Probability	*Hypothesis*		
	$i = 1$	$i = 2$	$i = 3$
$p(H_i)$	0.40	0.35	0.25
$p(E_1 \mid H_i)$	0.3	0.8	0.5
$p(E_2 \mid H_i)$	0.9	0.0	0.7
$p(E_3 \mid H_i)$	0.6	0.7	0.9

Assume that we first observe evidence E_3. The expert system computes the posterior probabilities for all hypotheses as

$$p(H_i|E_3)=\frac{p(E_3|H_i)\times p(H_i)}{\sum_{k=1}^{3} p(E_3|H_i)\times p(H_k)}, \qquad i=1,2,3$$

Thus,

$$p(H_1|E_3)=\frac{0.6\cdot 0.40}{0.6\cdot 0.40+0.7\cdot 0.35+0.9\cdot 0.25}=0.34$$

$$p(H_2|E_3)=\frac{0.7\cdot 0.35}{0.6\cdot 0.40+0.7\cdot 0.35+0.9\cdot 0.25}=0.34$$

$$p(H_3|E_3)=\frac{0.9\cdot 0.25}{0.6\cdot 0.40+0.7\cdot 0.35+0.9\cdot 0.25}=0.32$$

Suppose now that we observe evidence E_1. The posterior probabilities are calculated as

$$p(H_i|E_1E_3)=\frac{p(E_1|H_i)\times p(E_3|H_i)\times p(H_i)}{\sum_{k=1}^{3} p(E_1|H_i)\times p(E_3|H_i)\times p(H_k)}, \qquad i=1,2,3$$

Hence,

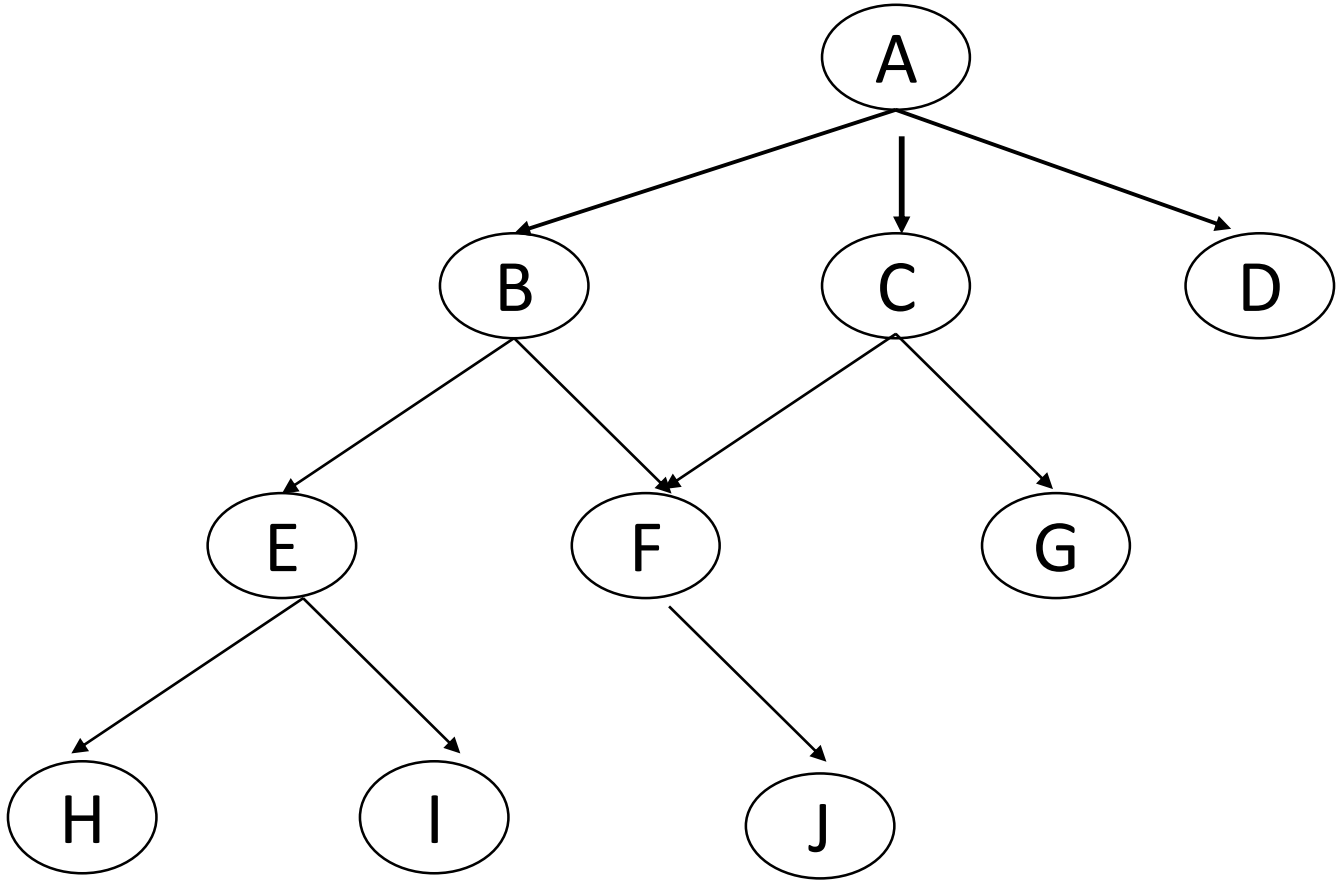
$$p(H_1|E_1E_3)=\frac{0.3\cdot 0.6\cdot 0.40}{0.3\cdot 0.6\cdot 0.40+0.8\cdot 0.7\cdot 0.35+0.5\cdot 0.9\cdot 0.25}=0.19$$

$$p(H_2|E_1E_3)=\frac{0.8\cdot 0.7\cdot 0.35}{0.3\cdot 0.6\cdot 0.40+0.8\cdot 0.7\cdot 0.35+0.5\cdot 0.9\cdot 0.25}=0.52$$

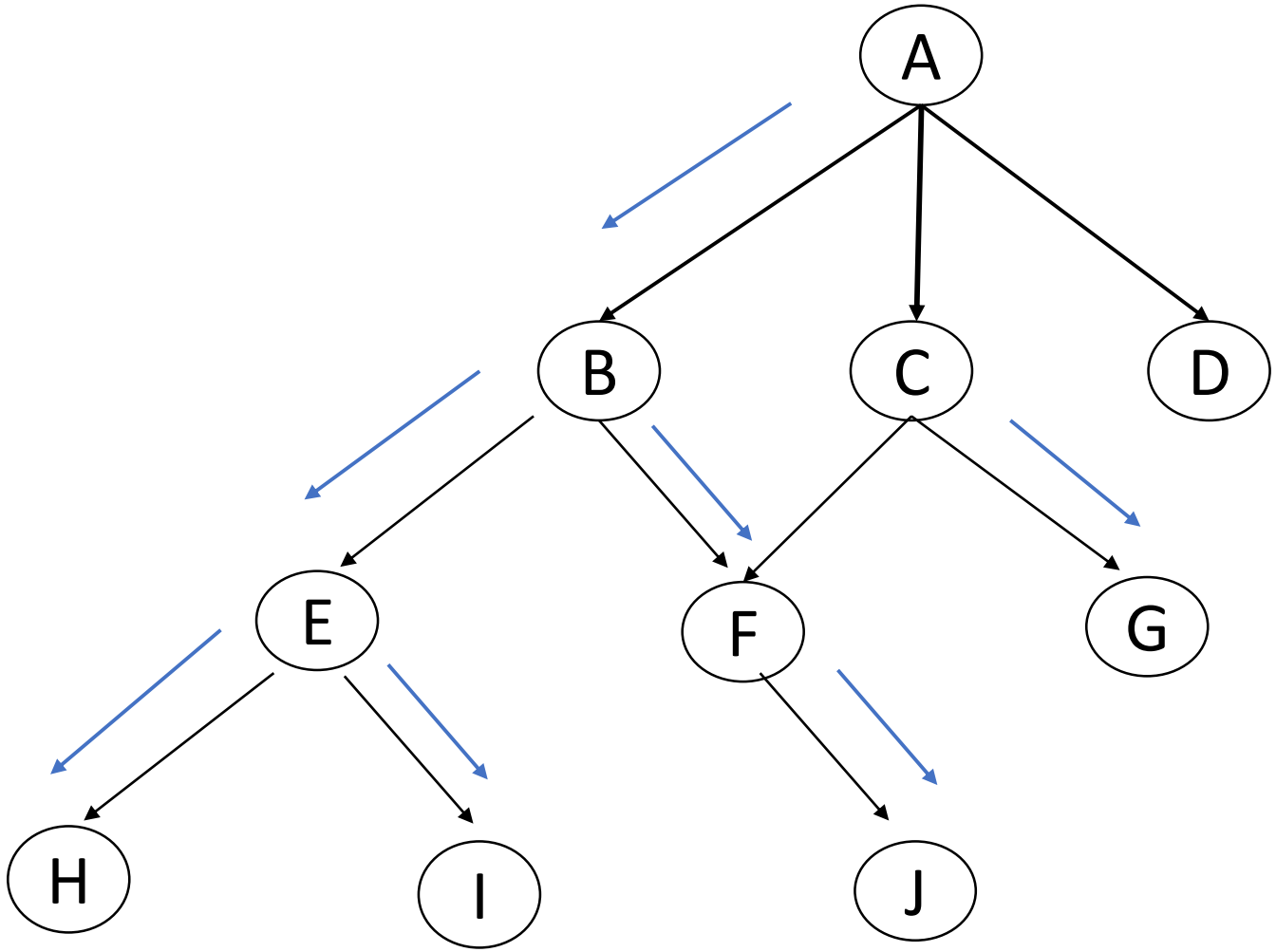
$$p(H_3|E_1E_3)=\frac{0.5\cdot 0.9\cdot 0.25}{0.3\cdot 0.6\cdot 0.40+0.8\cdot 0.7\cdot 0.35+0.5\cdot 0.9\cdot 0.25}=0.29$$

Hypothesis H_2 has now become the most likely one.

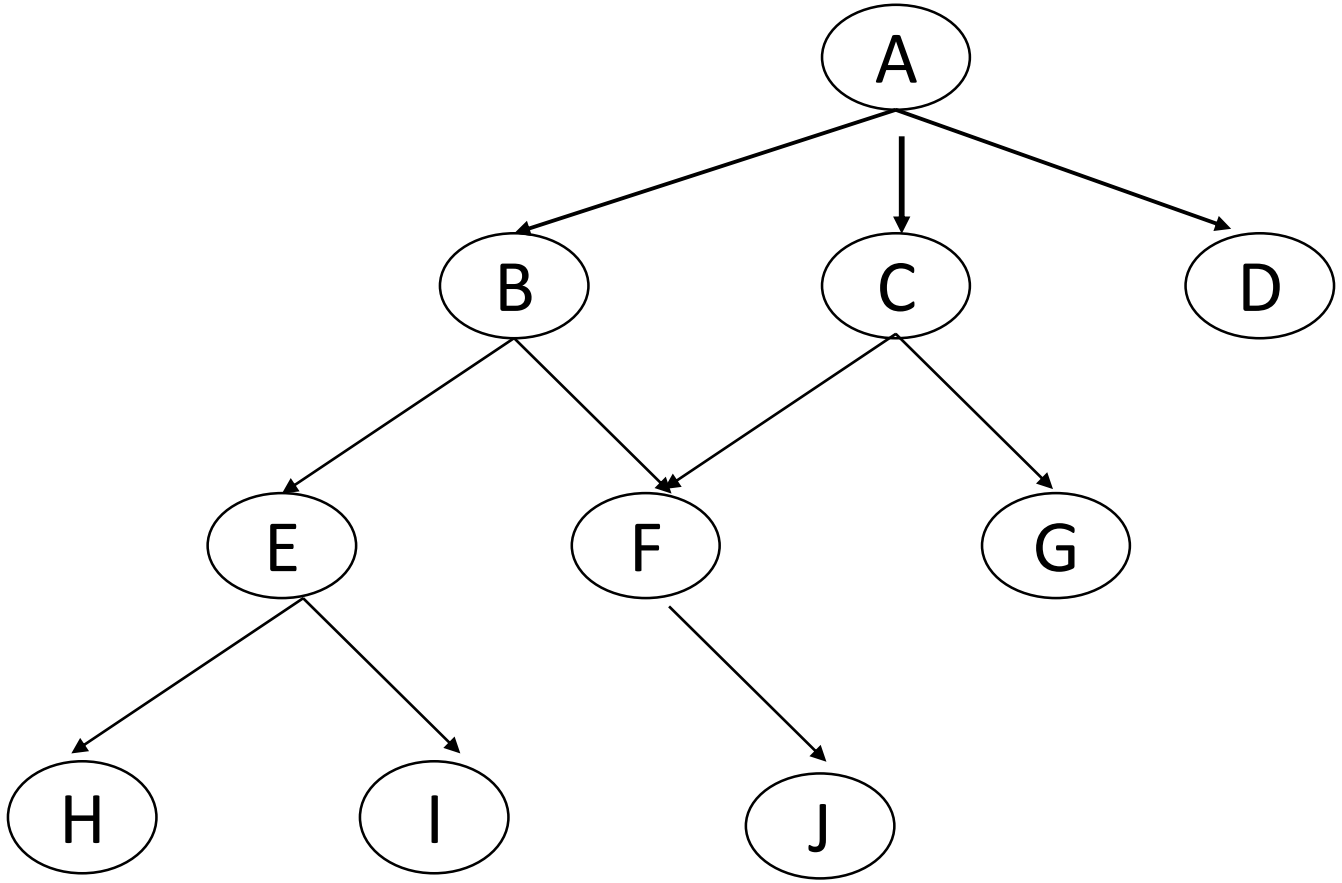
Apply the depth first search algorithm on the following graph, where the start state is (A) and the desired goal state is (G)



