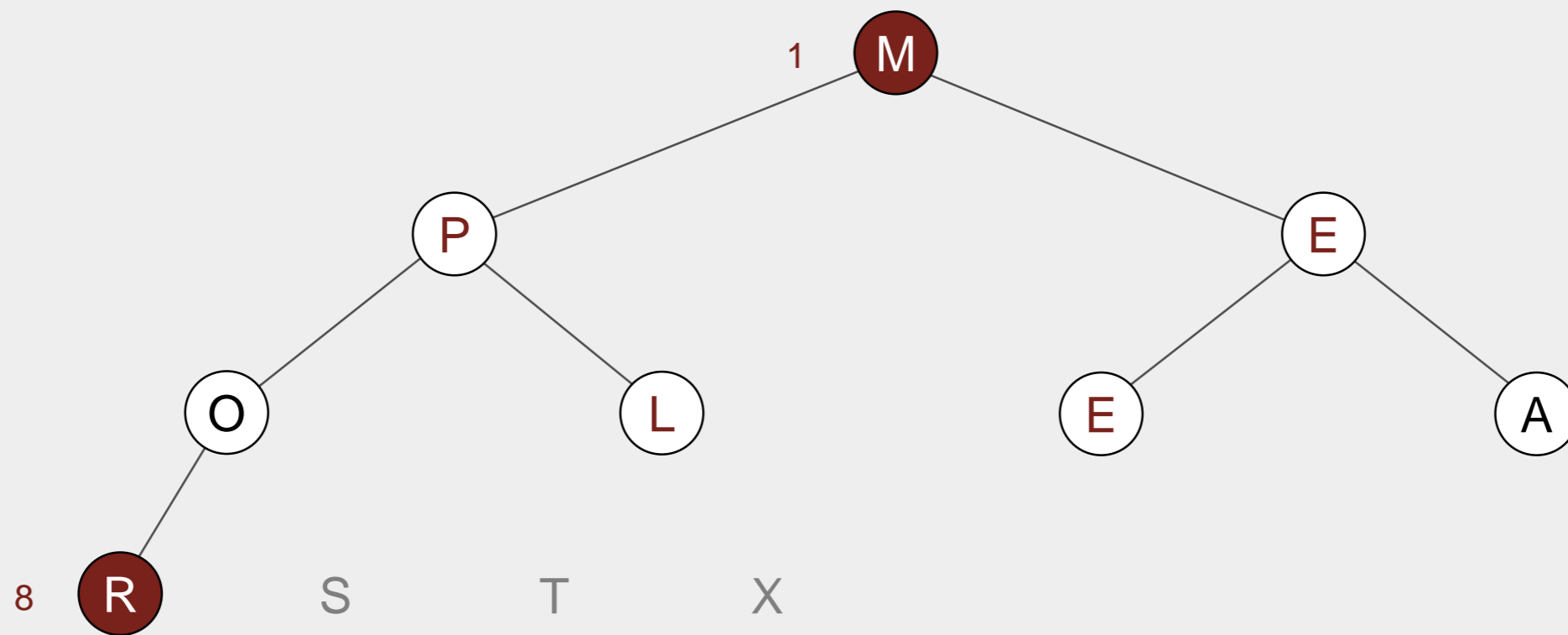
exchange 1 and 8



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

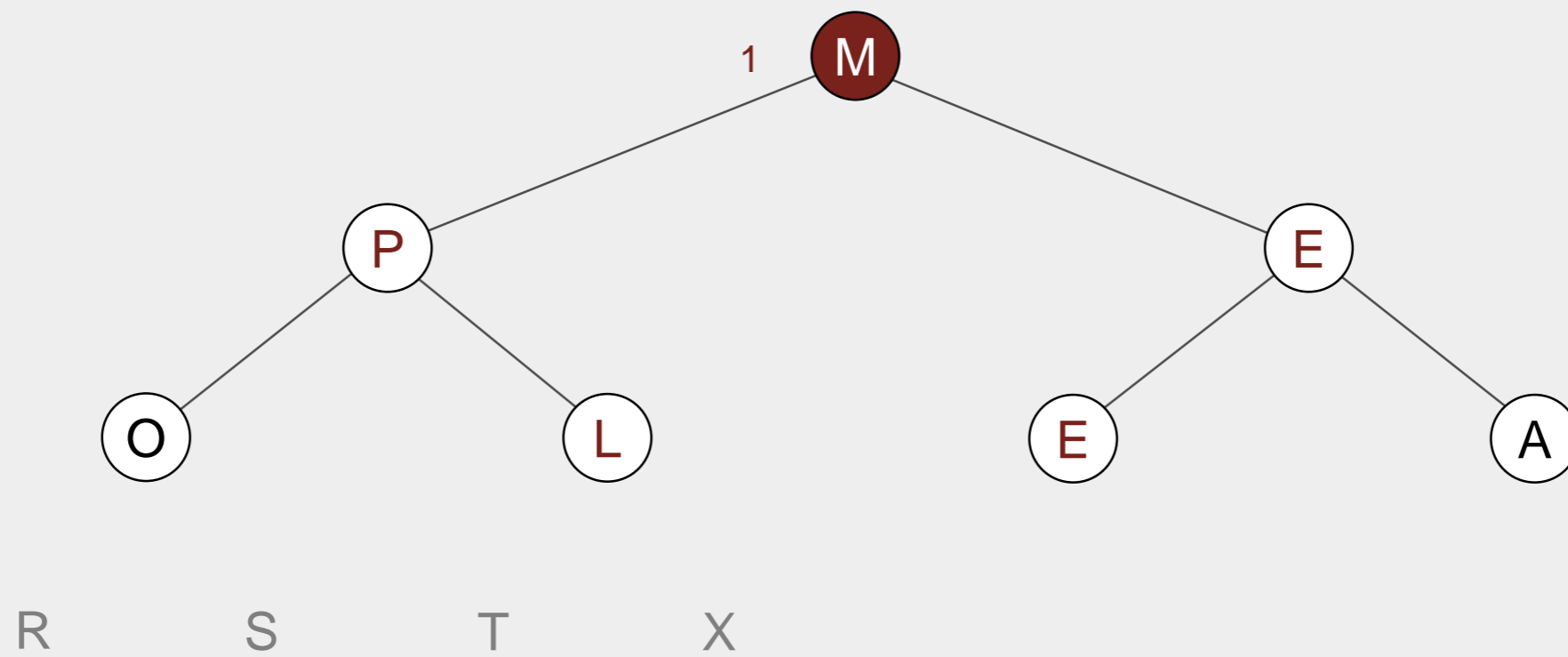
exchange 1 and 8



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

sink 1

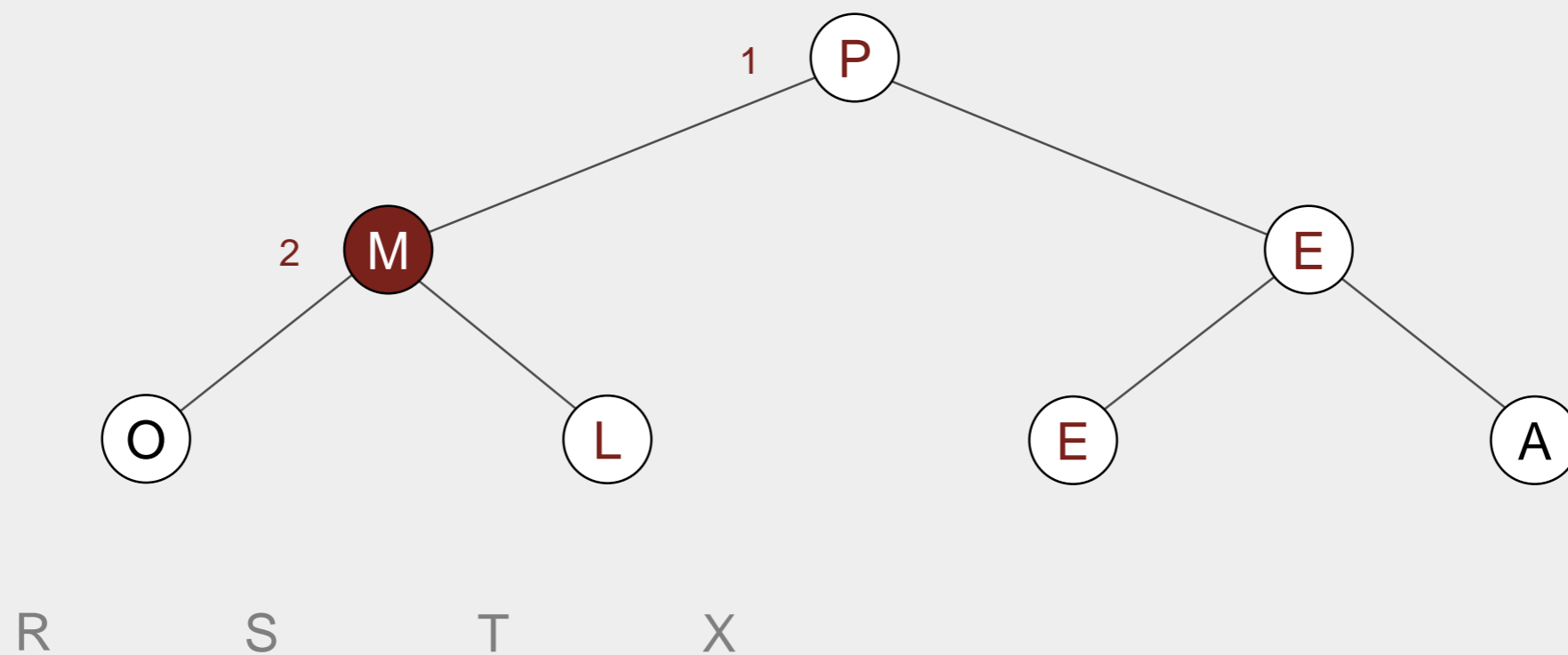


1

Heapsort

Sortdown. Repeatedly delete the largest remaining item.

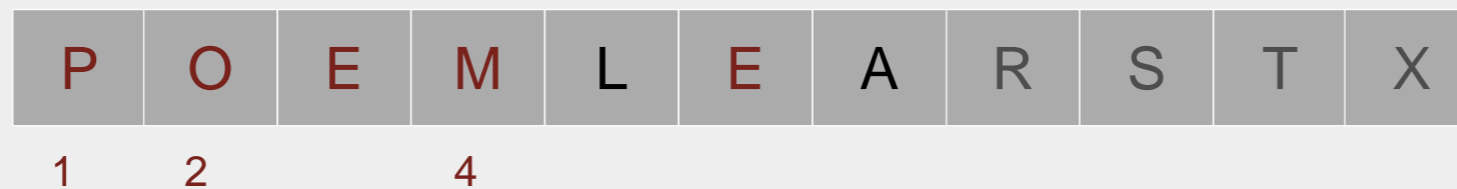
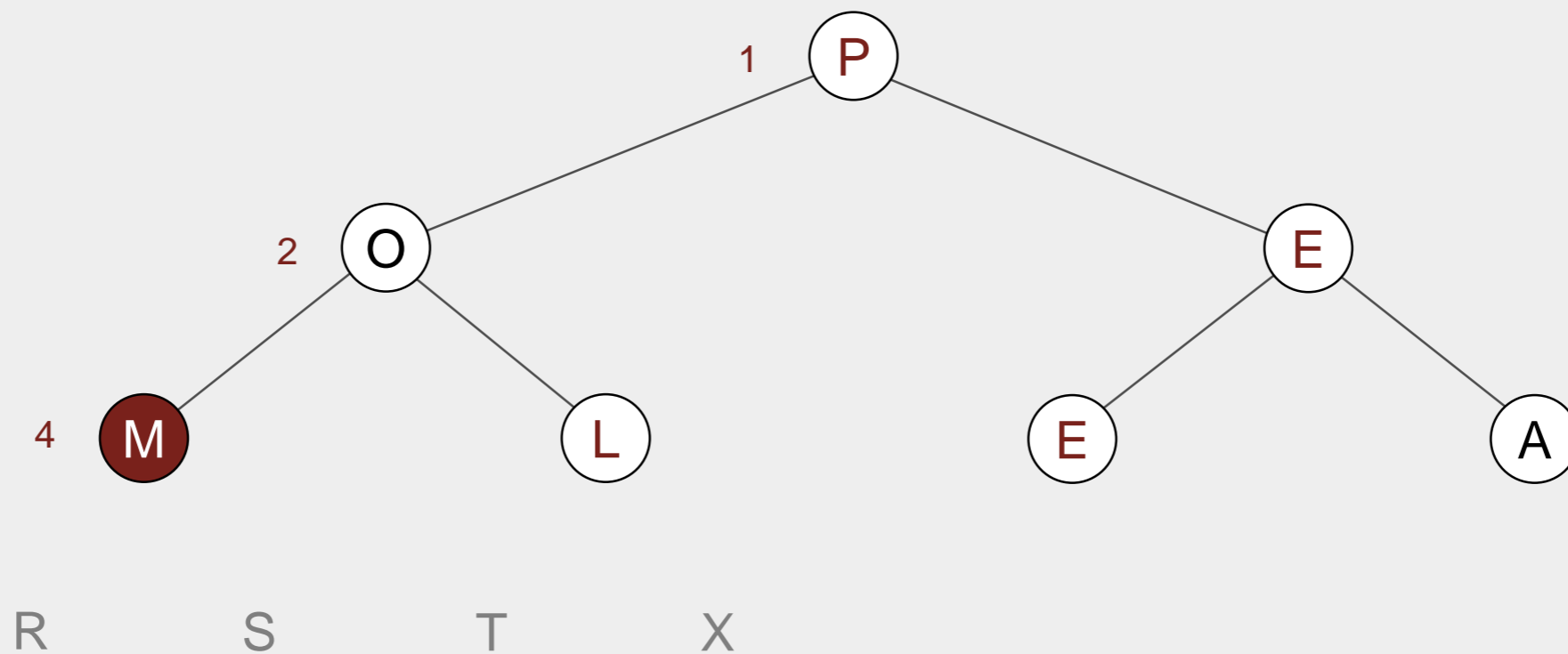
sink 1



Heapsort

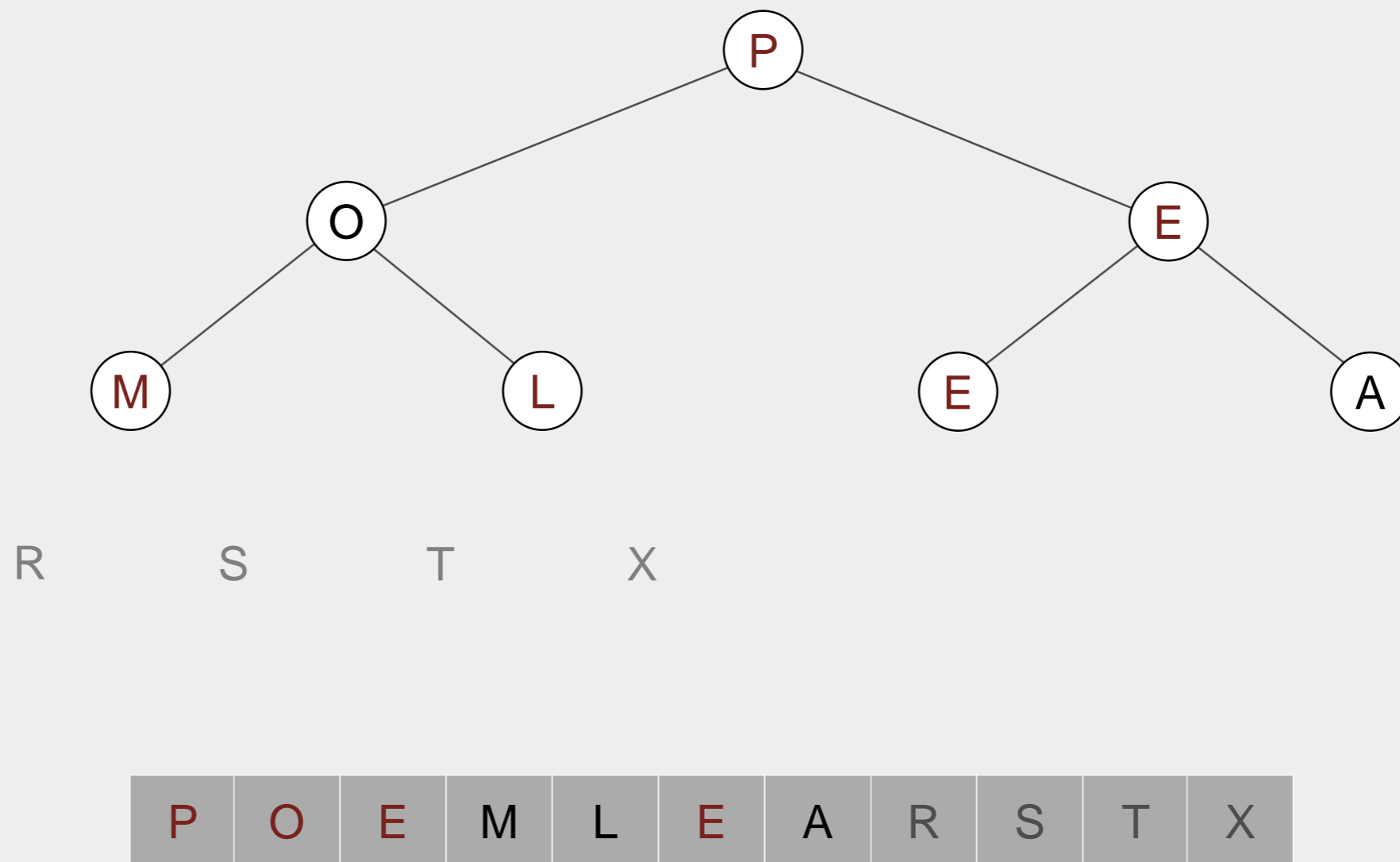
Sortdown. Repeatedly delete the largest remaining item.