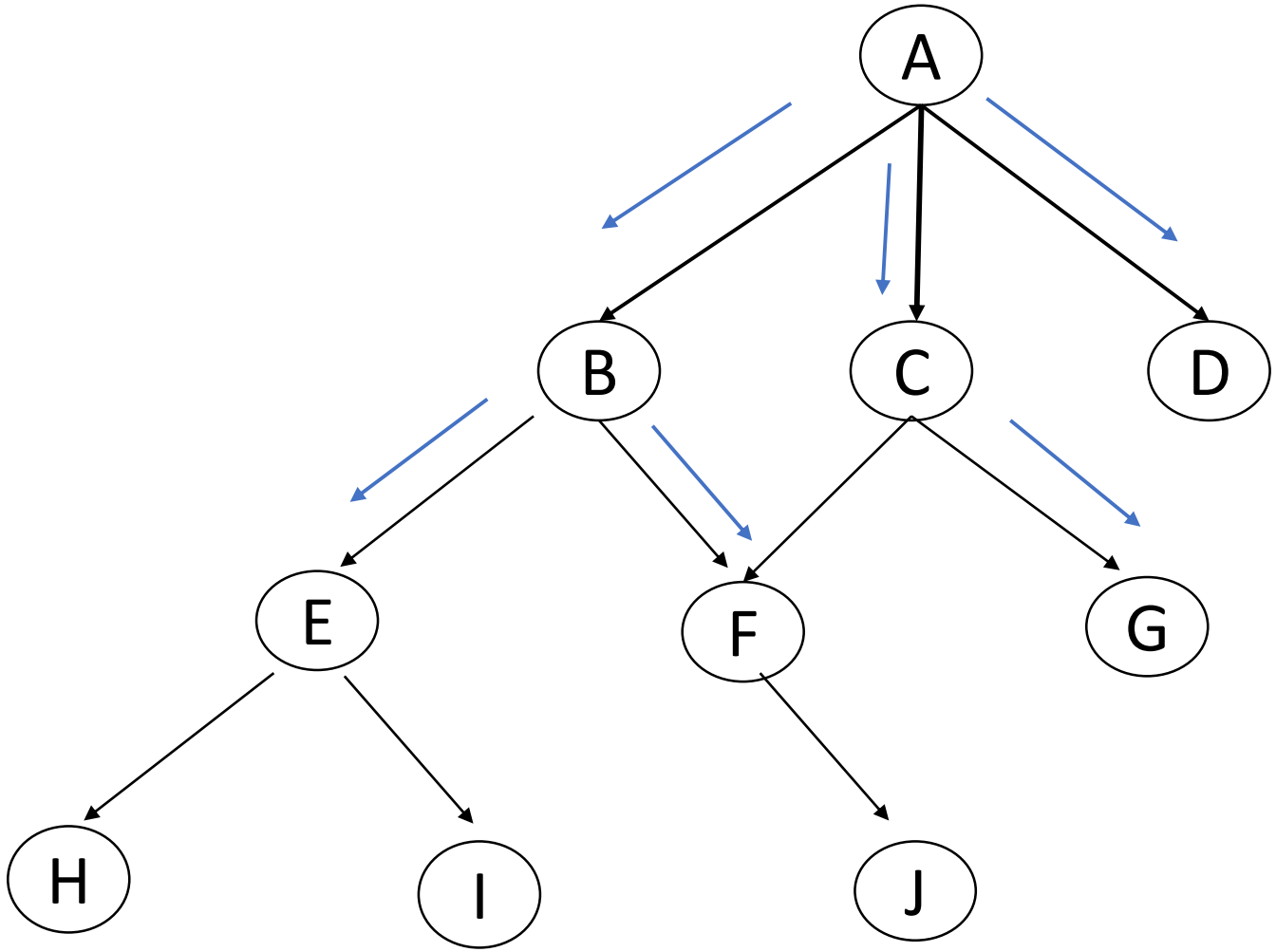
Iteration	X	Open	Closed
0	-	[A]	[]
1	A	[BCD]	[A]
2	B	[EFCD]	[BA]
3	E	[HIFCD]	[EBA]
4	H	[IFCD]	[HEBA]
5	I	[FCD]	[IHEBA]
6	F	[JCD]	[FIHEBA]
7	J	[CD]	[JFIHEBA]
8	C	[GD]	[CJFIHEBA]
9	G	G is the goal	



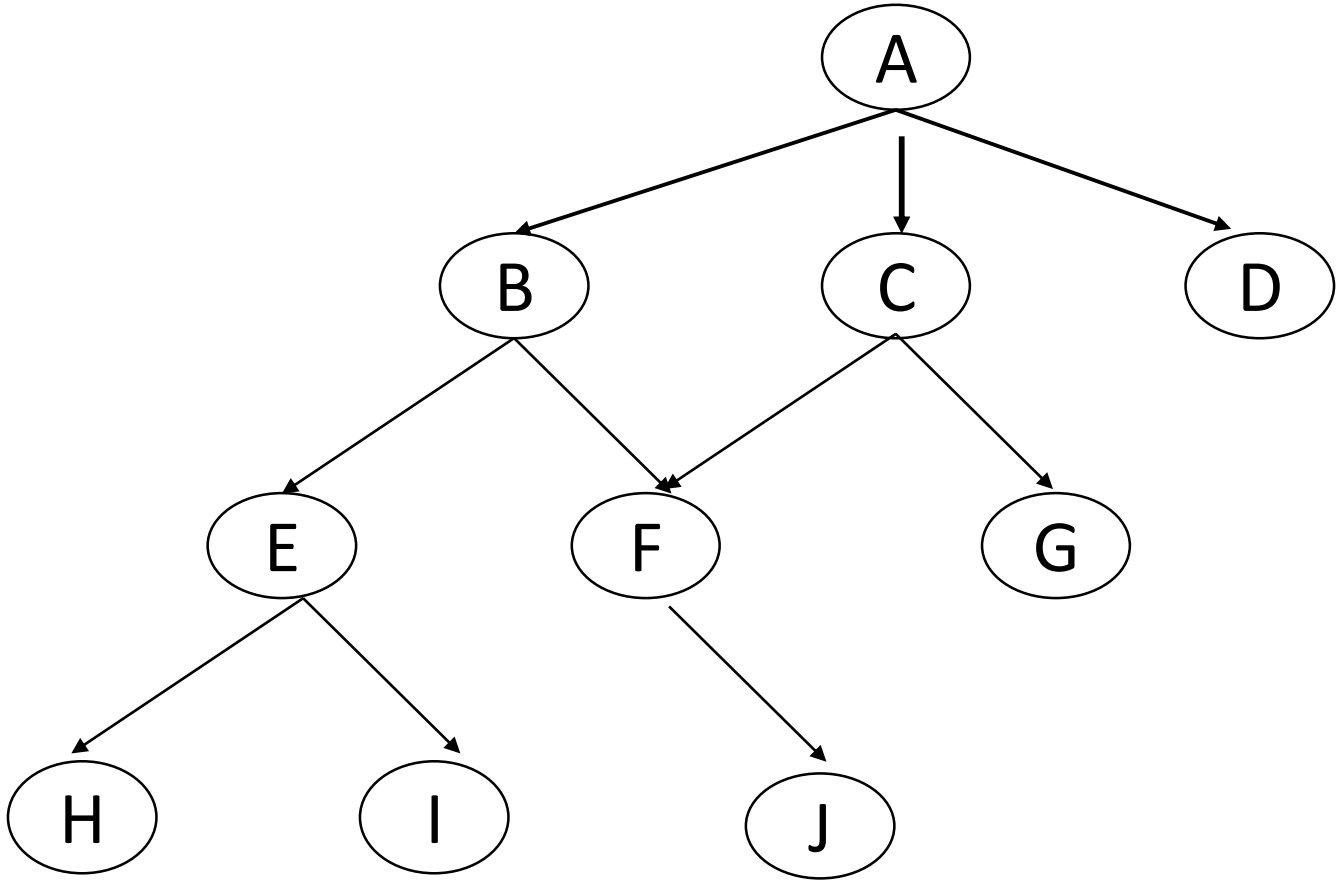
Apply the Breadth first search algorithm on the following graph, where the start state is (A) and the desired goal state is (G)



Iteration	X	Open	Closed
0	-	[A]	[]
1	A	[BCD]	[A]
2	B	[CDEF]	[BA]
3	C	[DEFG]	[CBA]
4	D	[EFG]	[DCBA]
5	E	[FGHI]	[EDCBA]
6	F	[GHIJ]	[FEDCBA]
7	G	G is the goal	