sink 1



Heapsort

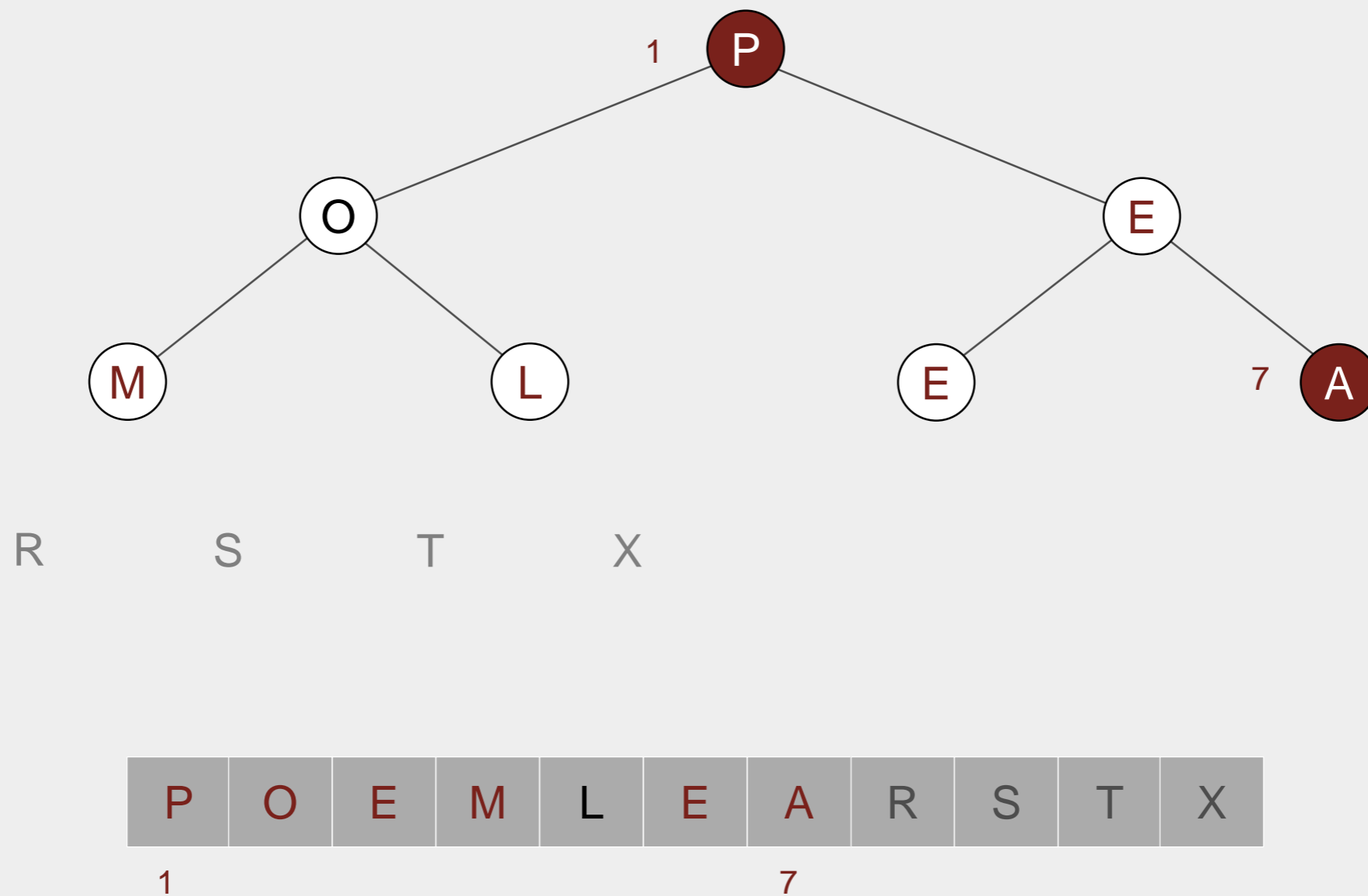
Sortdown. Repeatedly delete the largest remaining item.



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

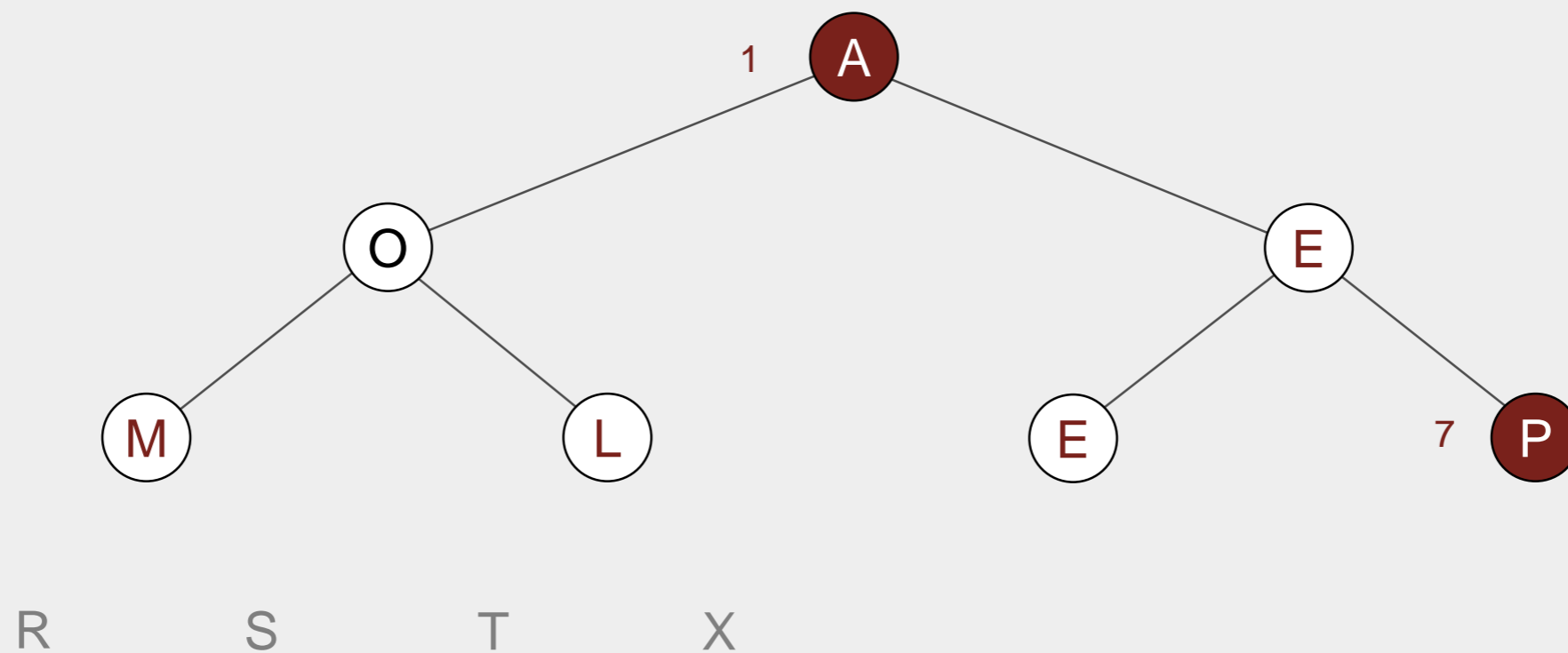
exchange 1 and 7



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

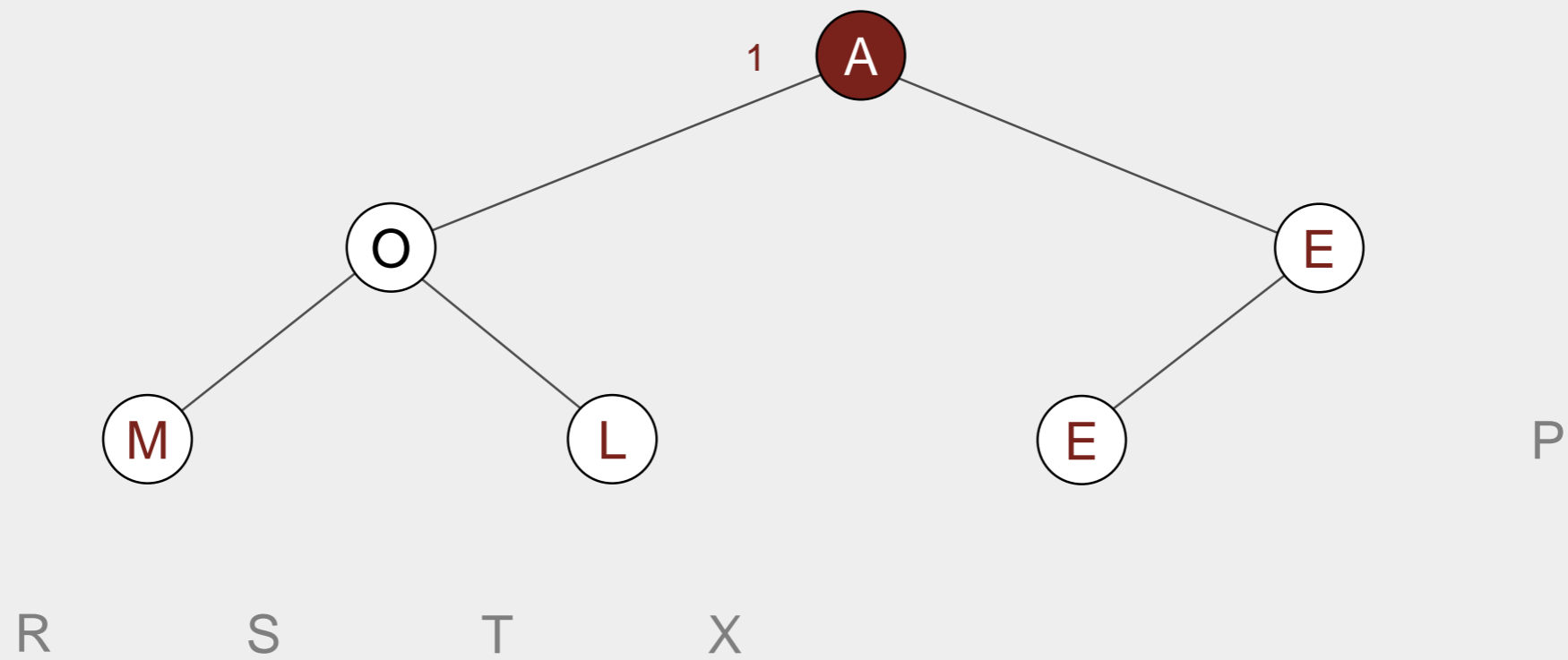
exchange 1 and 7



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

sink 1

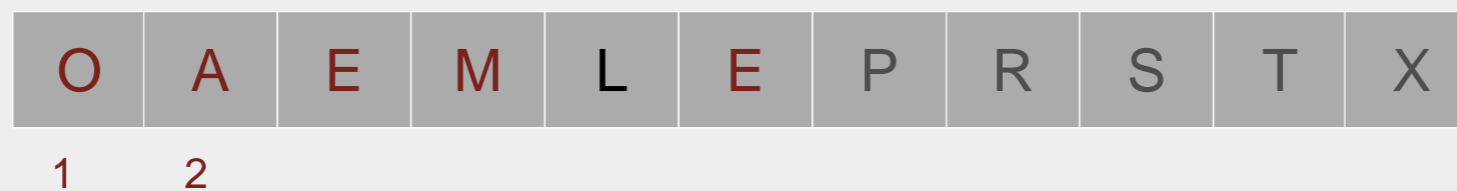
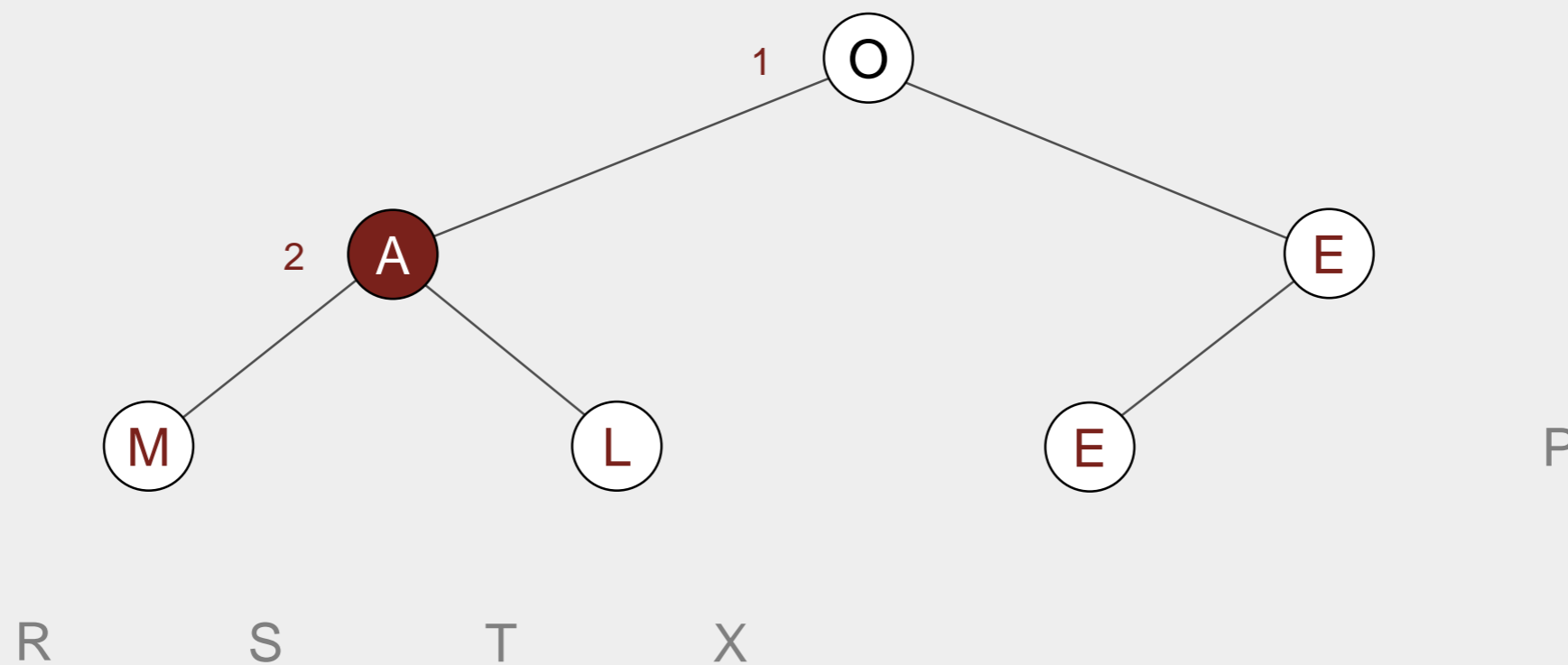


1

Heapsort

Sortdown. Repeatedly delete the largest remaining item.