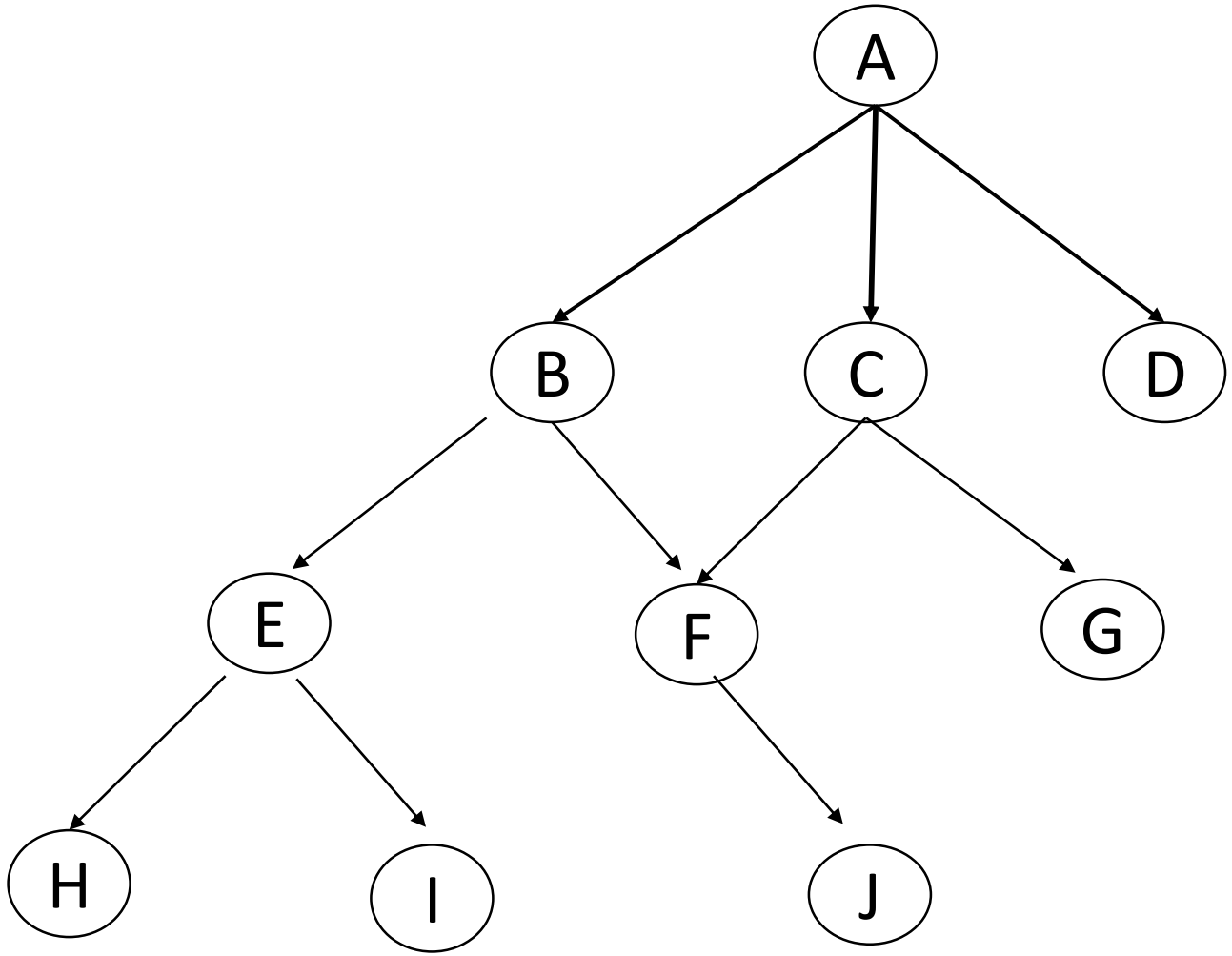


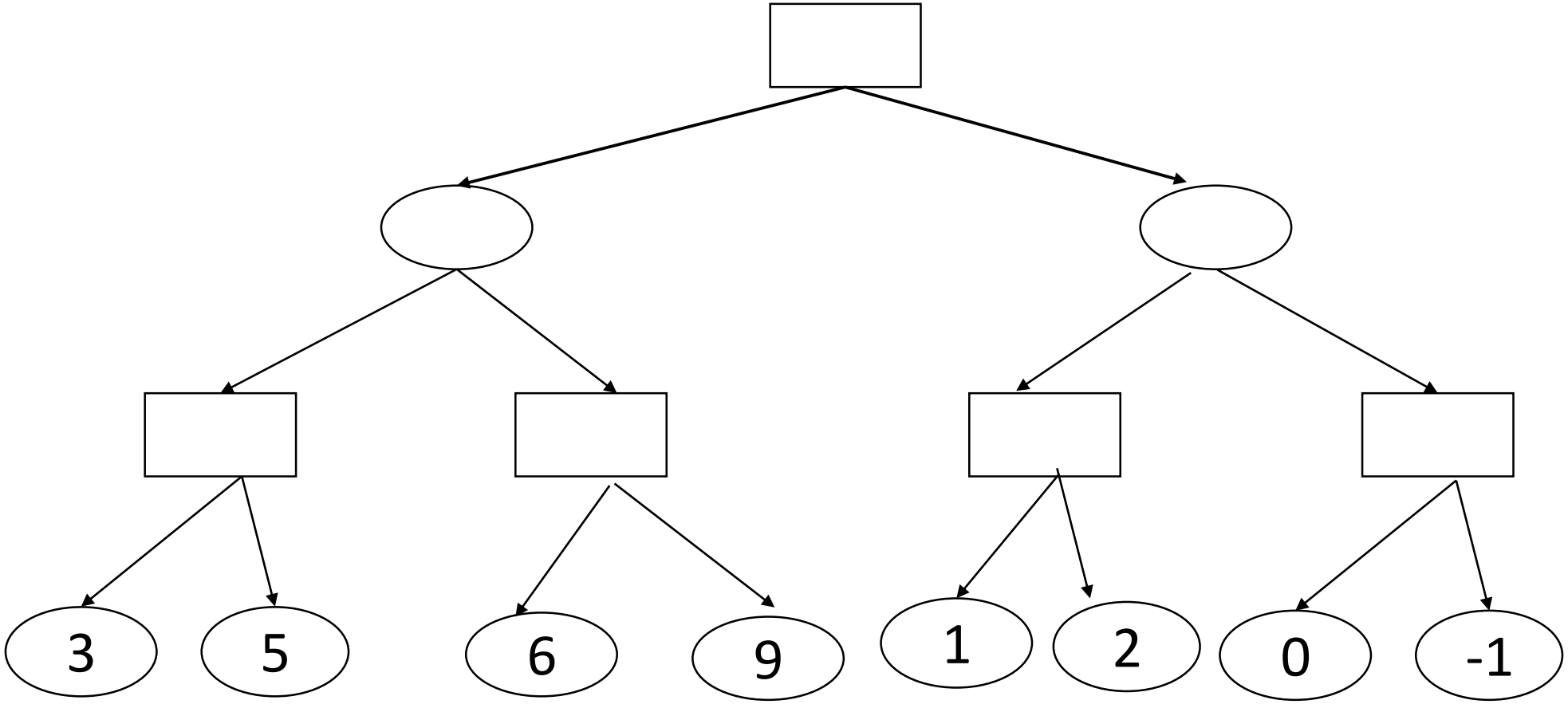
Apply the BackTrack search algorithm on the following graph, where the start state is (A) and the desired goal state is (G)

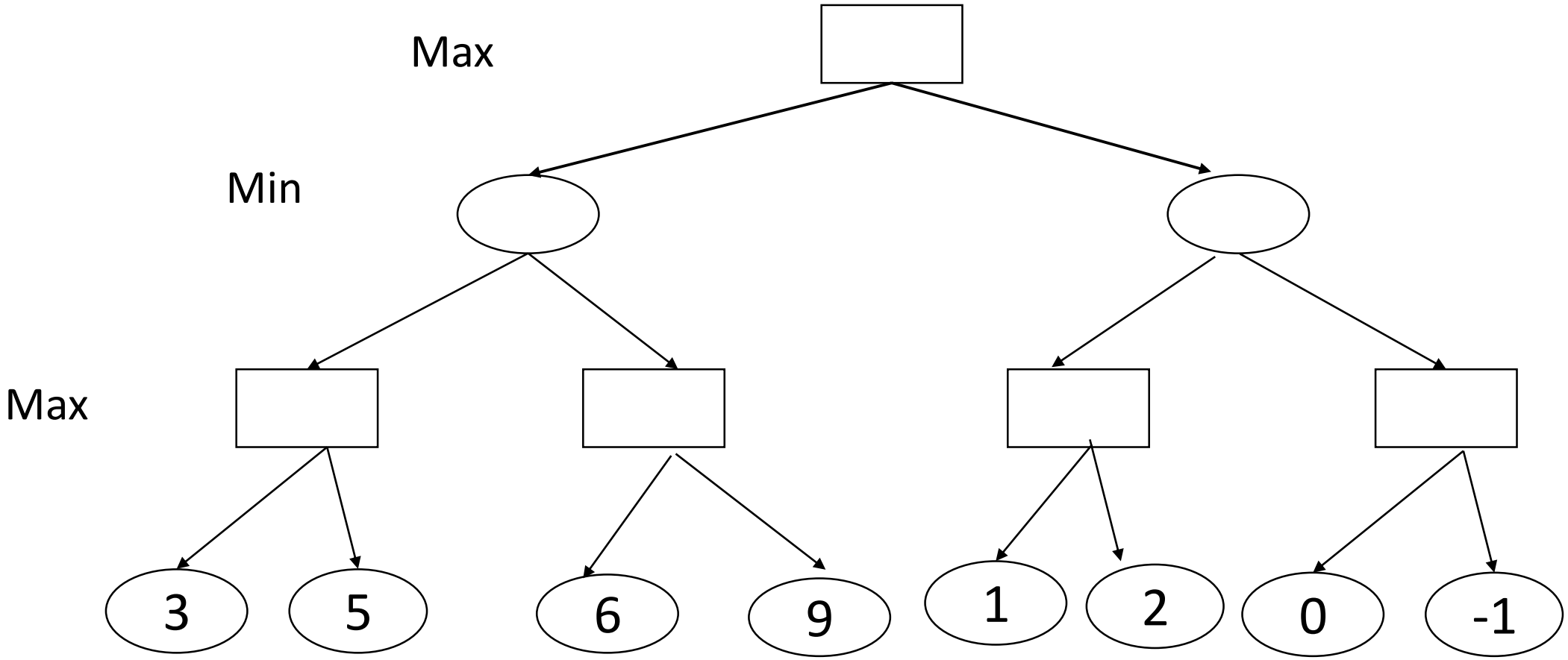


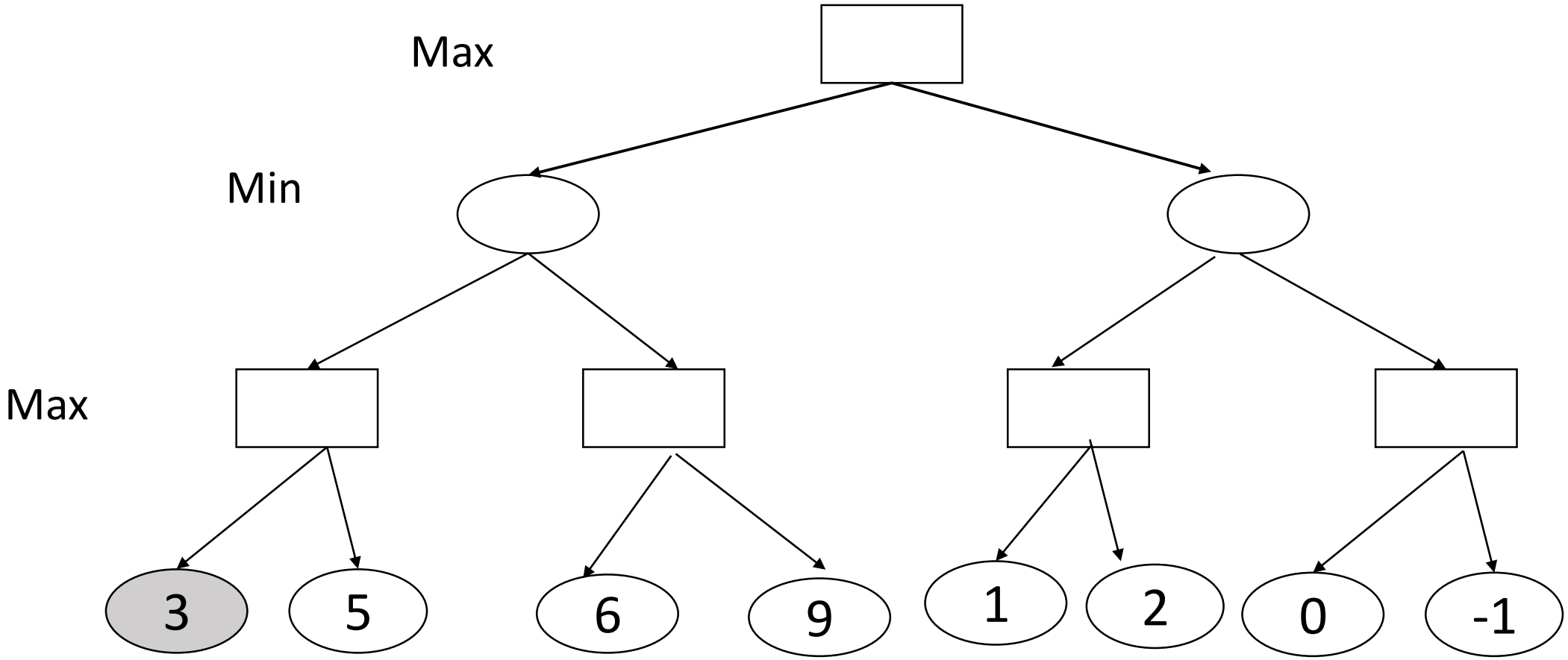
الالجوزيم هنا ليه طريقين
أولا: ان Node ليها children فكدا هيضيفها في SL ويضيف ال children بتوعها في NSL وال DE زي ما هي هسيبها
ثانيا: ان Node دي ملهاش children فكدا هيكرر مجموعه من الخطوات تحت شرط ان CS تساوي اول عنصر ف SL فكدا هضيف ال nodeدي في DE وهحذف اول عنصر في SLو NSL وهاخد اول عنصر ف NSL وأحطه في CS

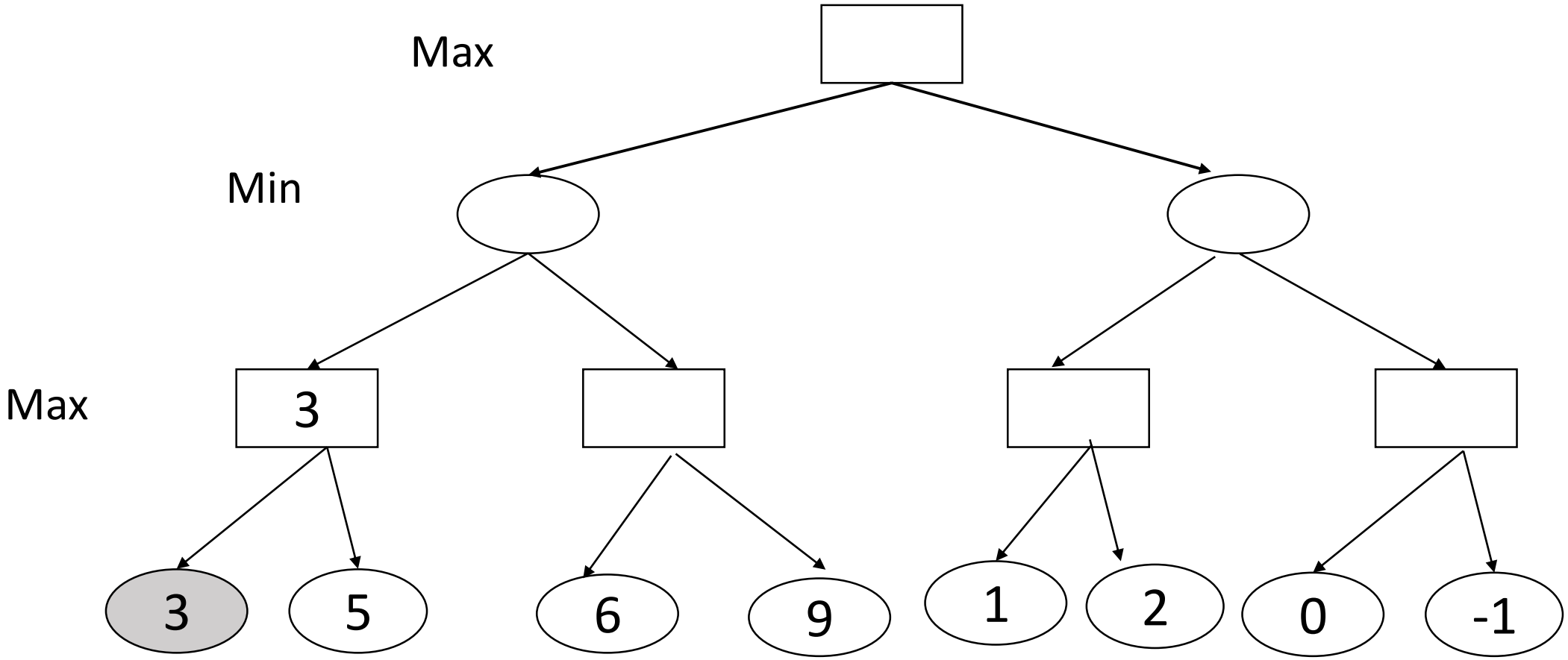
Iteration	CS	SL	NSL	DE
0	A	[A]	[A]	[]
1	B	[BA]	[BCDA]	[]
2	E	[EBA]	[EFBCDA]	[]
3	H	[HEBA]	[HIEFBCDA]	[]
	I	[EBA]	[IEFBCDA]	[H]
4	I	[IEBA]	[IEFBCDA]	[H]
	E	[EBA]	[EFBCDA]	[IH]
	F	[BA]	[FBCDA]	[EIH]
5	F	[FBA]	[FBCDA]	[EIH]
6	J	[JFBA]	[JFBCDA]	[EIH]
	F	[FBA]	[FBCDA]	[JEIH]
	B	[BA]	[BCDA]	[FJEIH]
	C	[A]	[CDA]	[BJEIH]
7	C	[CA]	[CDA]	[BJEIH]
8	G	[GCA]	[GCDA]	[BJEIH]
9	G is the goal, path = GCA			

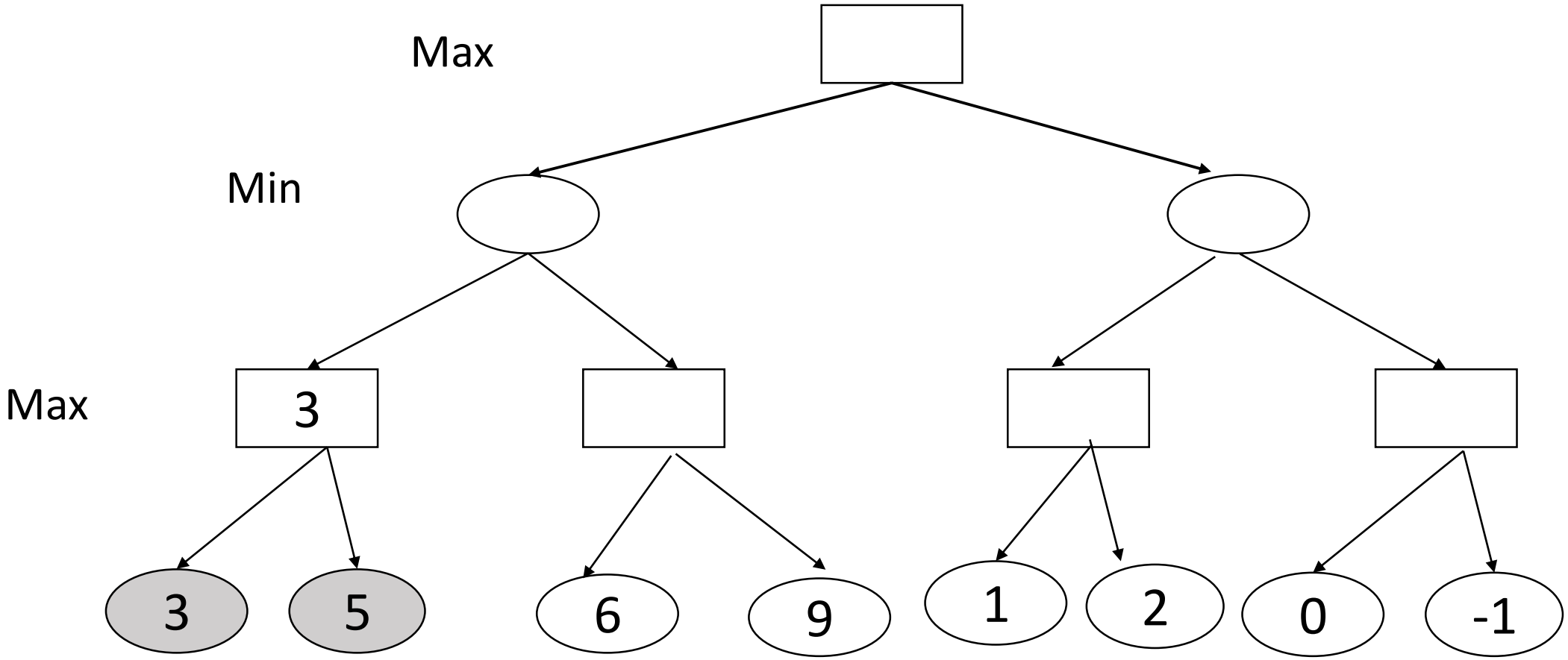


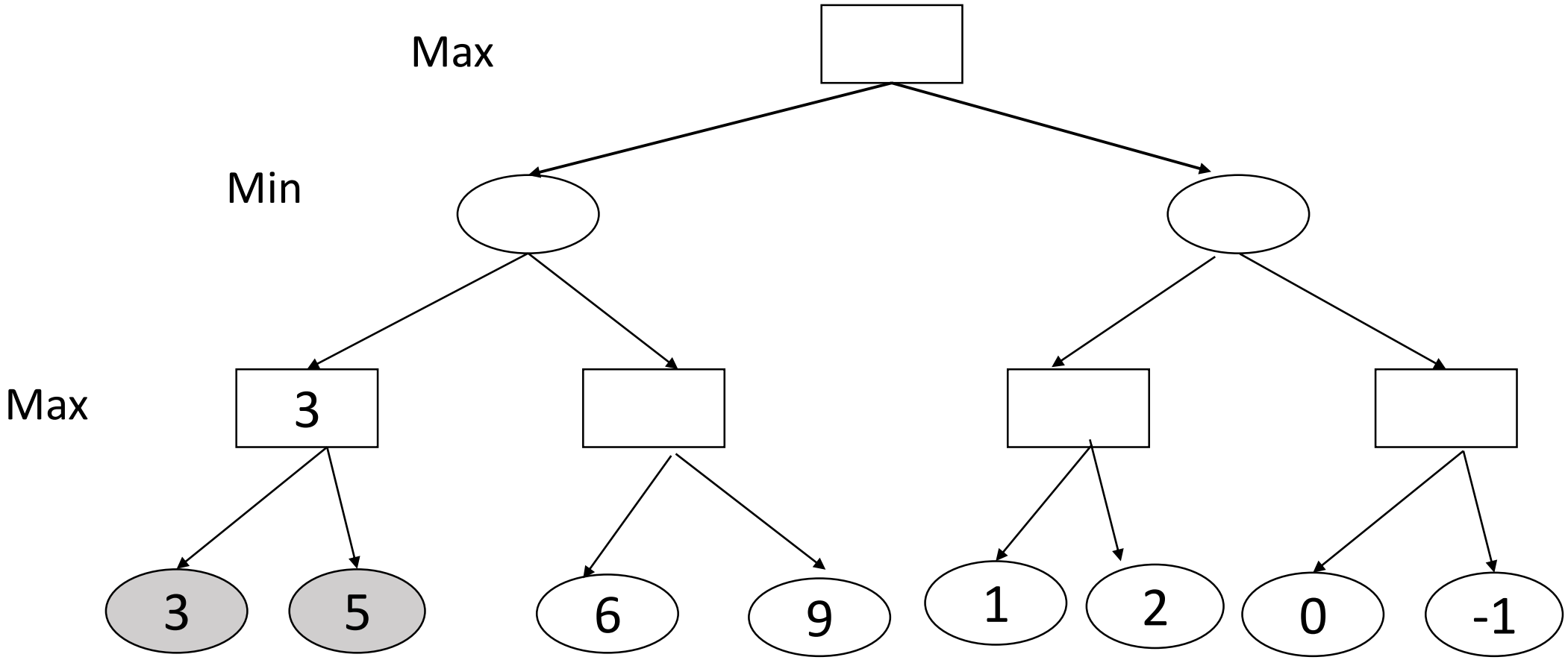

3
5
6
9
1
2
0
-1

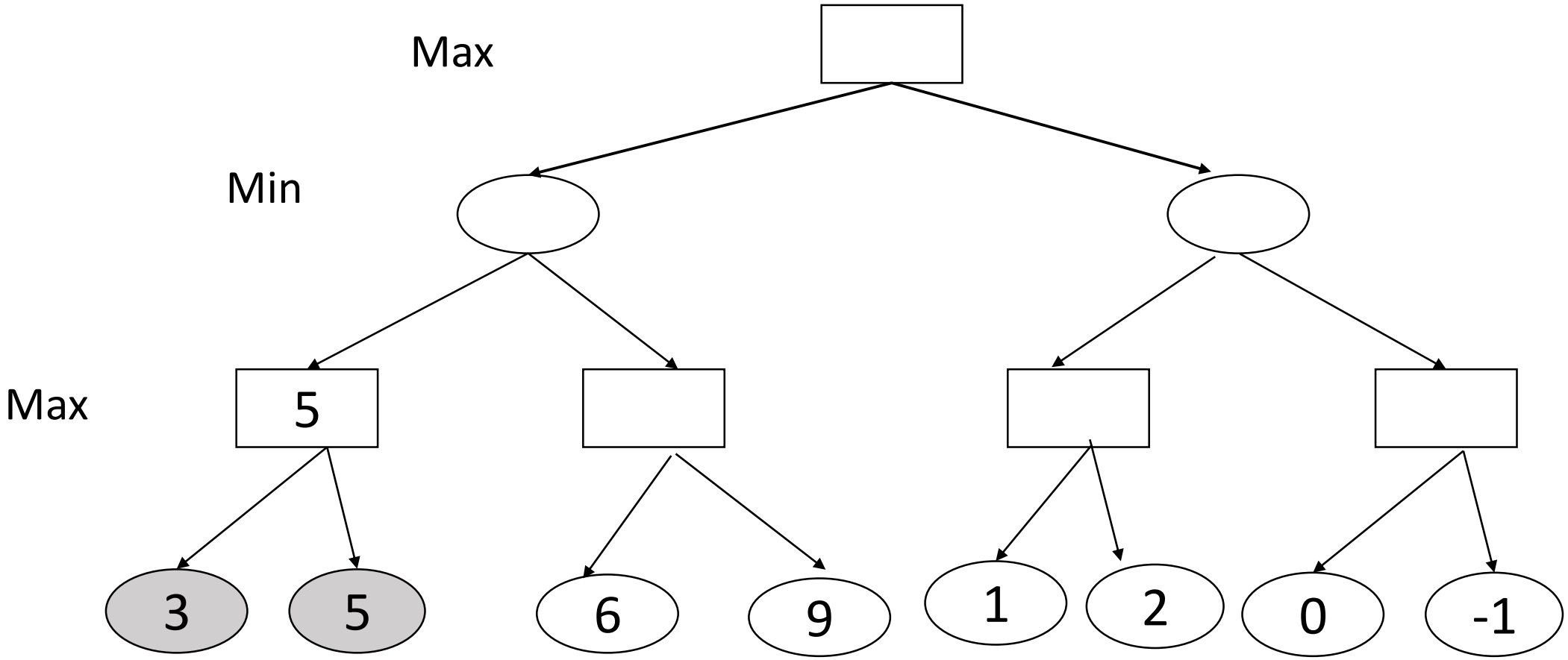

Max
Min
Max
3
5
6
9
1
2
0
-1

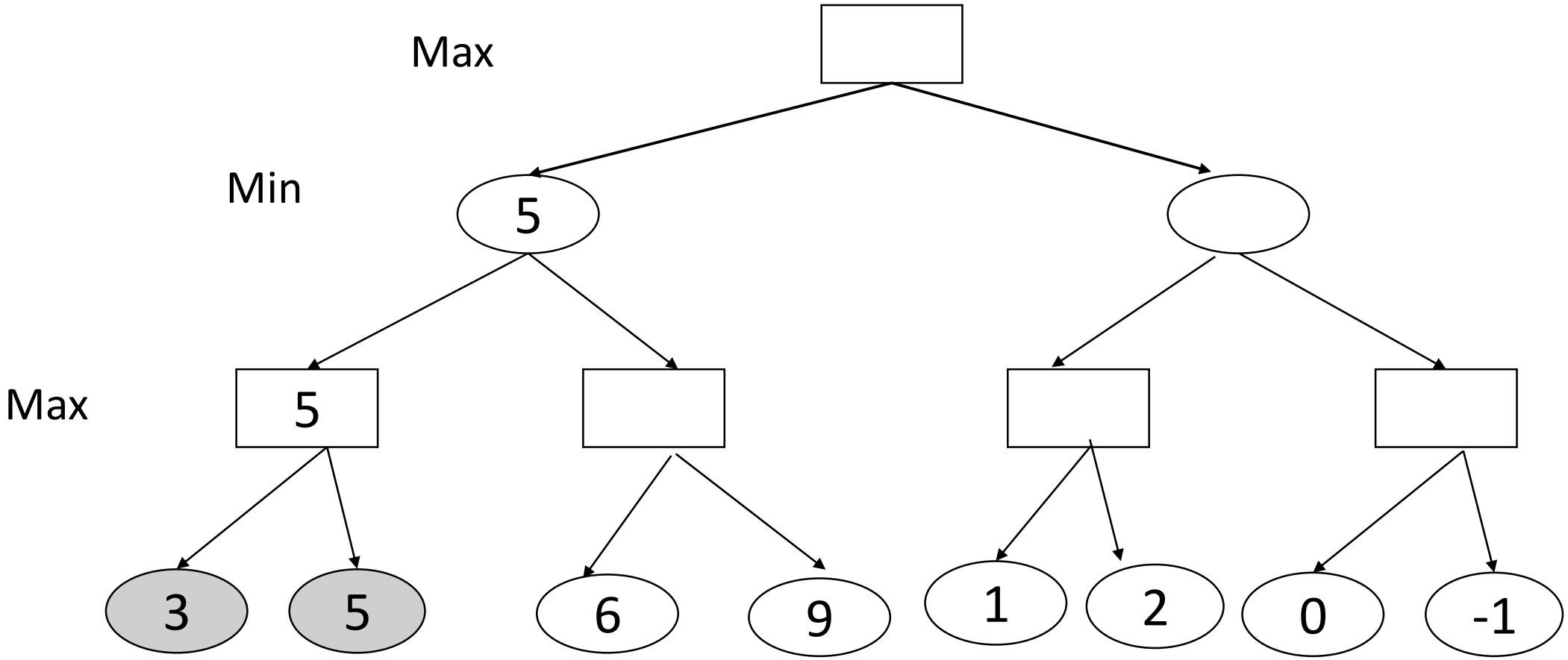

Max
Min
Max
3
5
6
9
1
2
0
-1

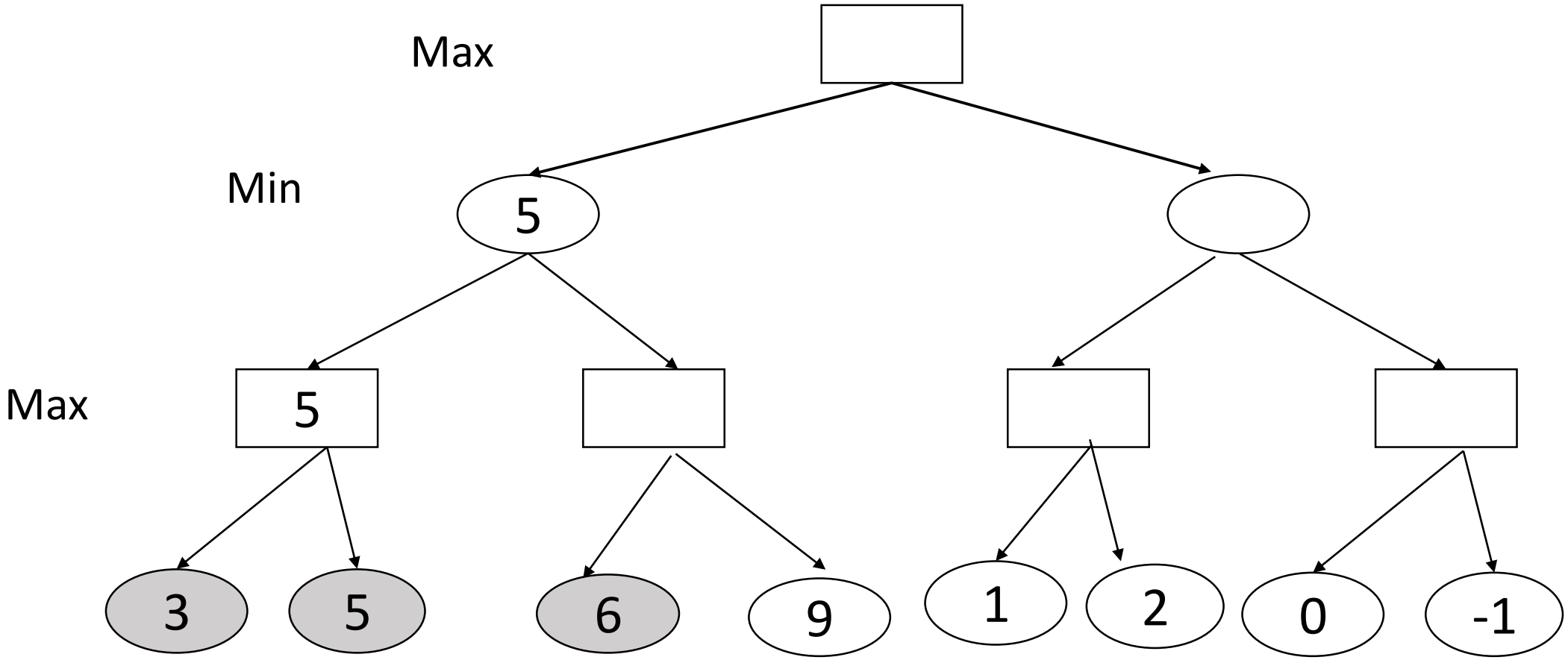