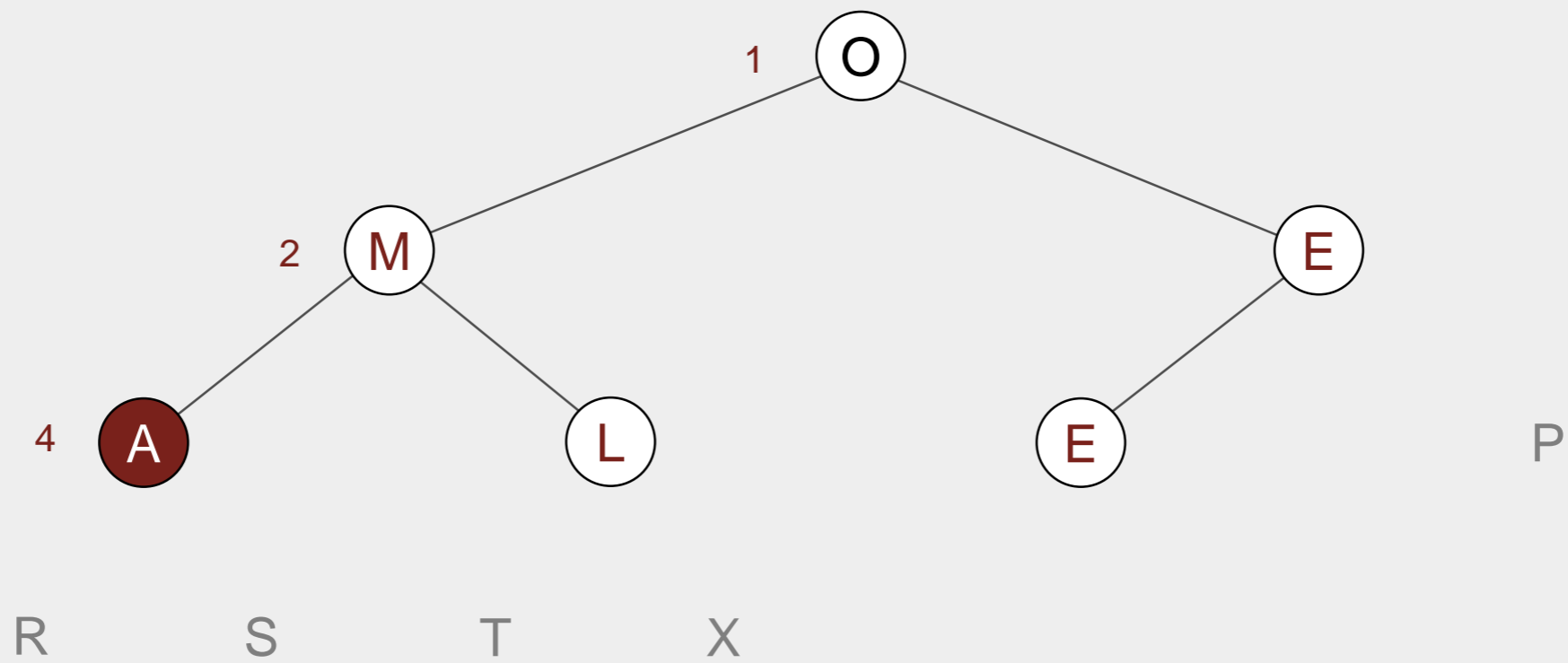
sink 1



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

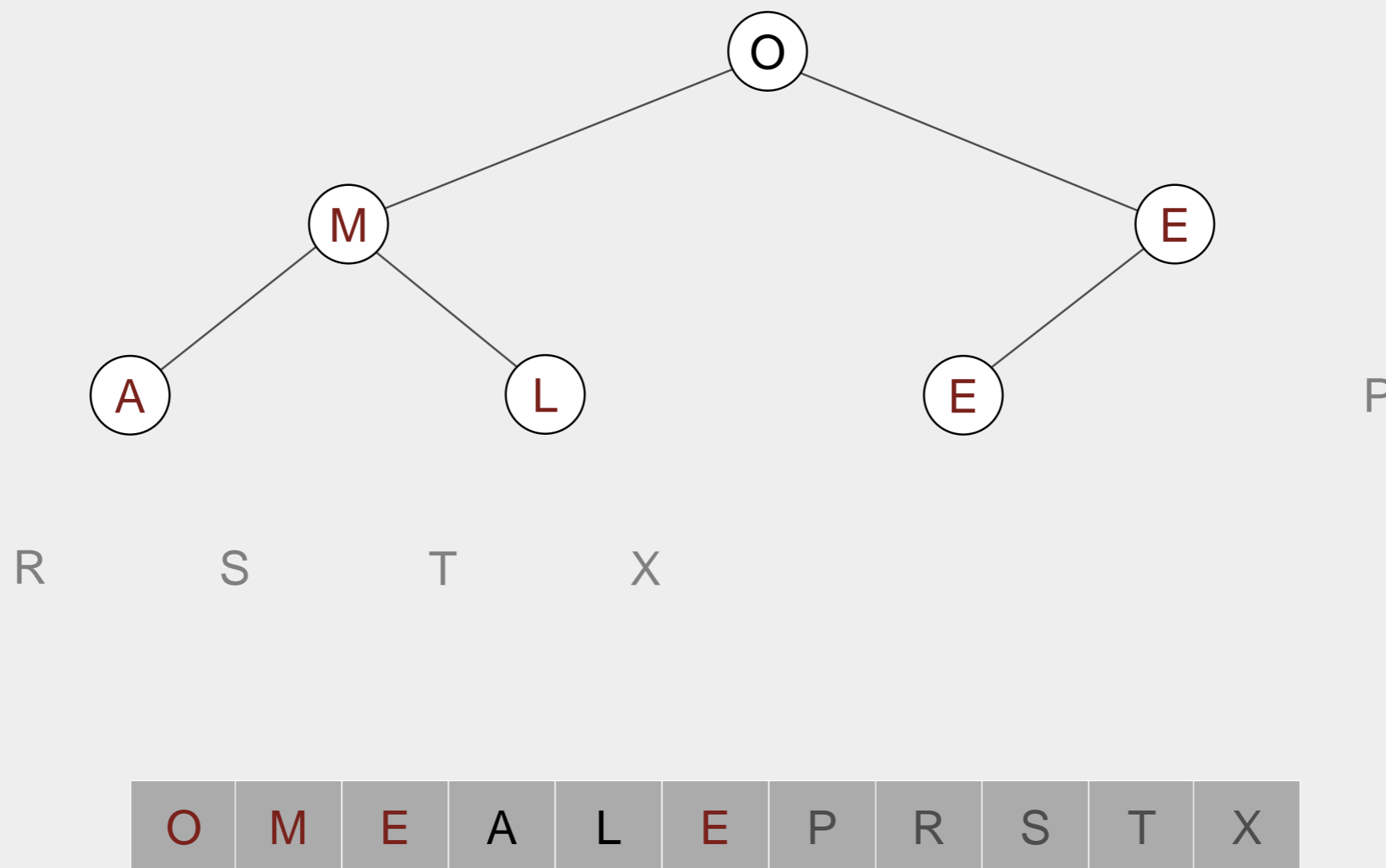
sink 1



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

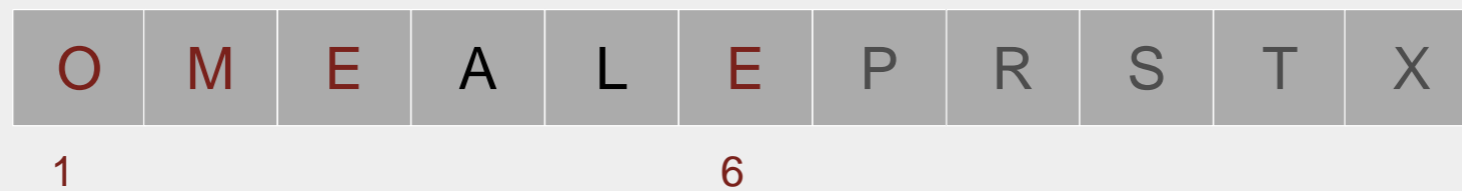
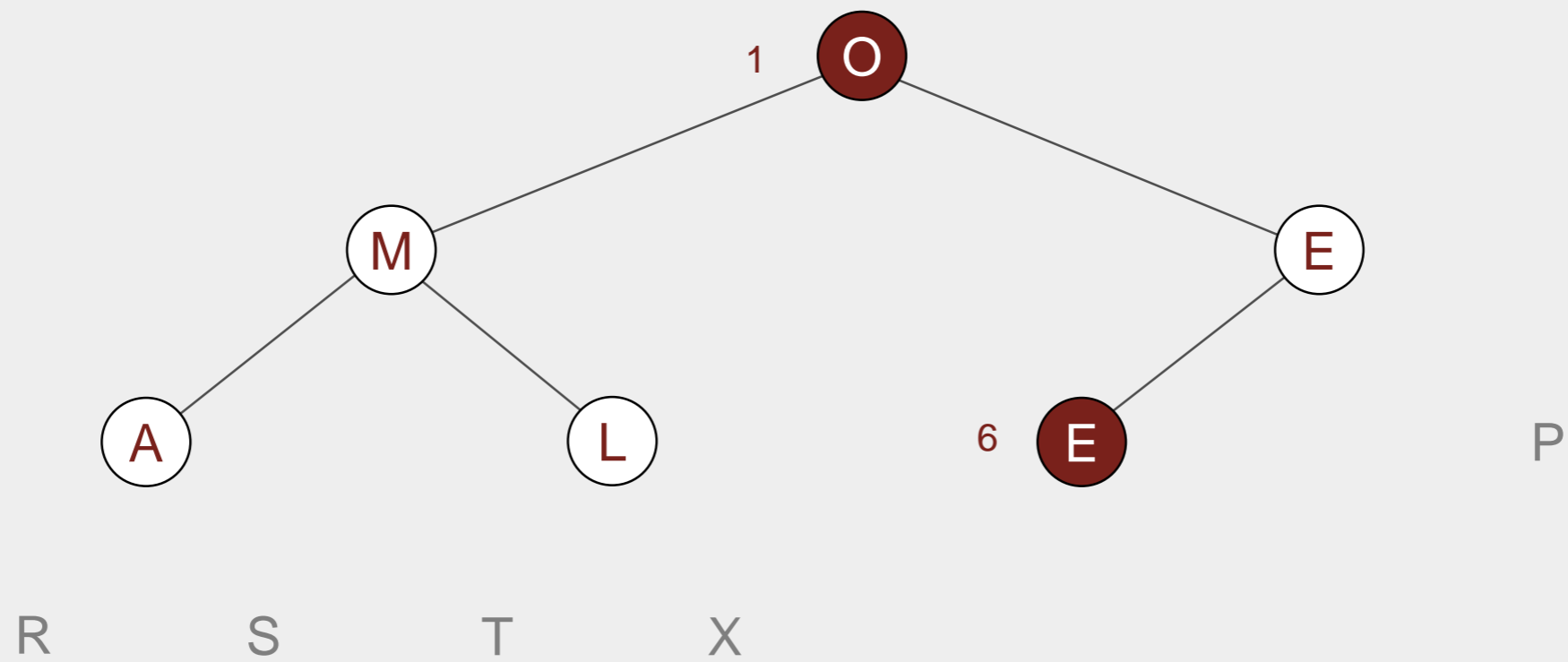
sink 1



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

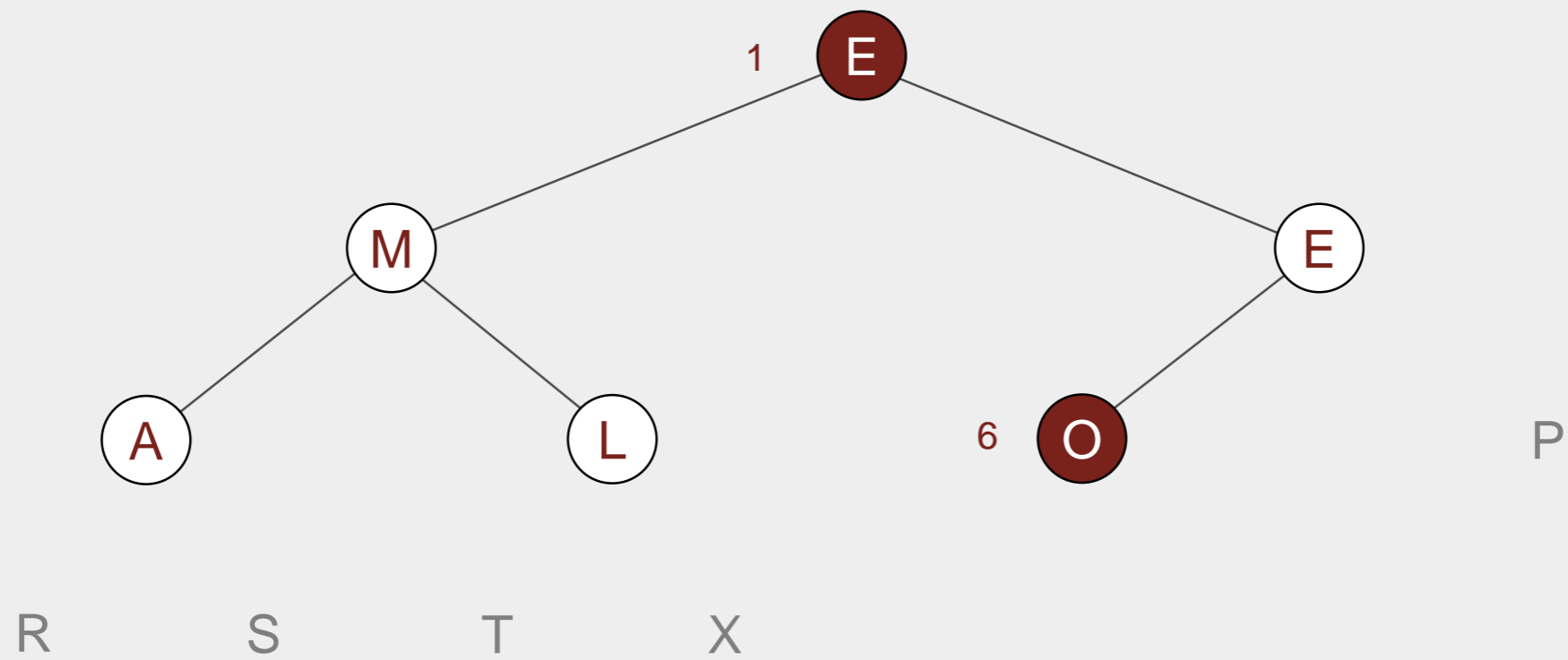
exchange 1 and 6



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

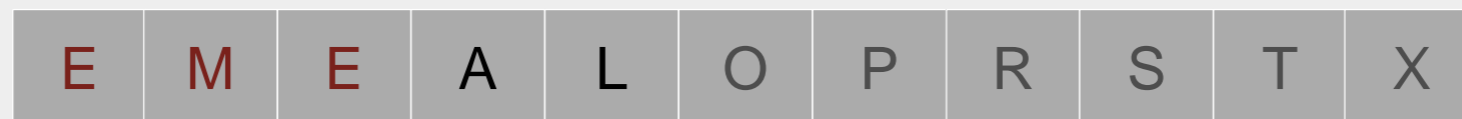
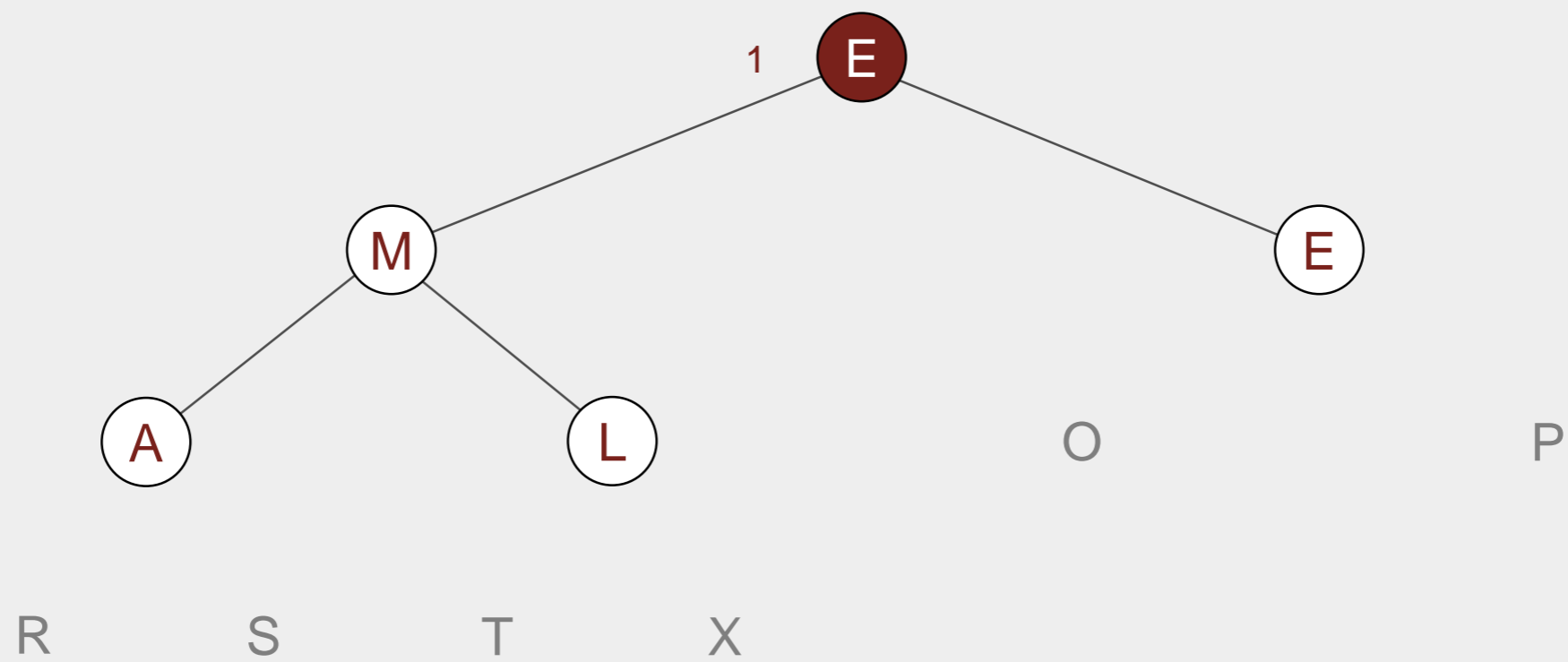
exchange 1 and 6