Max
Min
Max
3
3
5
6
9
1
2
0
-1

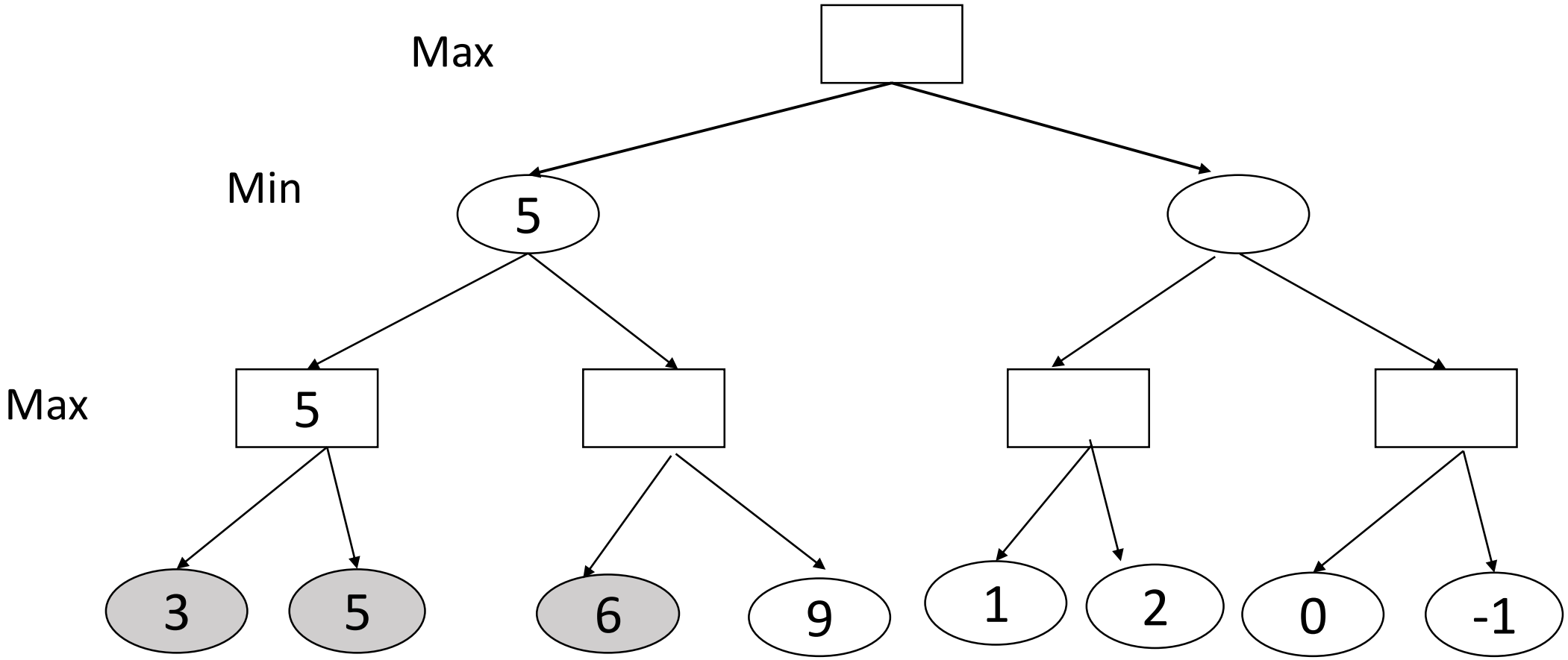

Max
Min
Max
3
3
5
6
9
1
2
0
-1

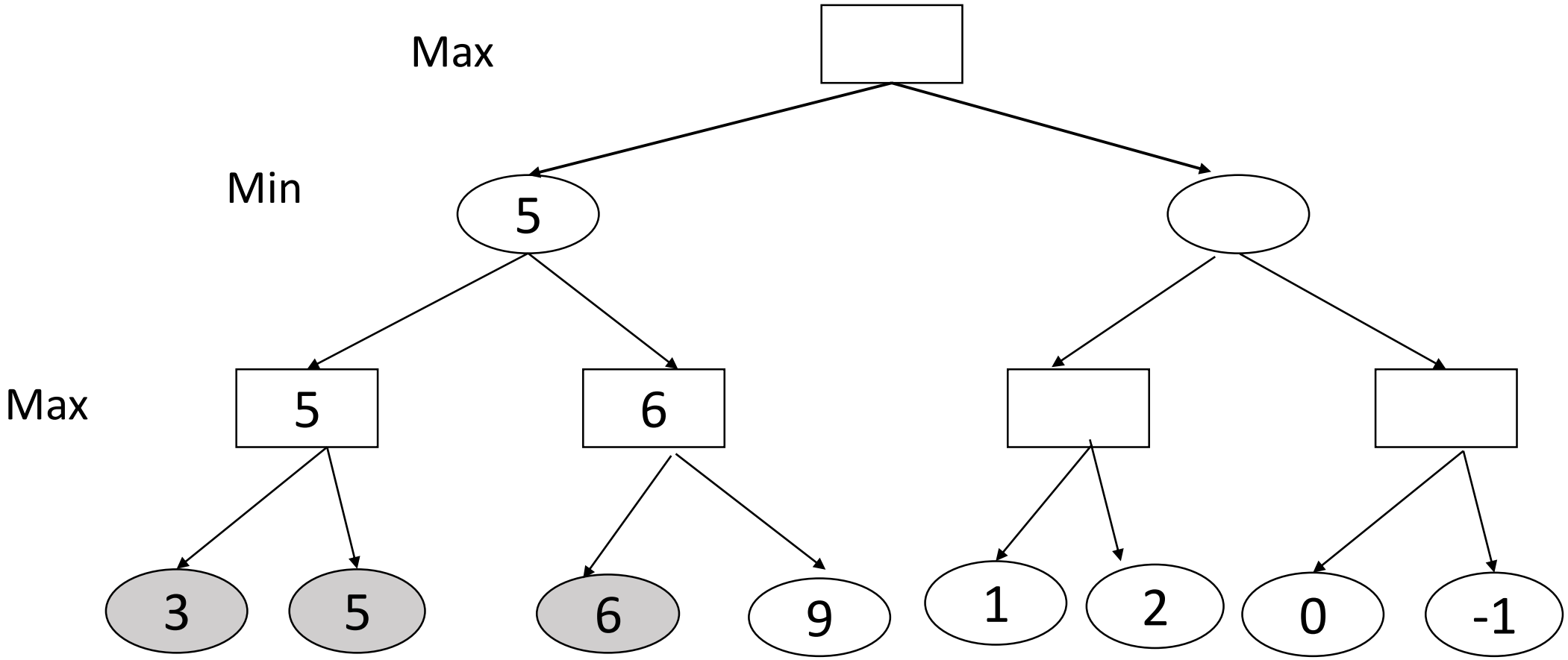

Max
Min
Max
3
3
5
6
9
1
2
0
-1

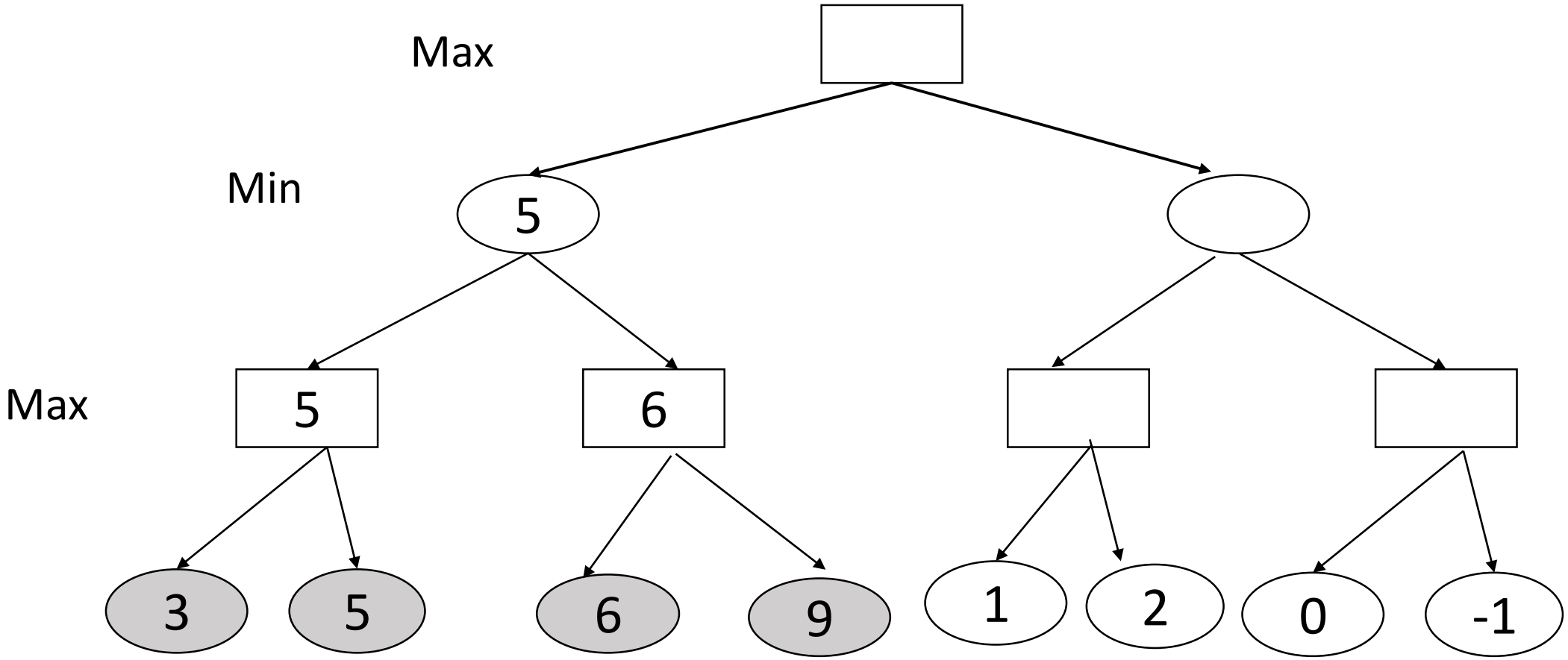

Max
Min
Max
5
3
5
6
9
1
2
0
-1