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

sink 1

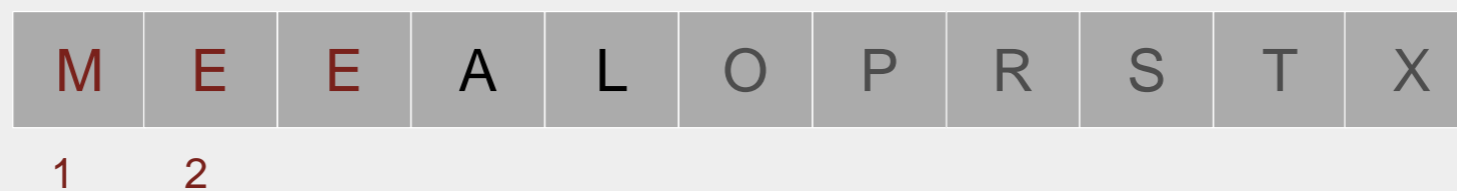
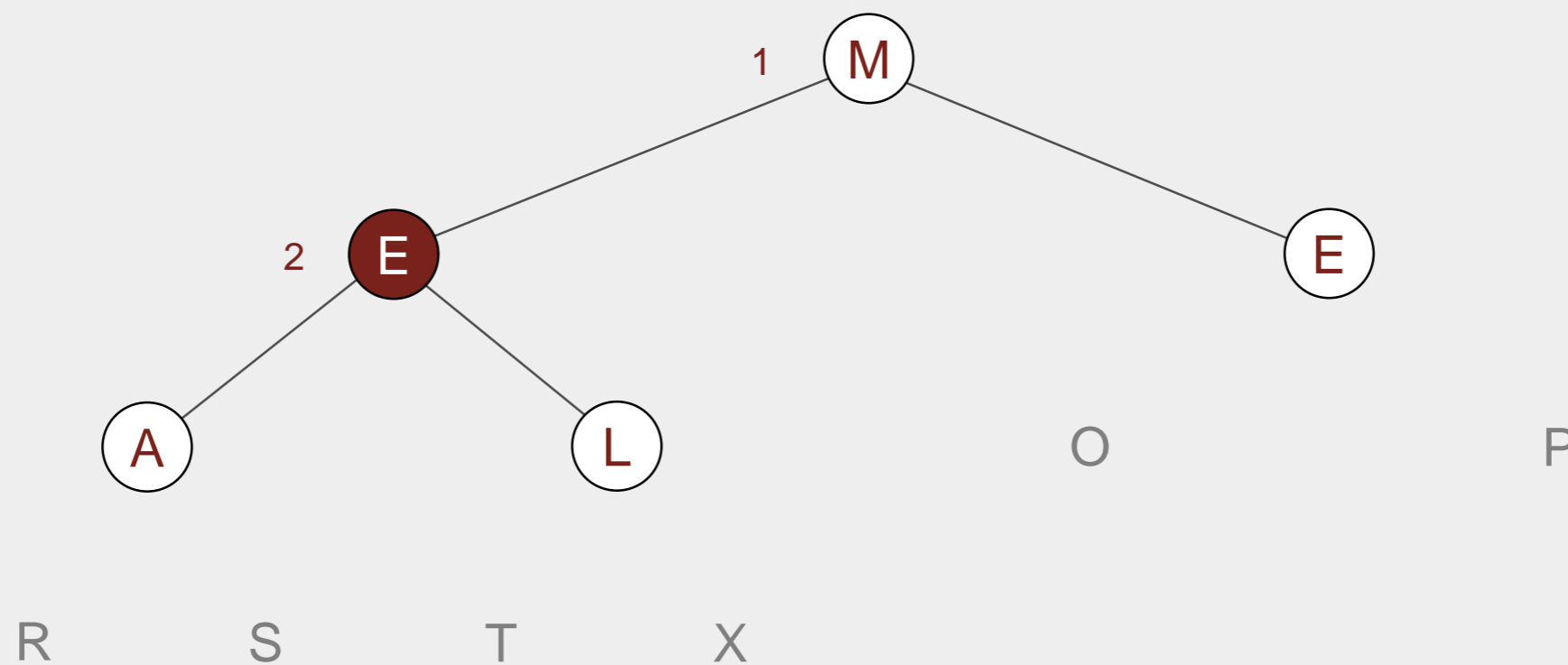


1

Heapsort

Sortdown. Repeatedly delete the largest remaining item.

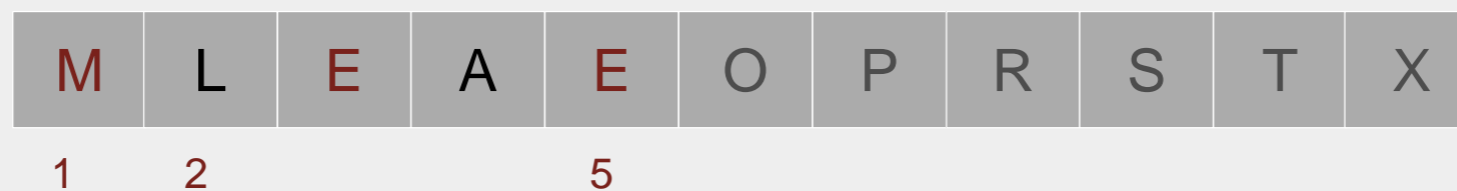
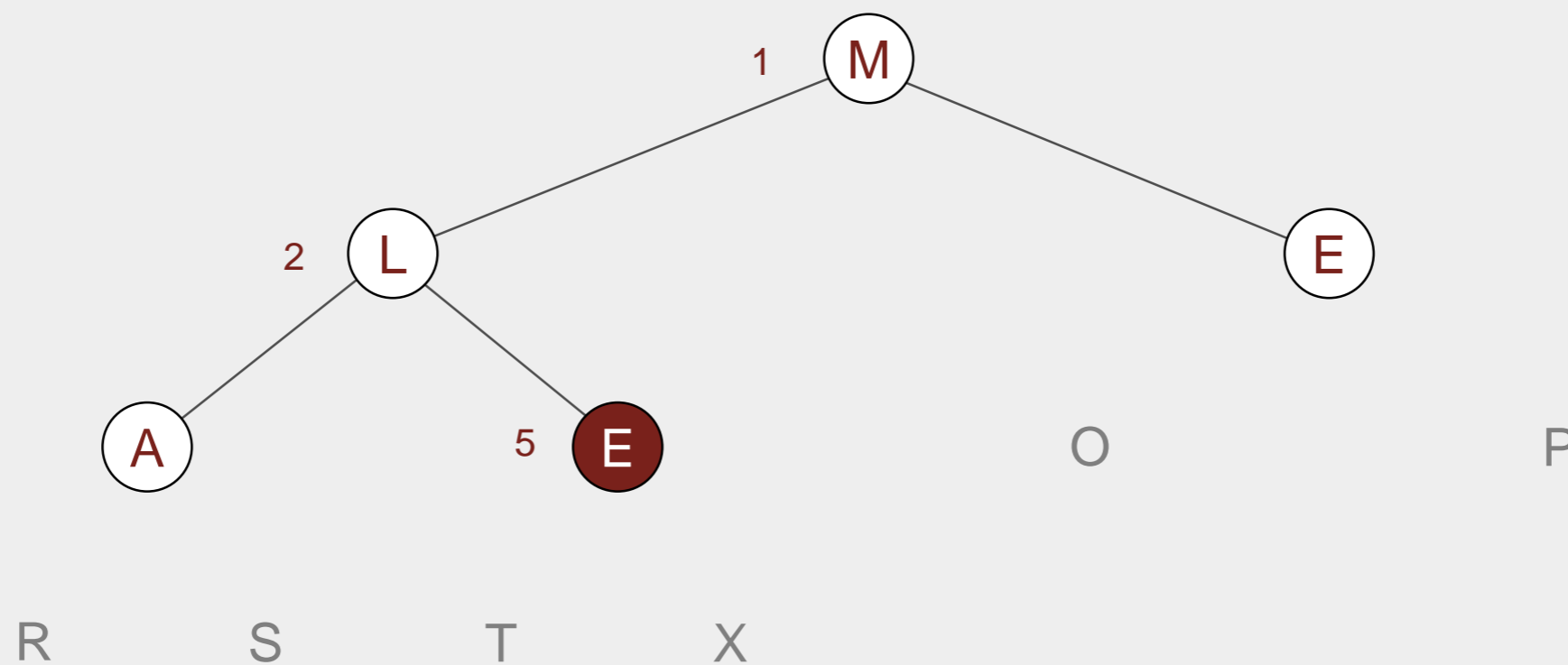
sink 1



Heapsort

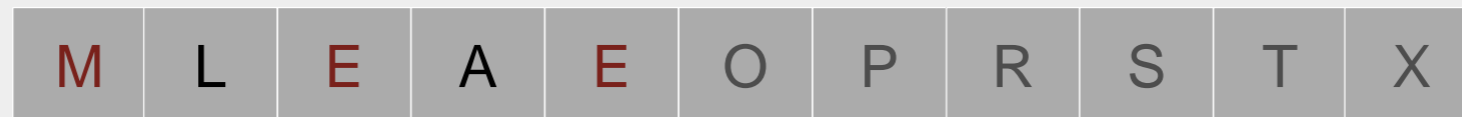
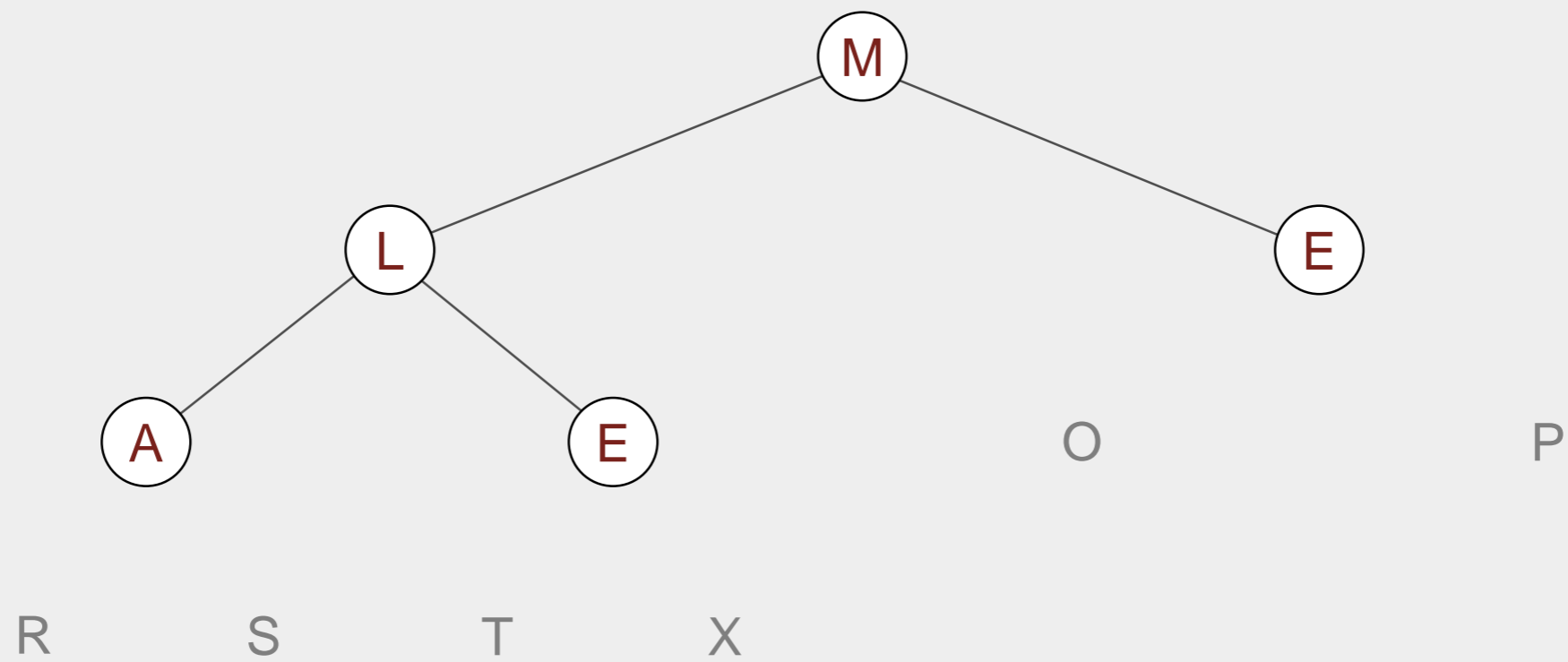
Sortdown. Repeatedly delete the largest remaining item.