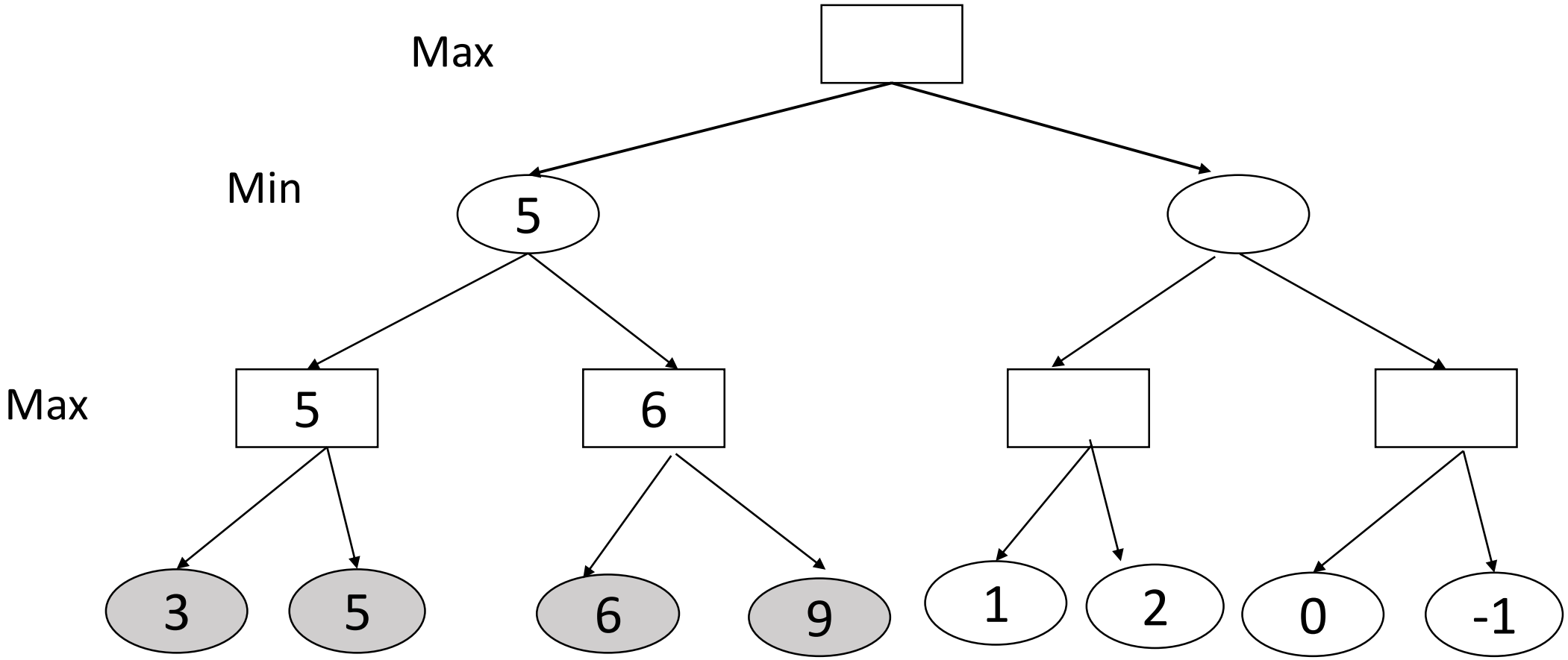

Max
Min
Max
5
5
3
5
6
9
1
2
0
-1

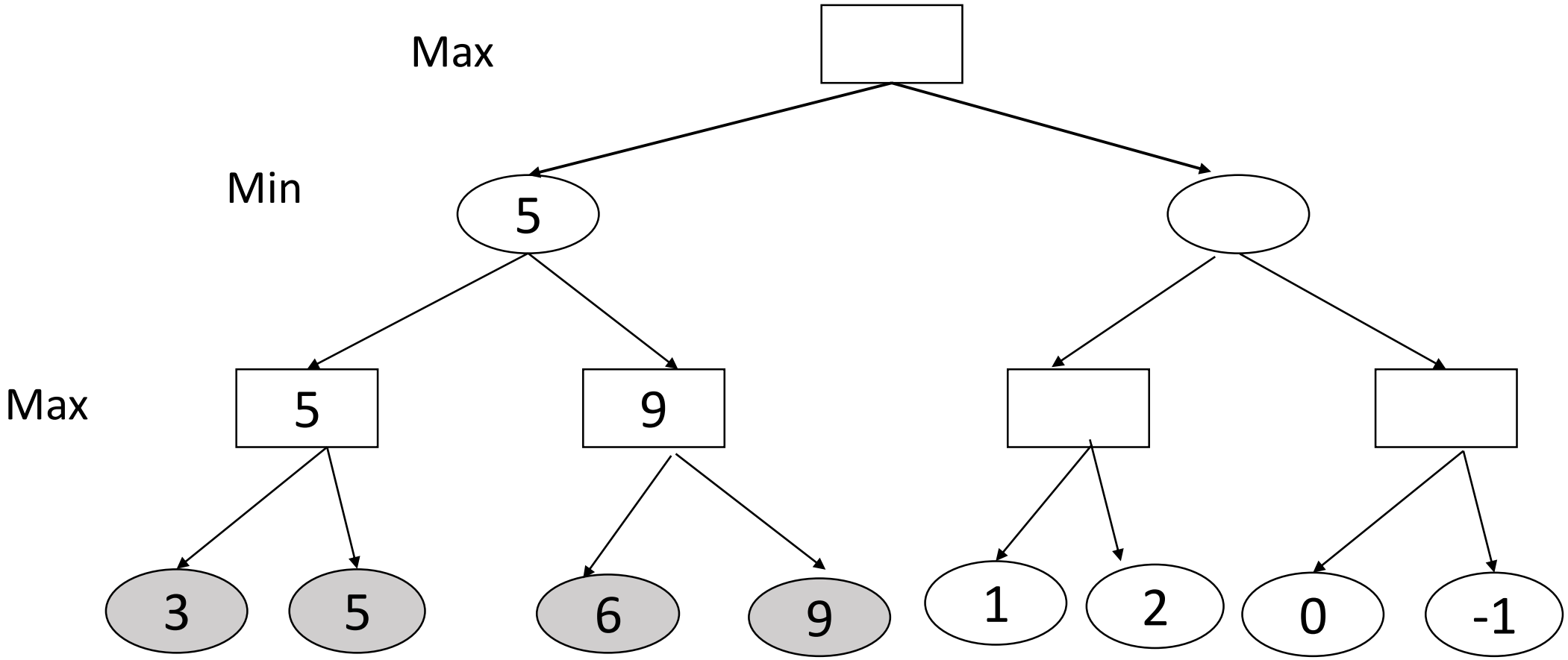

Max
Min
Max
5
5
3
5
6
9
1
2
0
-1

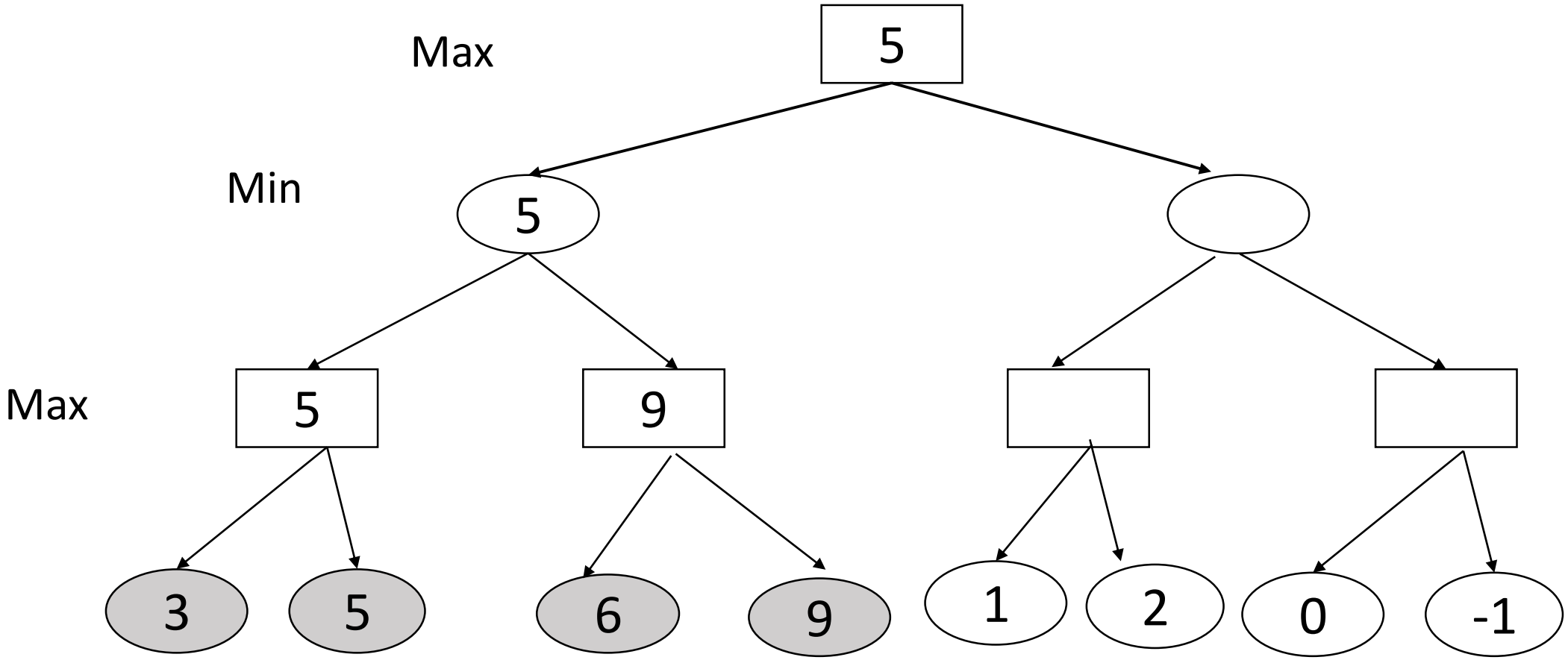

Max
Min
Max
5
5
3
5
6
9
1
2
0
-1

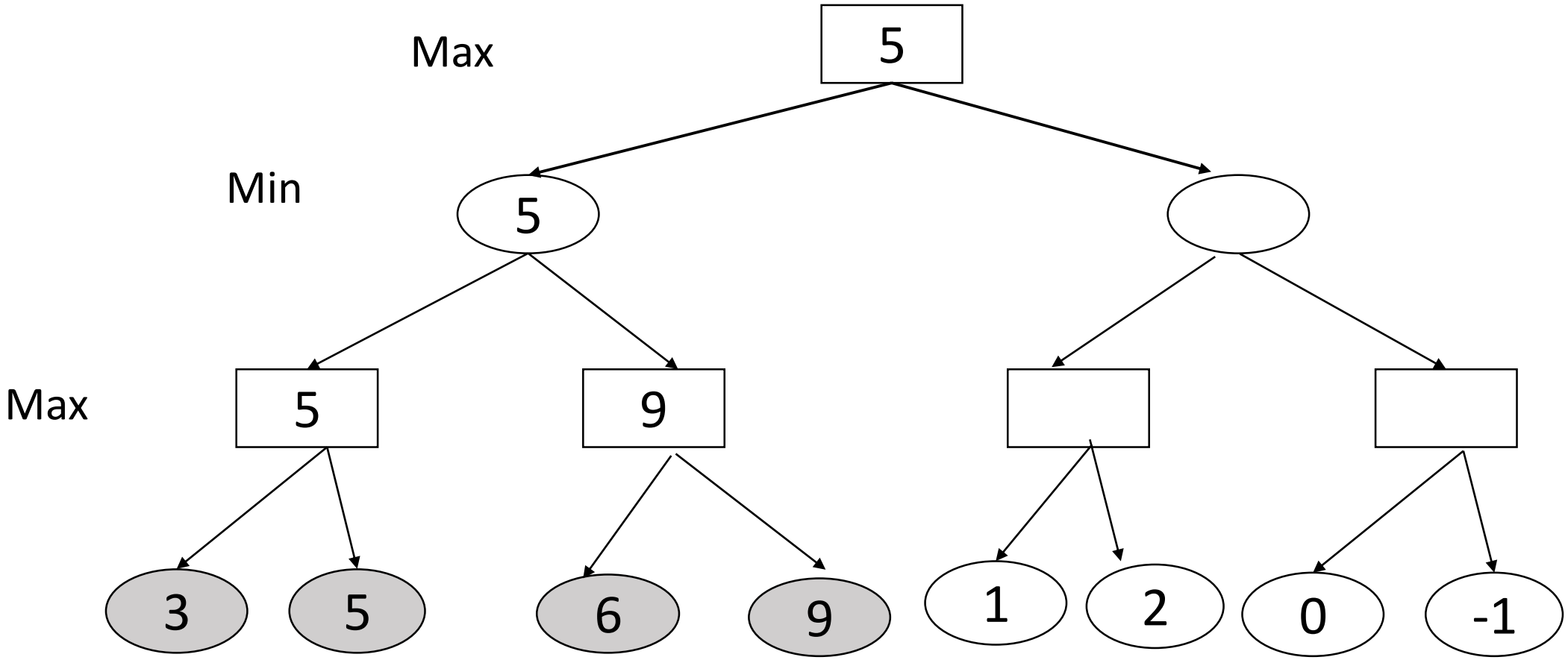

Max
Min
Max
5
5
6
3
5
6
9
1
2