sink 1



Heapsort

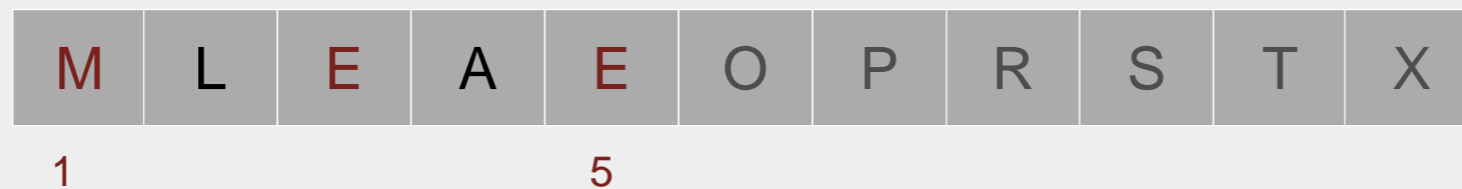
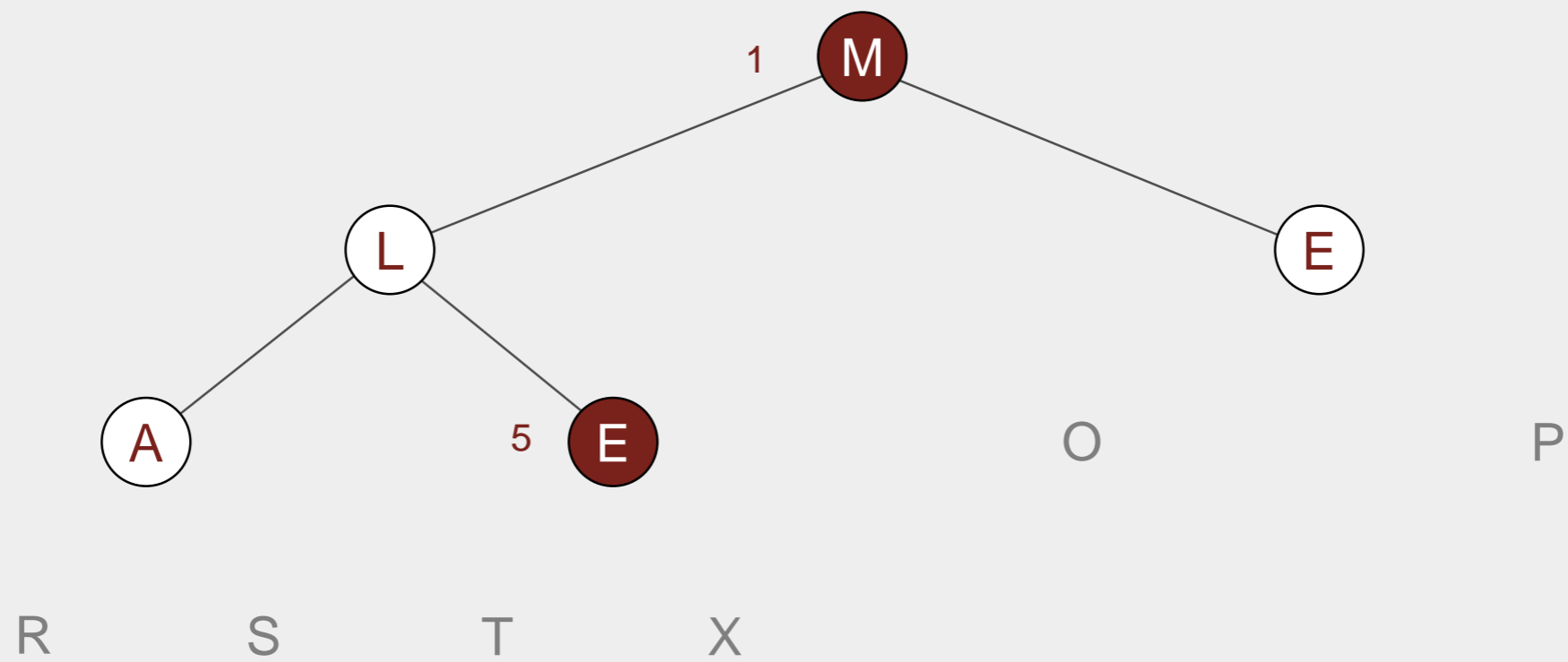
Sortdown. Repeatedly delete the largest remaining item.



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

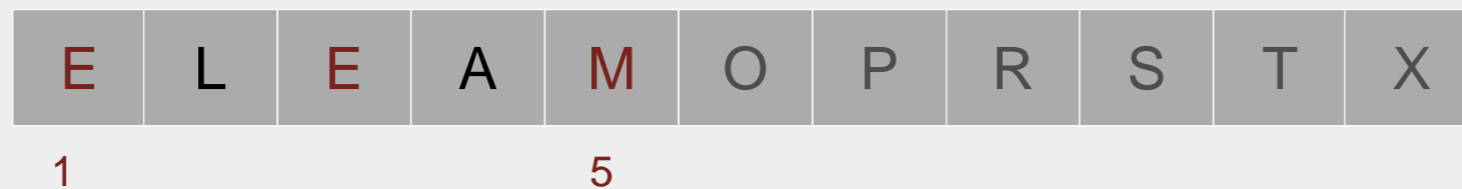
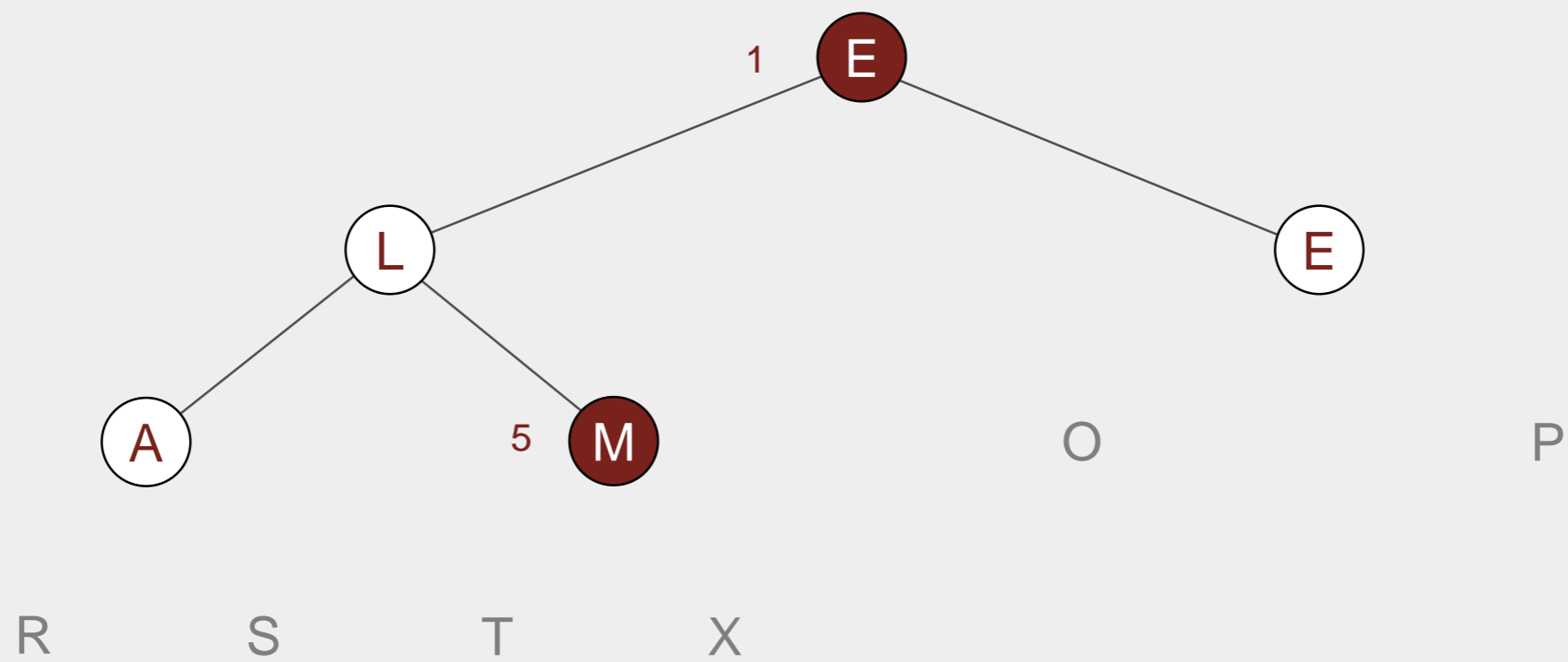
exchange 1 and 5



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

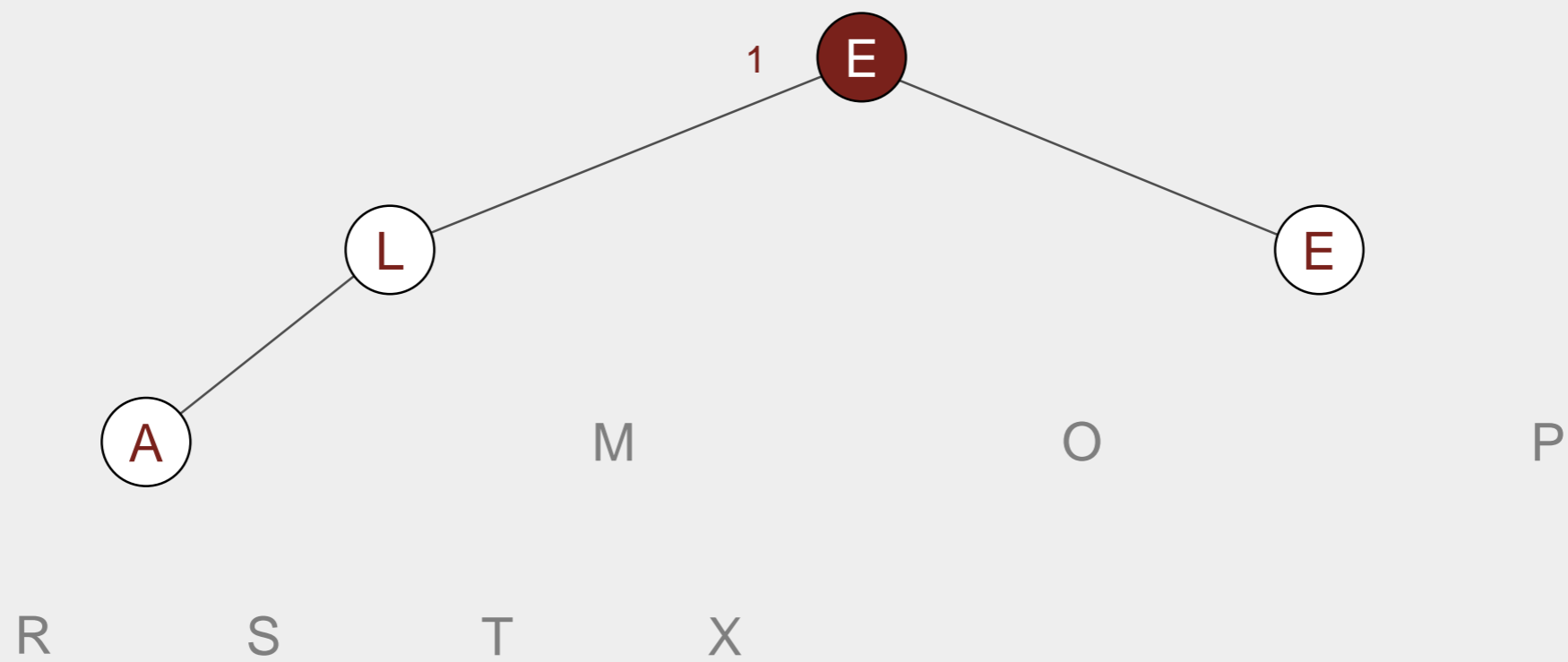
exchange 1 and 5



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

sink 1

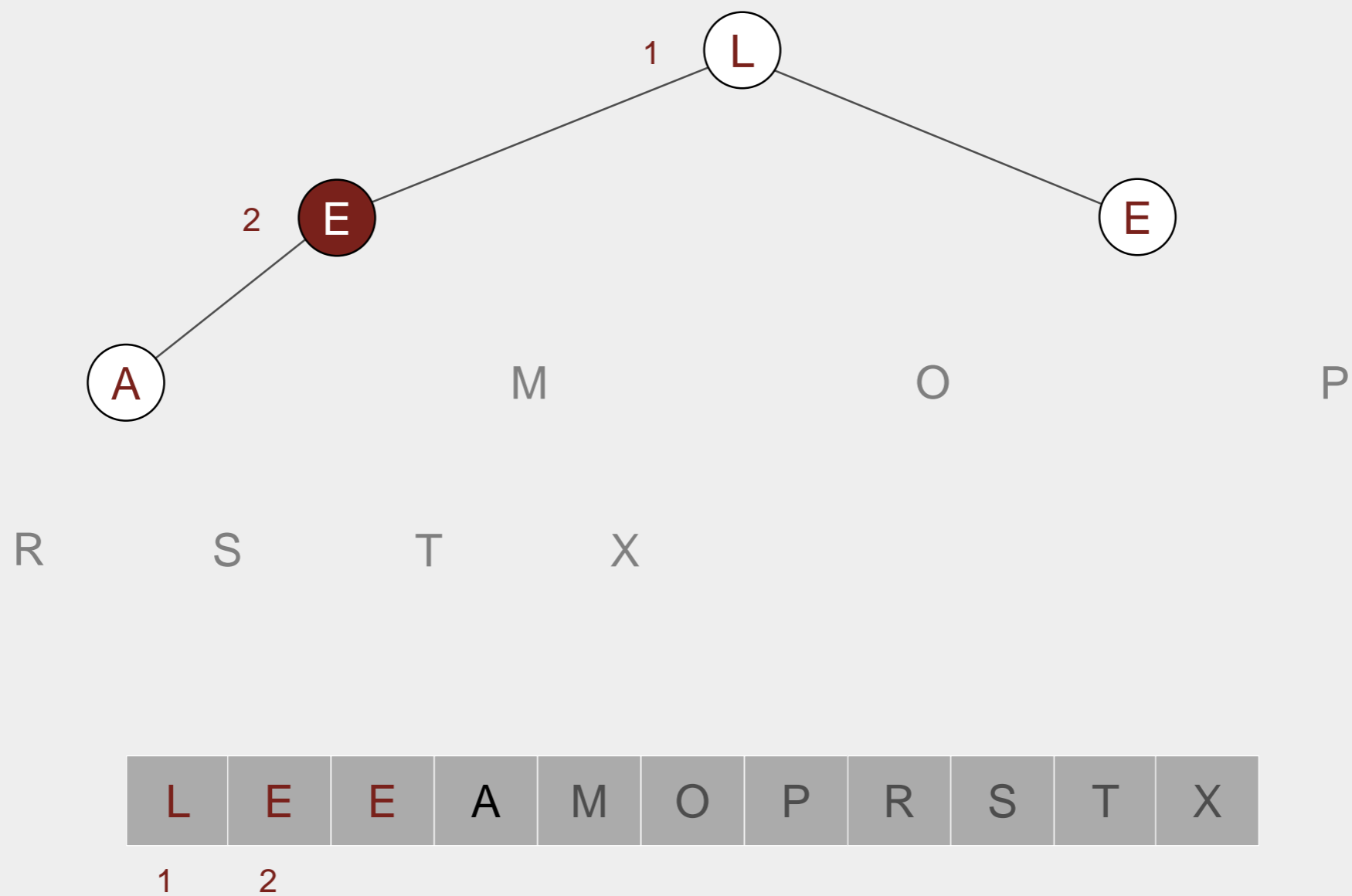


1

Heapsort

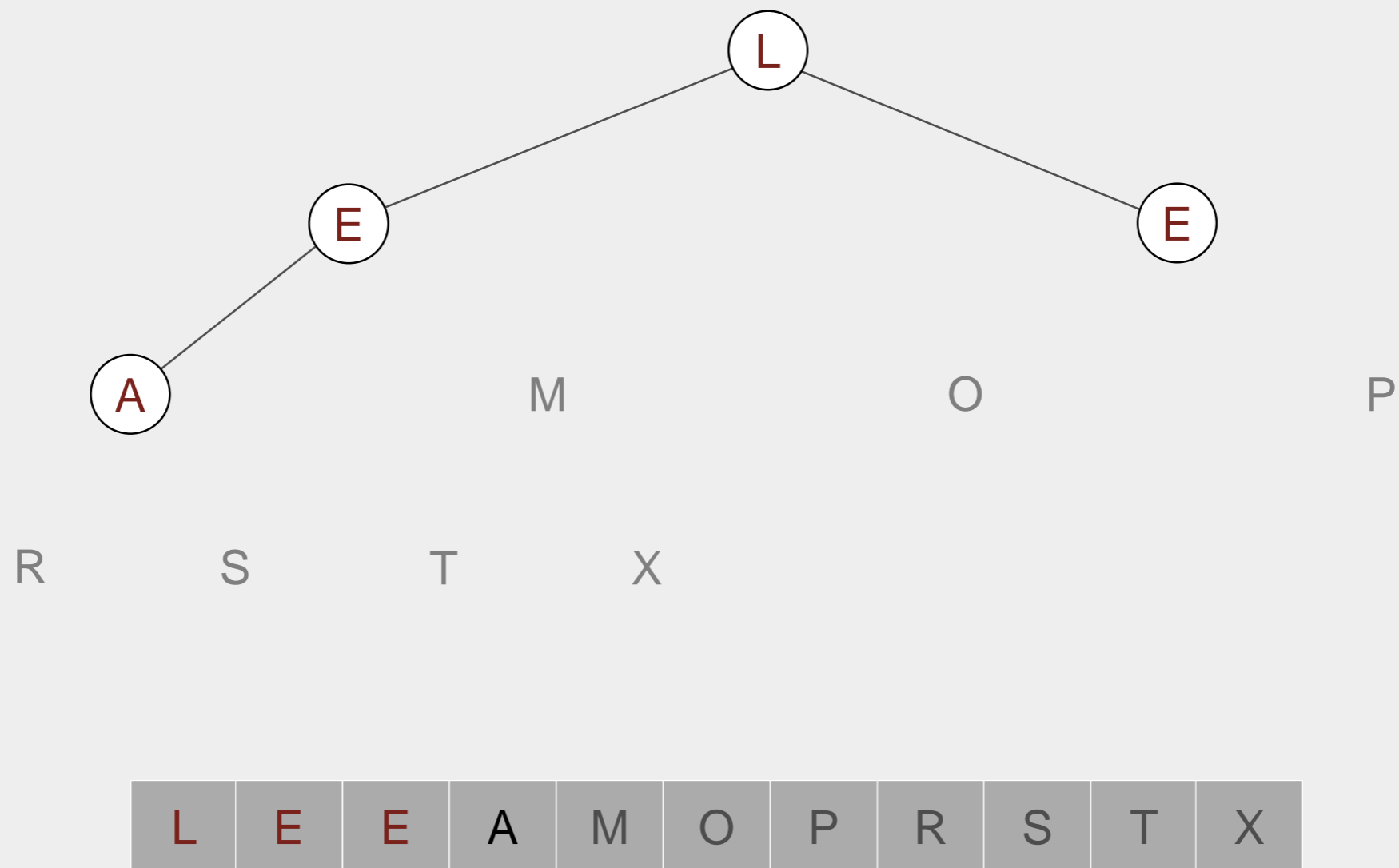
Sortdown. Repeatedly delete the largest remaining item.