0
-1

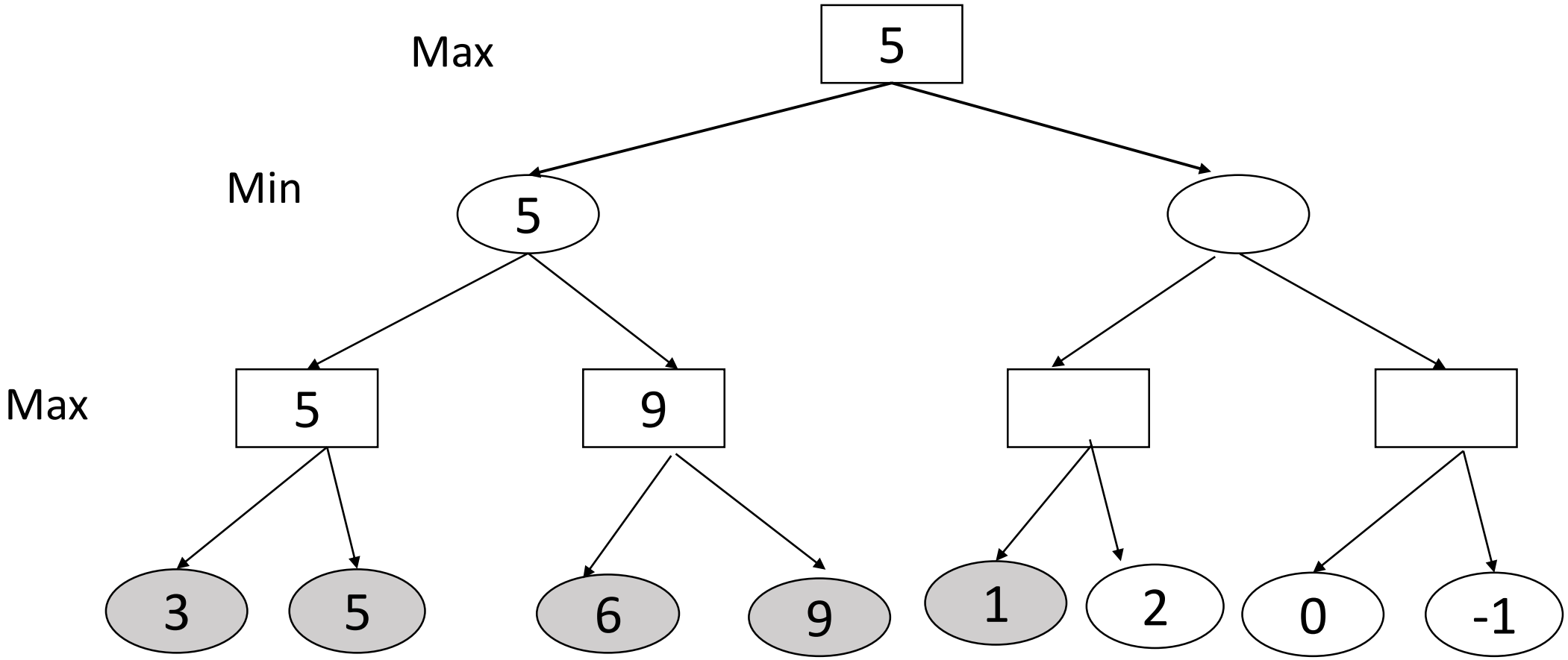

Max
Min
Max
5
5
6
3
5
6
9
1
2
0
-1

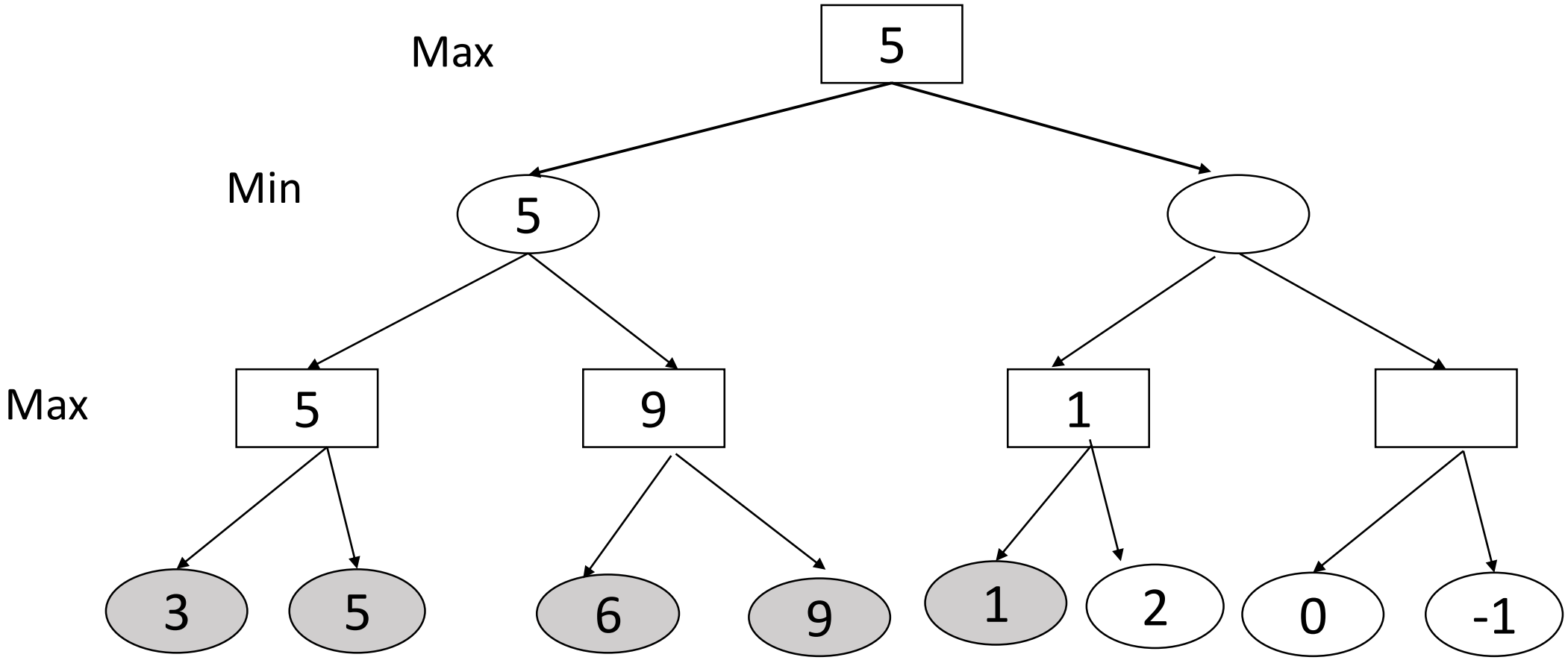

Max
Min
Max
5
5
6
3
5
6
9
1
2
0
-1

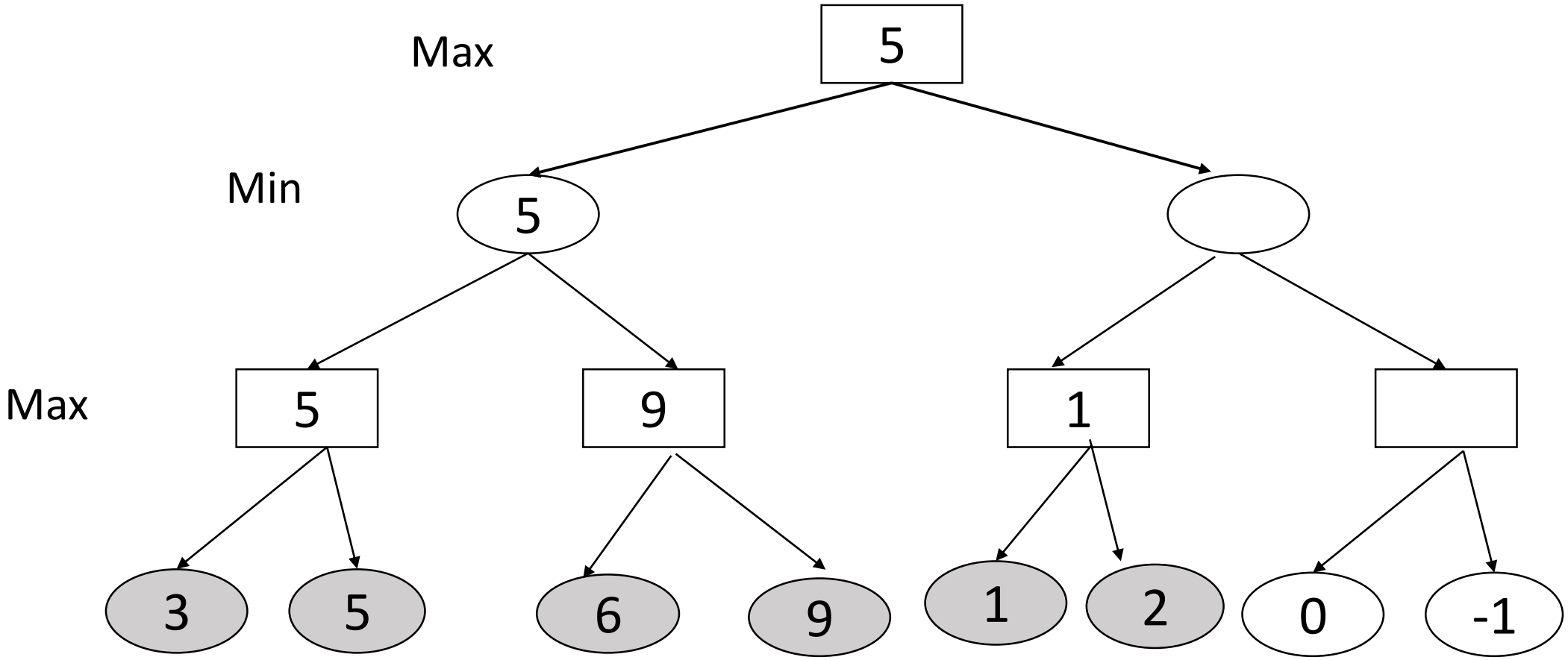

Max
Min
Max
5
5
9
3
5
6
9
1
2
0
-1

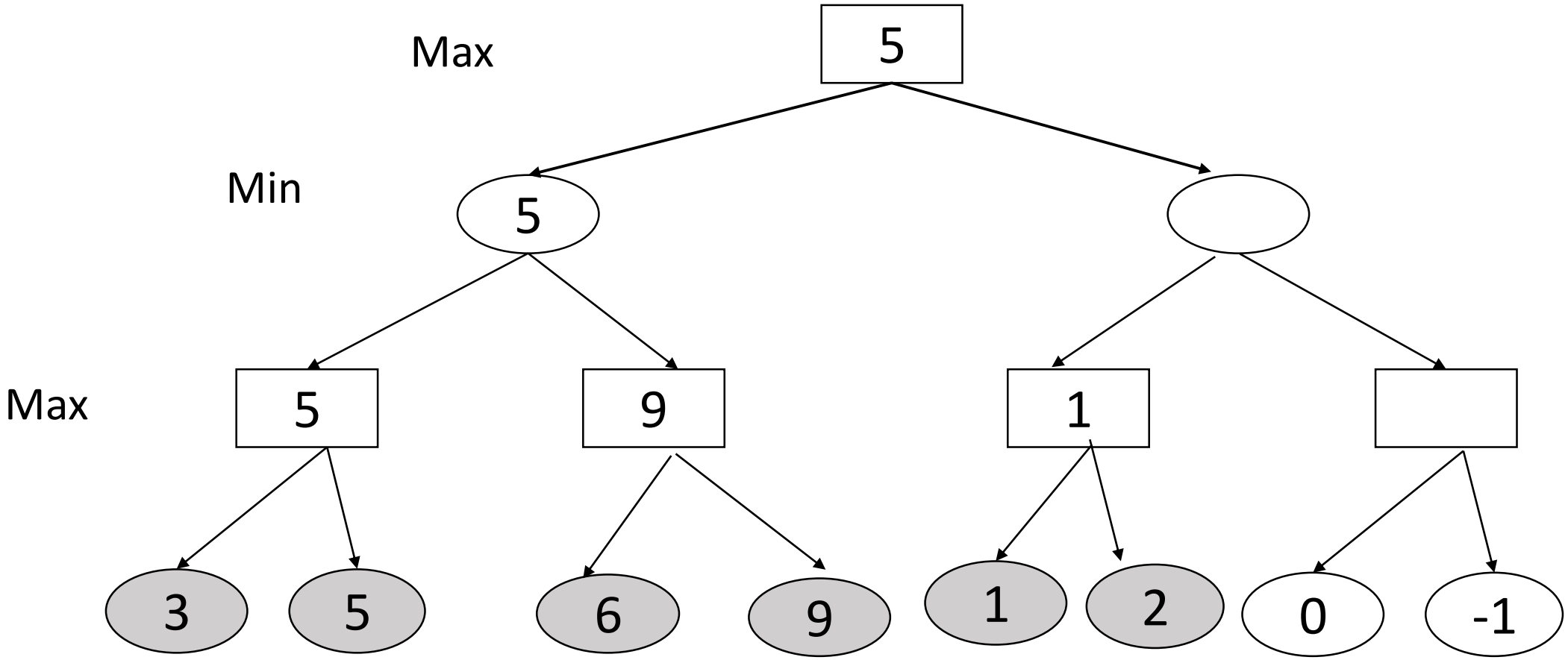