sink 1



Heapsort

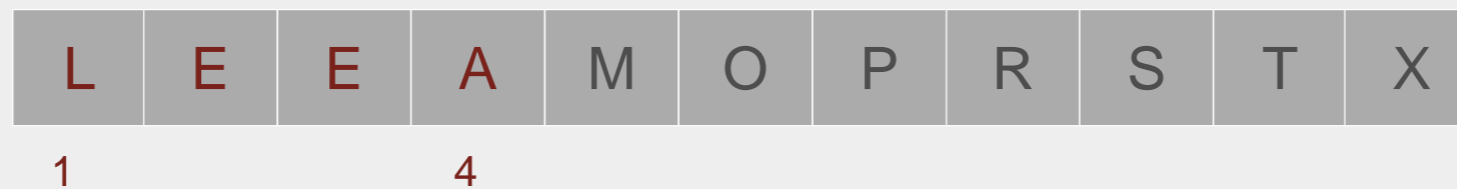
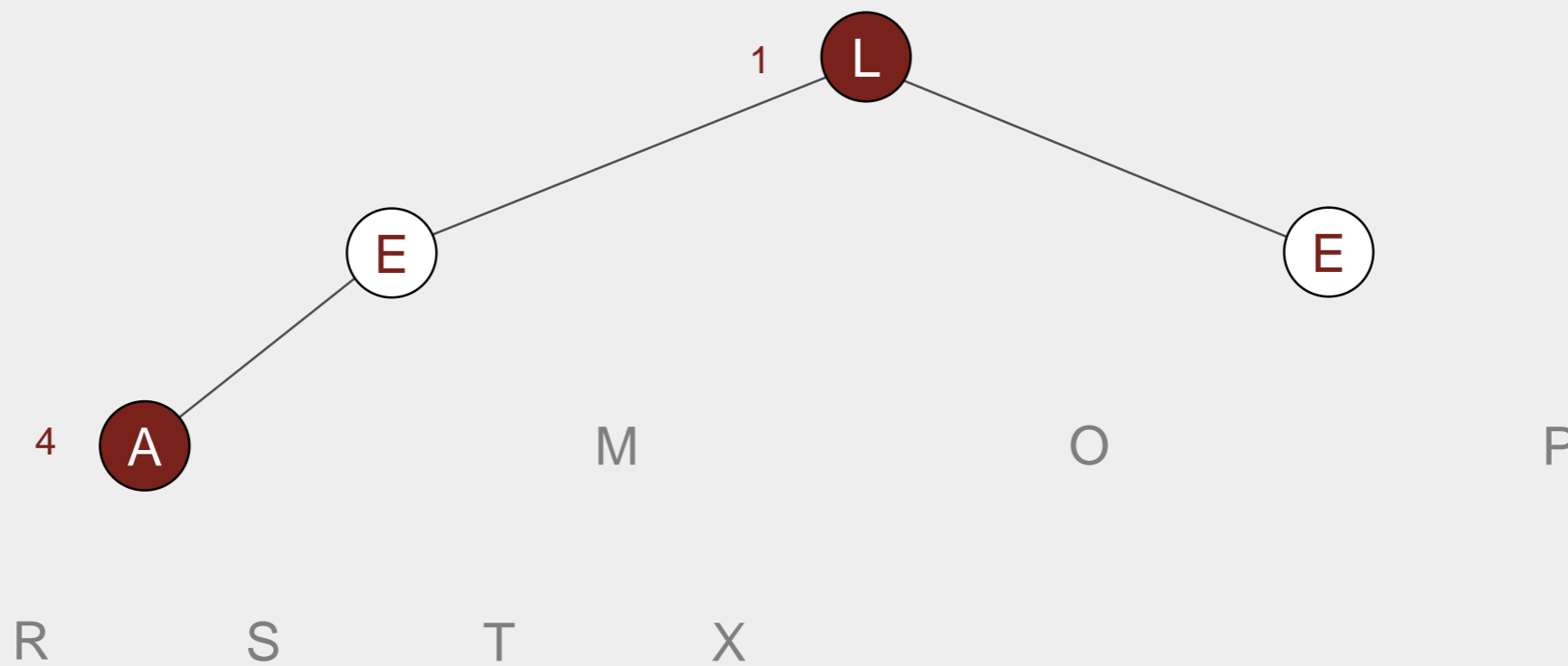
Sortdown. Repeatedly delete the largest remaining item.



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

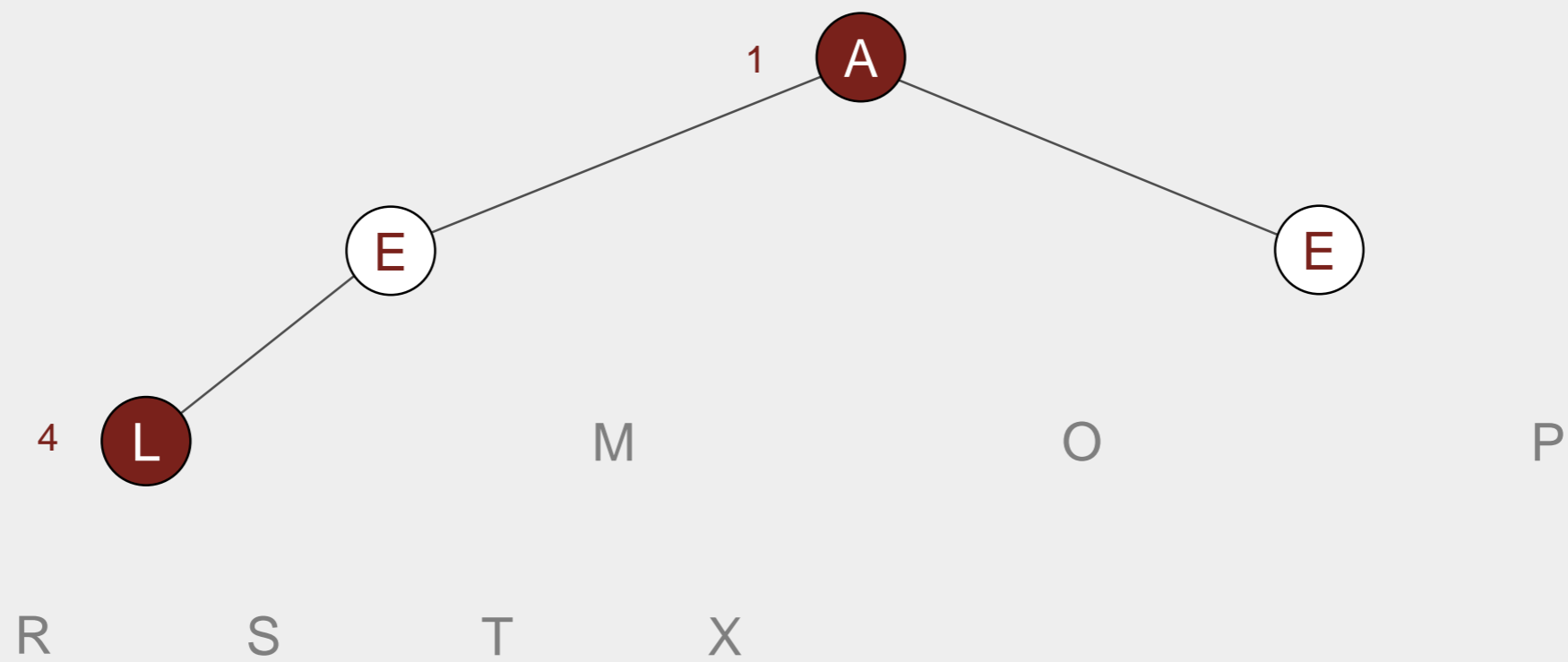
exchange 1 and 4



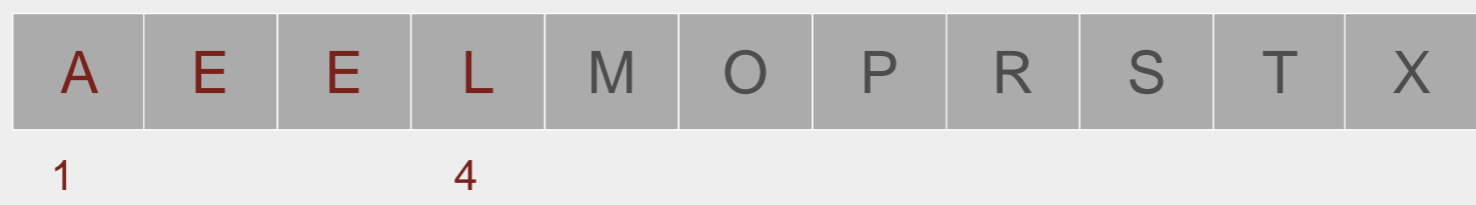
Heapsort

Sortdown. Repeatedly delete the largest remaining item.

exchange 1 and 4



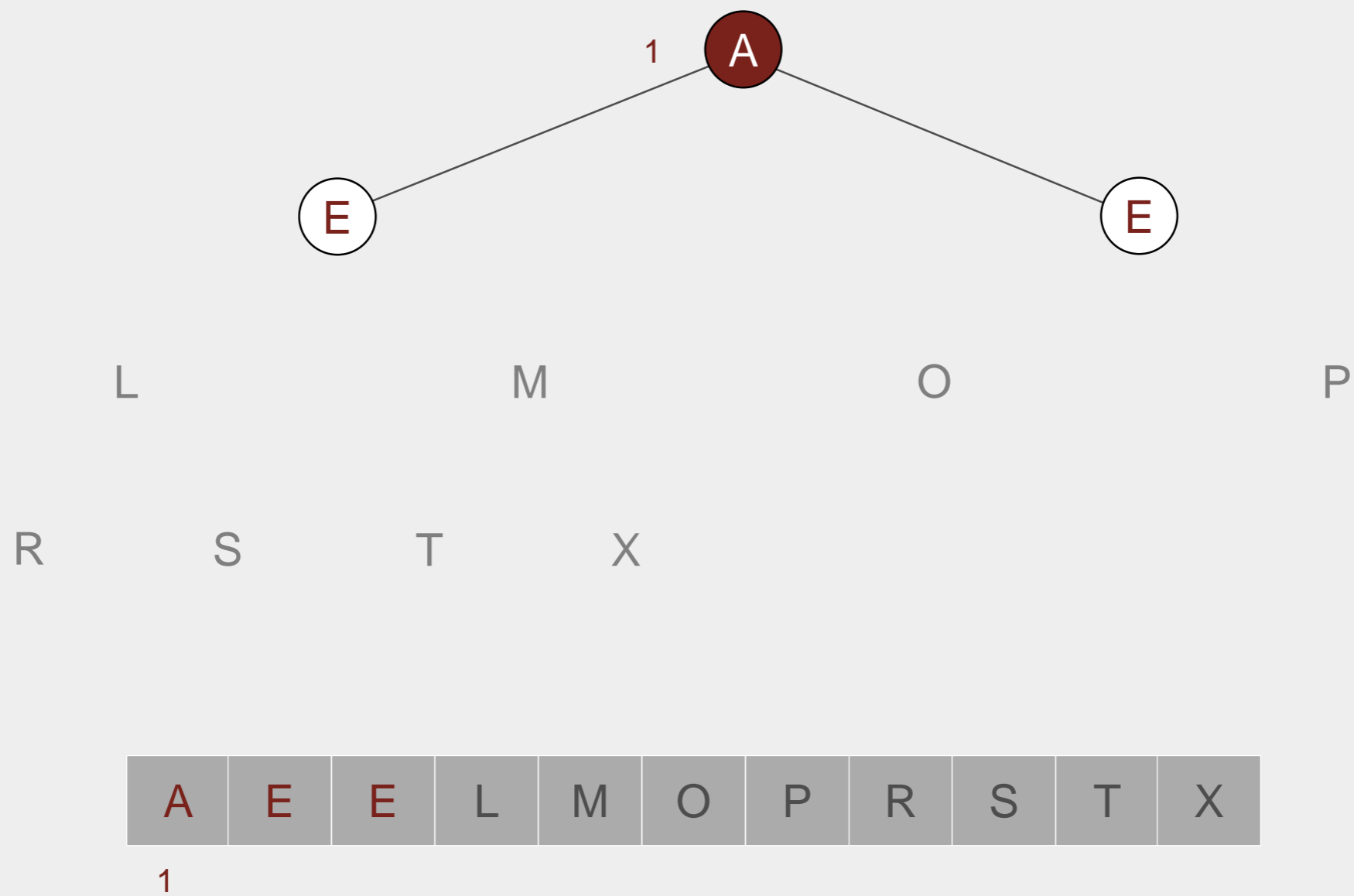
R S T X M O P



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

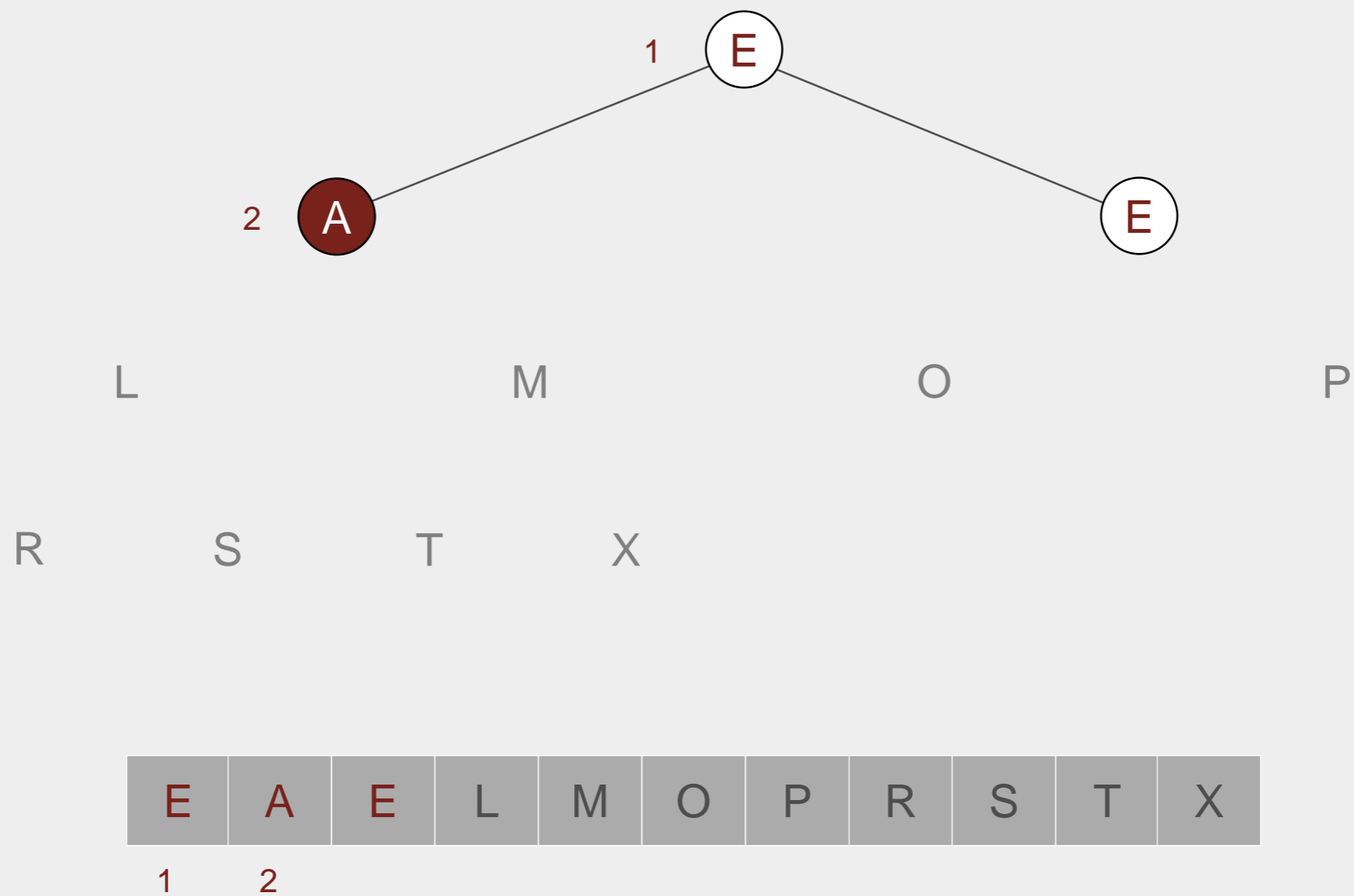
sink 1



Heapsort

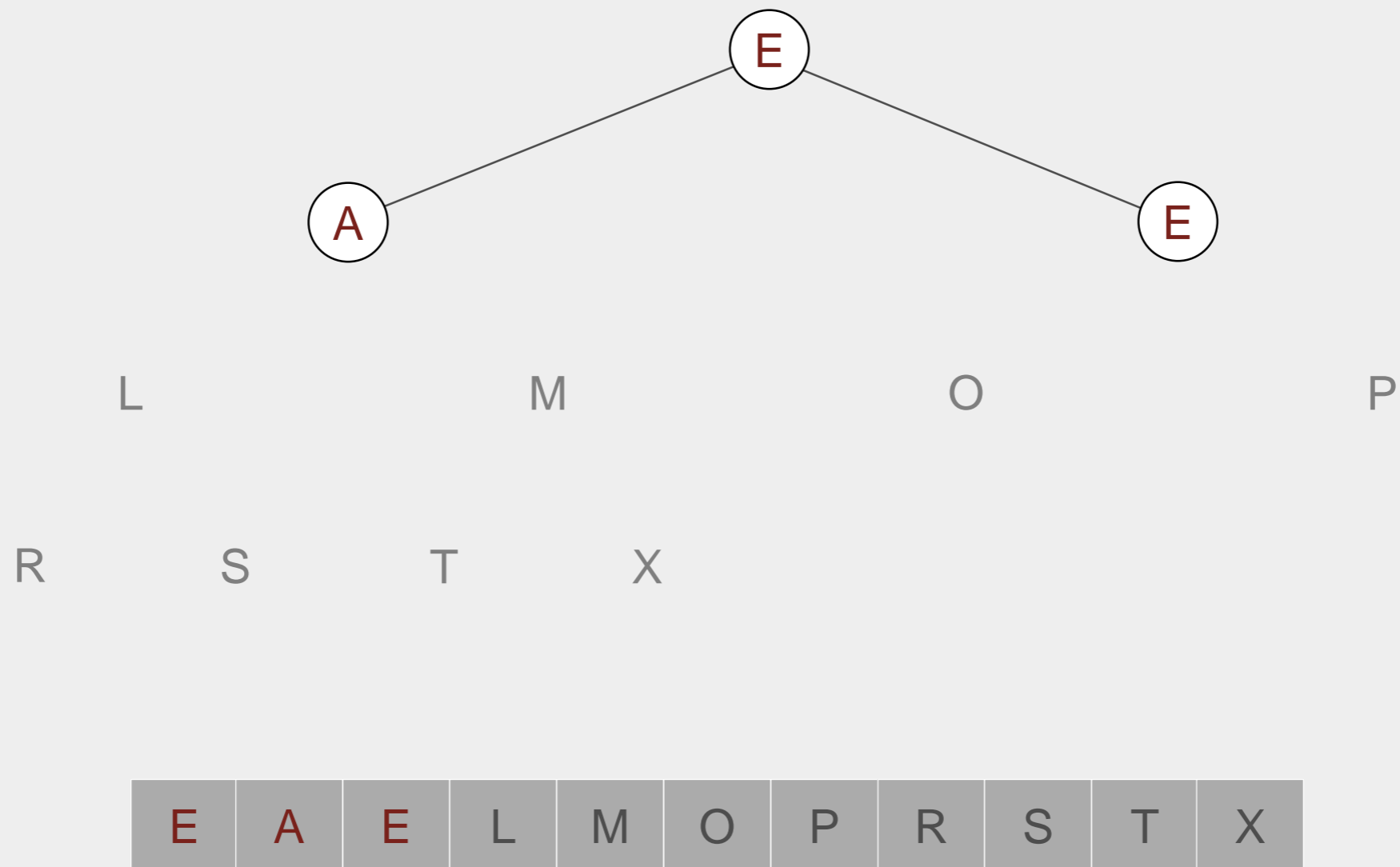
Sortdown. Repeatedly delete the largest remaining item.

sink 1



Heapsort

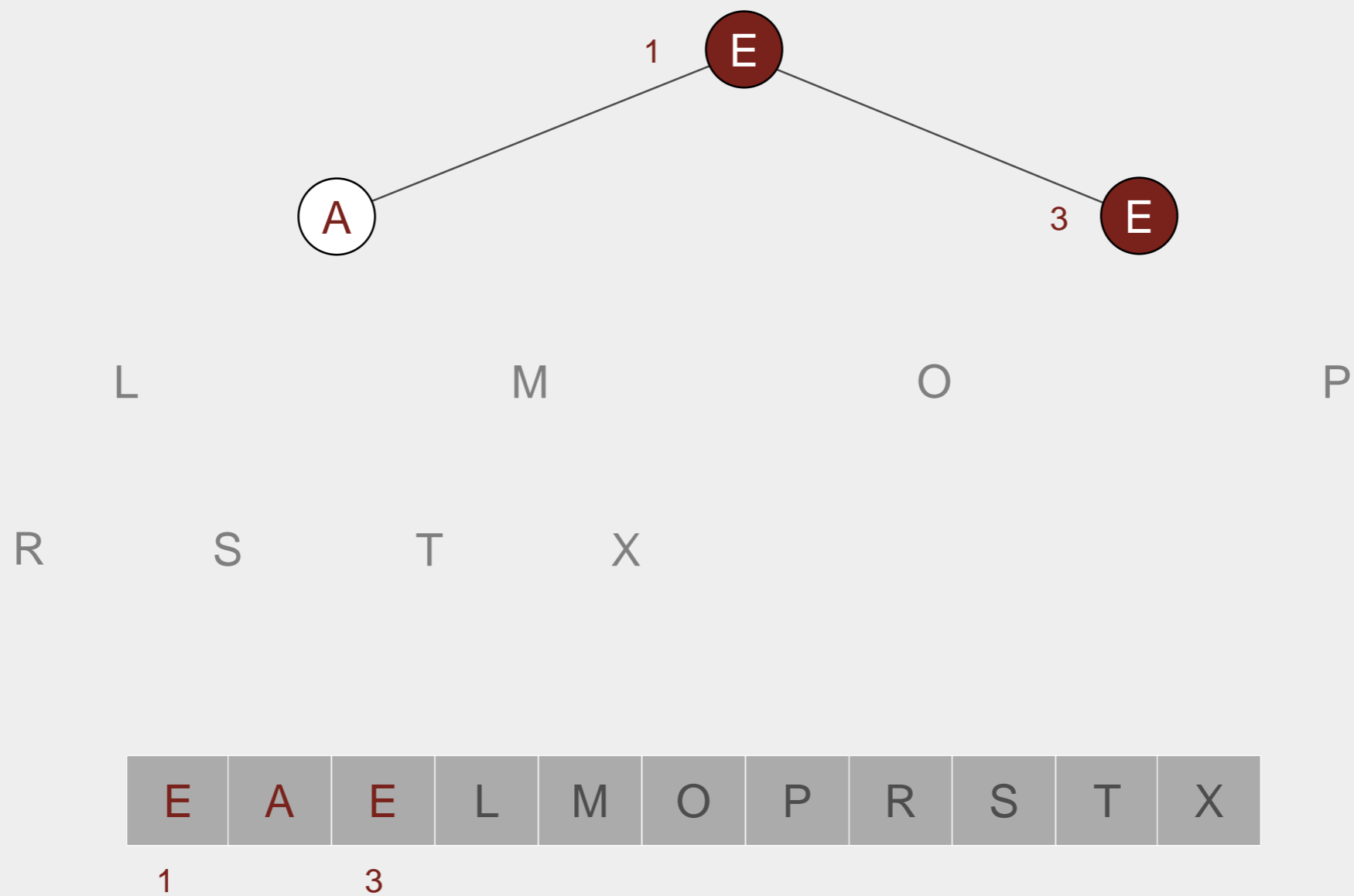
Sortdown. Repeatedly delete the largest remaining item.



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

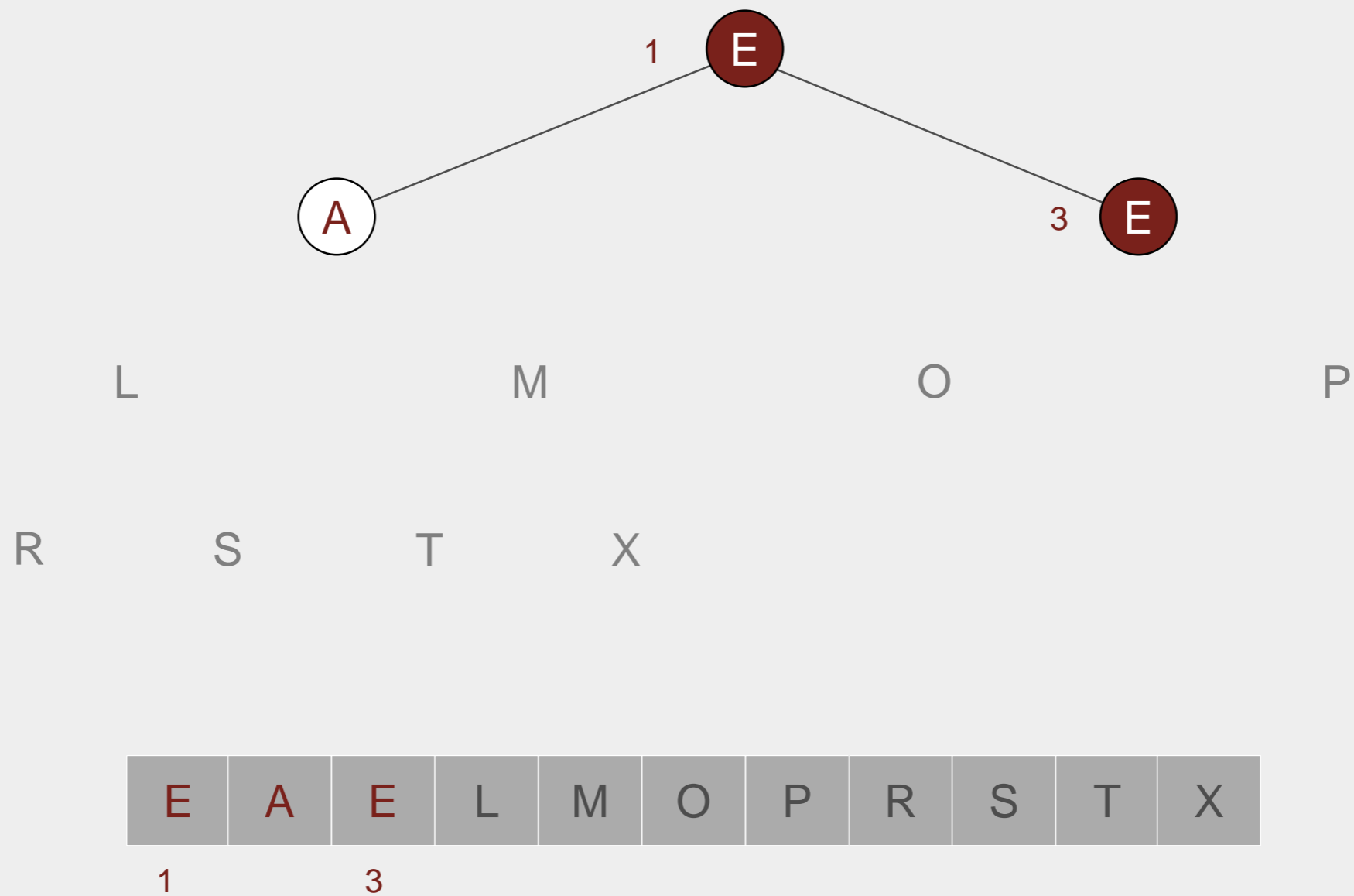
exchange 1 and 3



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

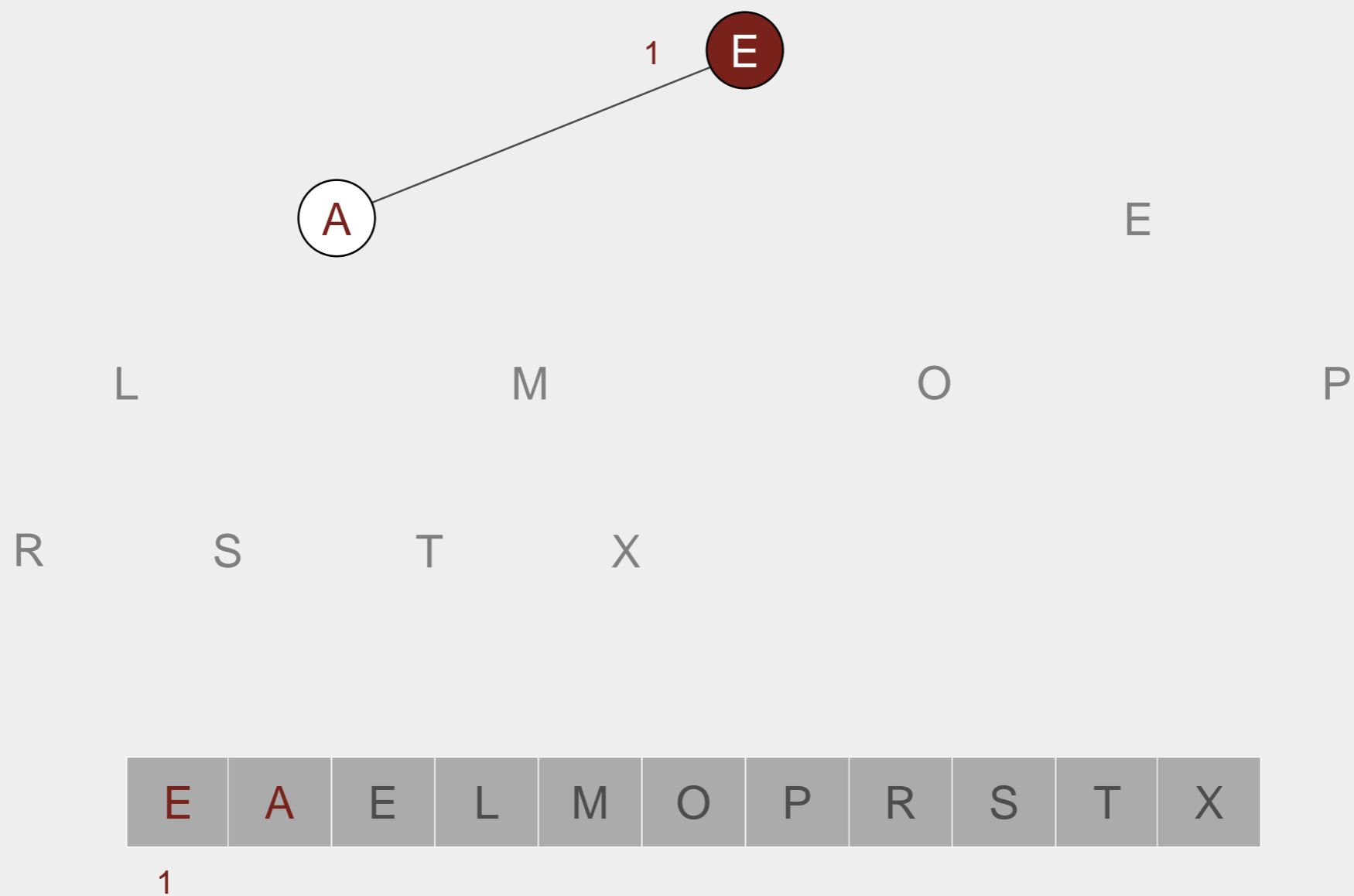
exchange 1 and 3



Heapsort

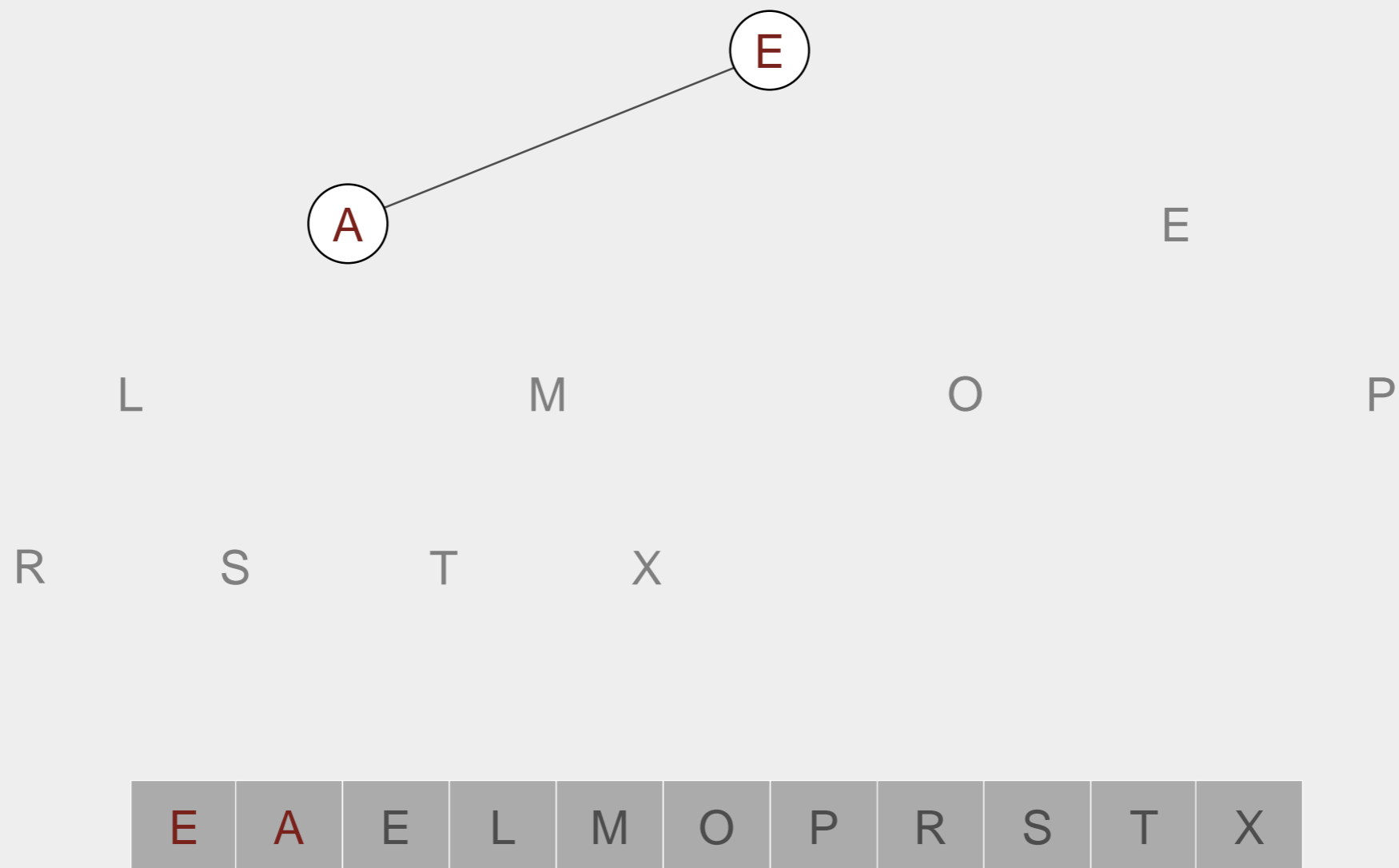
Sortdown. Repeatedly delete the largest remaining item.

sink 1



Heapsort

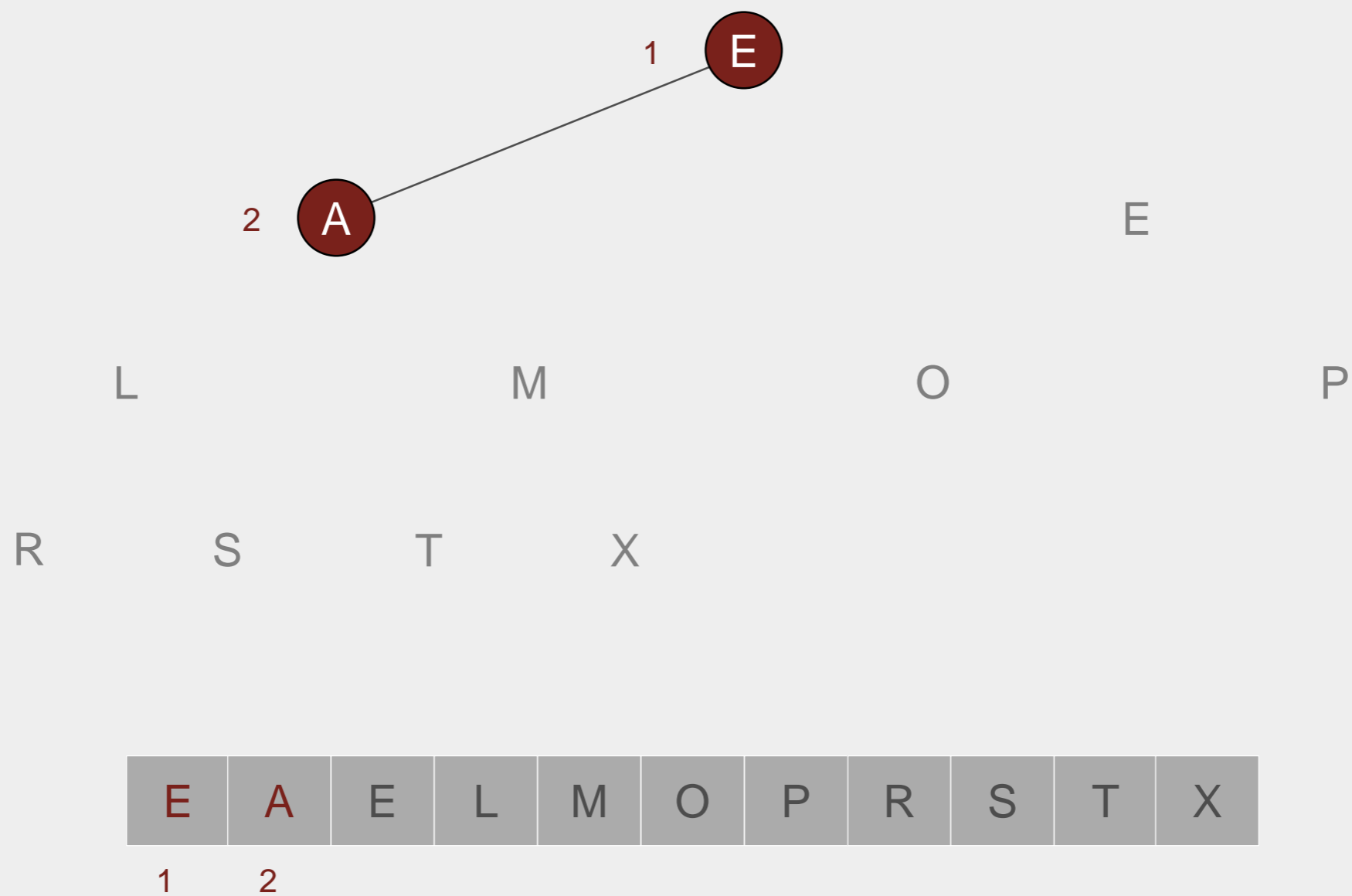
Sortdown. Repeatedly delete the largest remaining item.



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

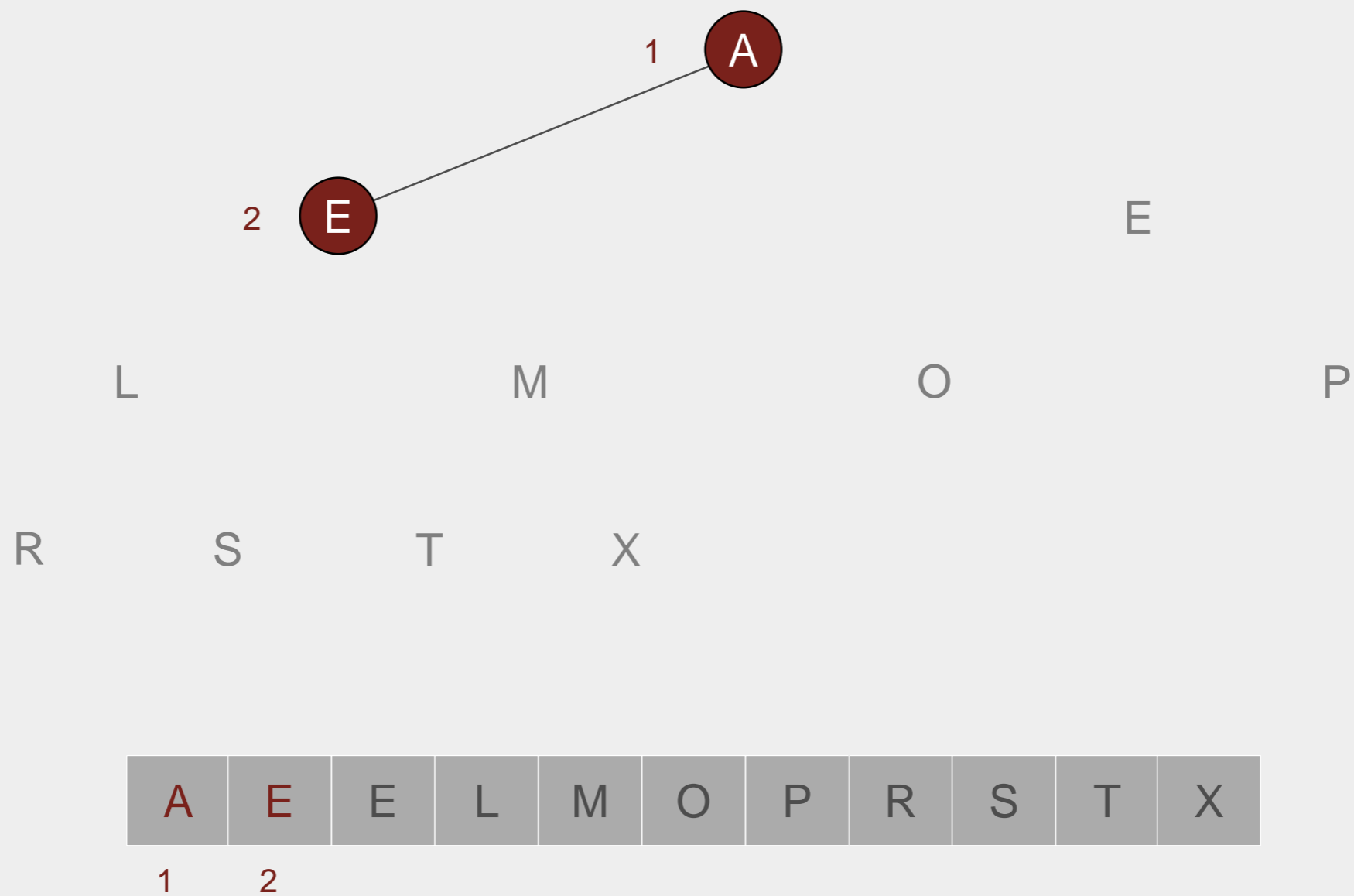
exchange 1 and 2



Heapsort

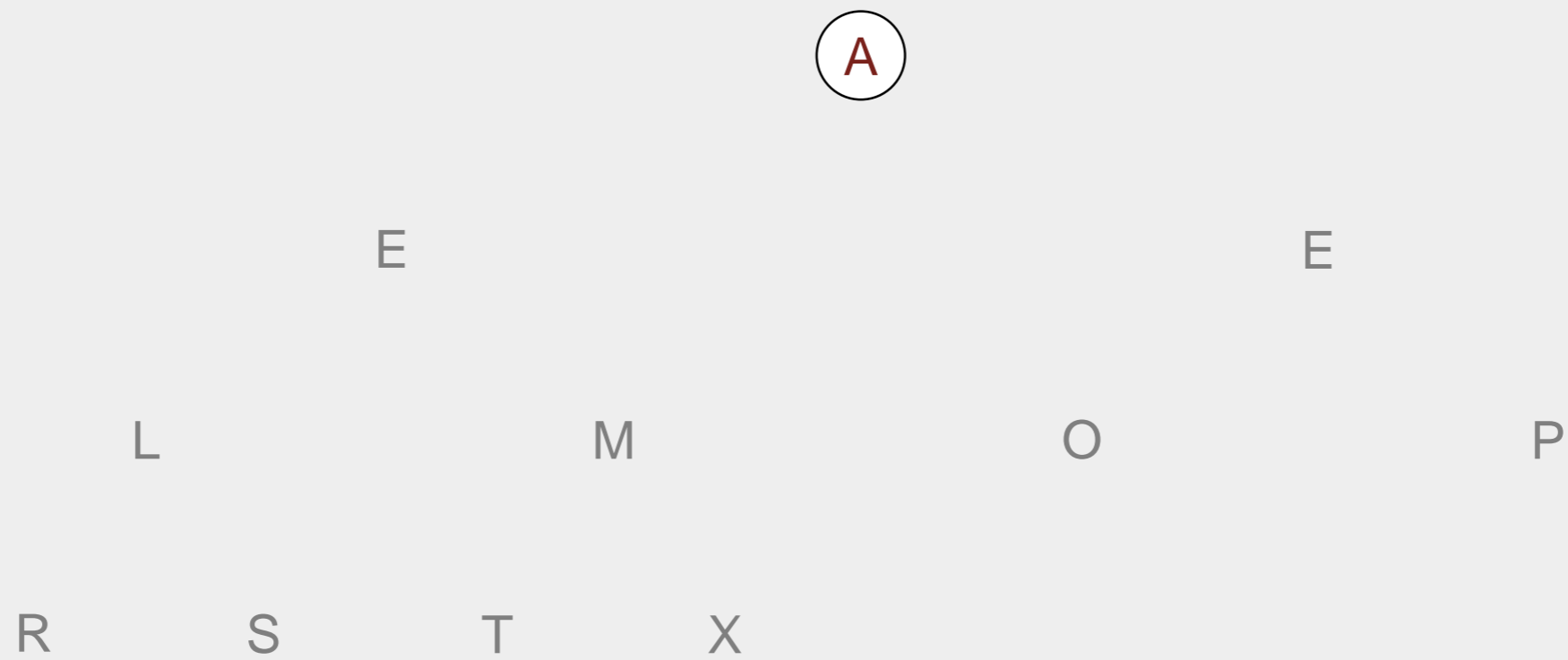
Sortdown. Repeatedly delete the largest remaining item.

exchange 1 and 2



Heapsort

Sortdown. Repeatedly delete the largest remaining item.



Heapsort

Sortdown. Repeatedly delete the largest remaining item.

end of sortdown phase



Heapsort

Ending point. Array in sorted order.



A	E	E	L	M	O	P	R	S	T	X
1	2	3	4	5	6	7	8	9	10	11