Max
Min
Max
5
5
5
9
3
5
6
9
1
2
0
-1

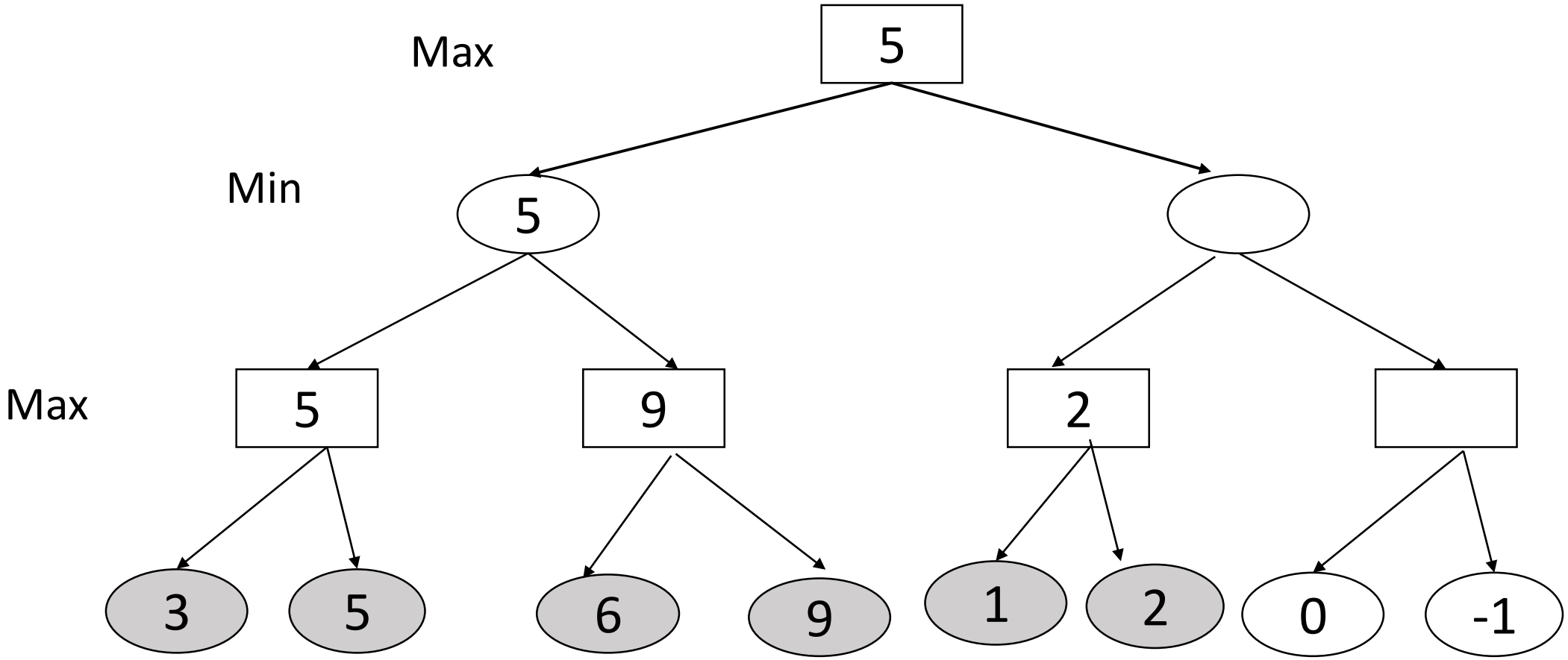

Max
Min
Max
5
5
5
9
3
5
6
9
1
2
0
-1

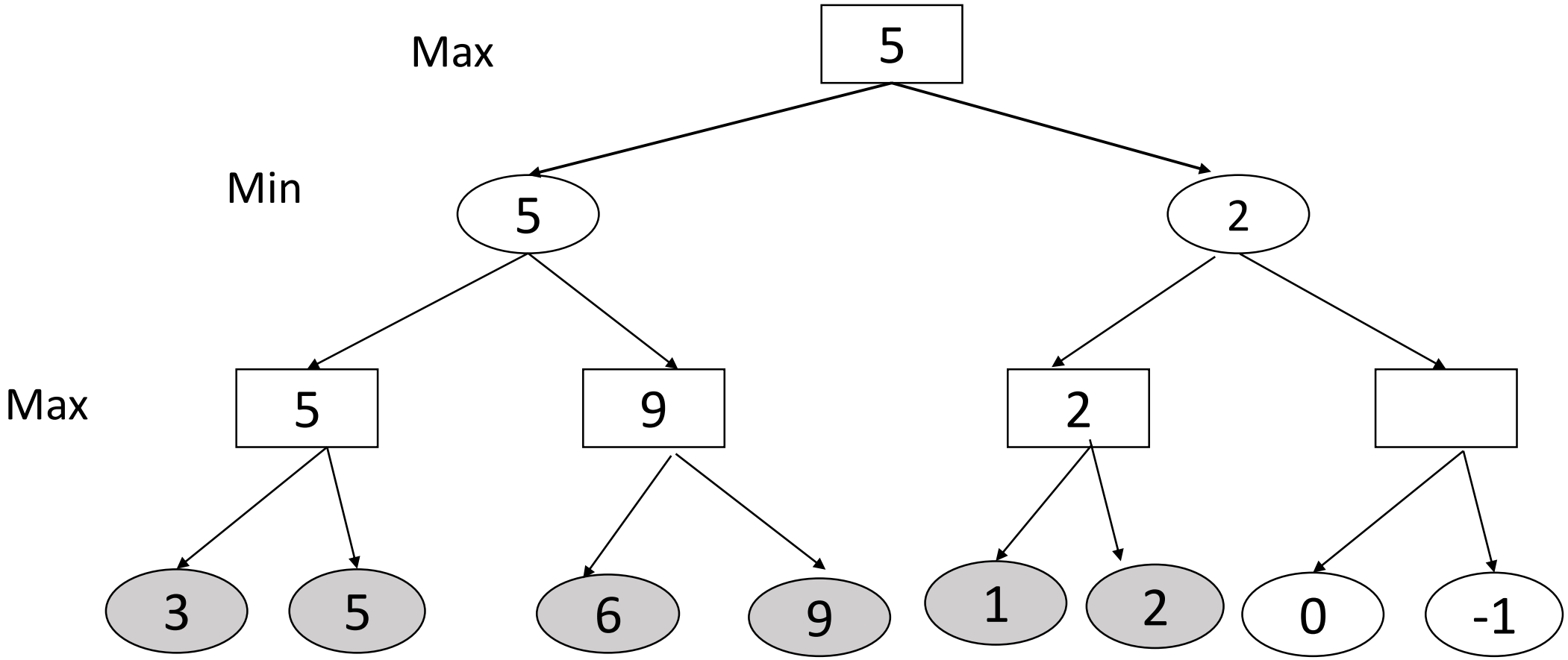

Max
Min
Max
5
5
5
9
3
5
6
9
1
2
0
-1

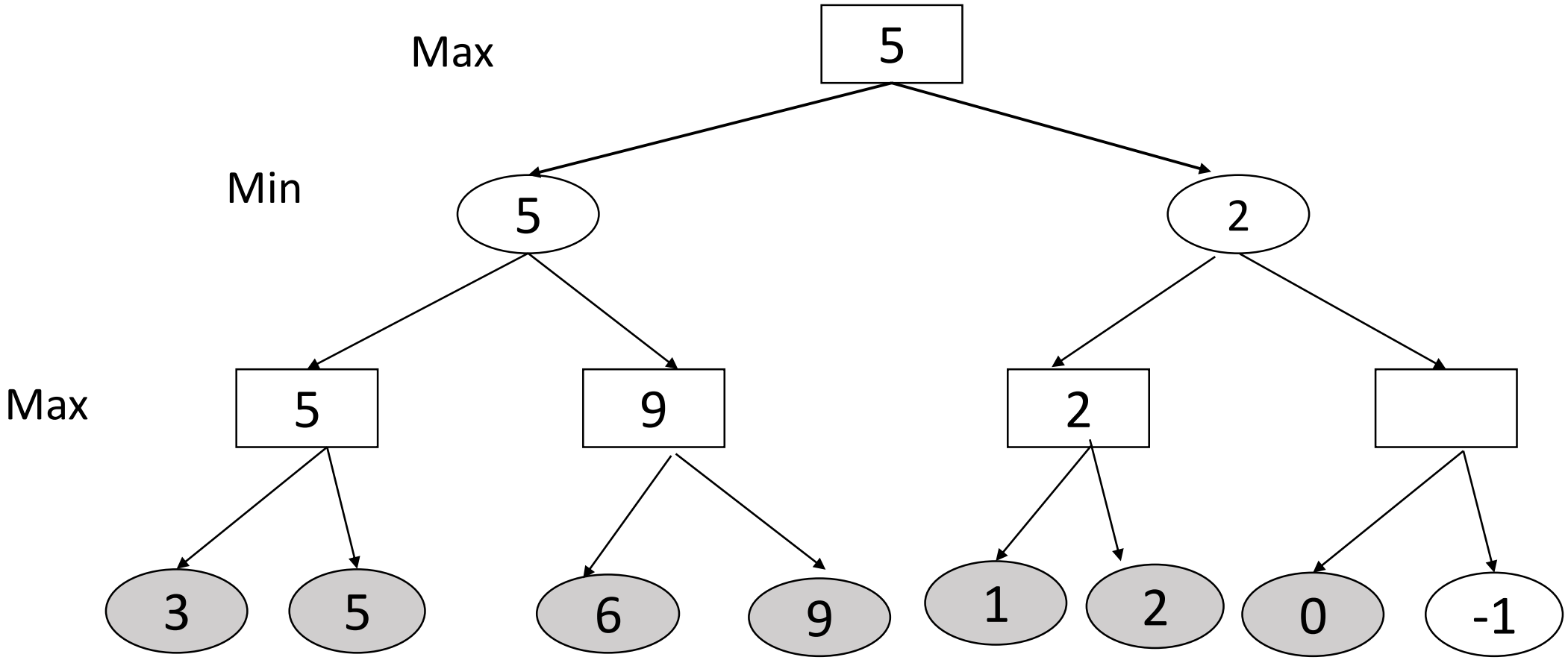

Max
Min
Max
5
5
5
9
1
3
5
6
9
1
2
0
-1

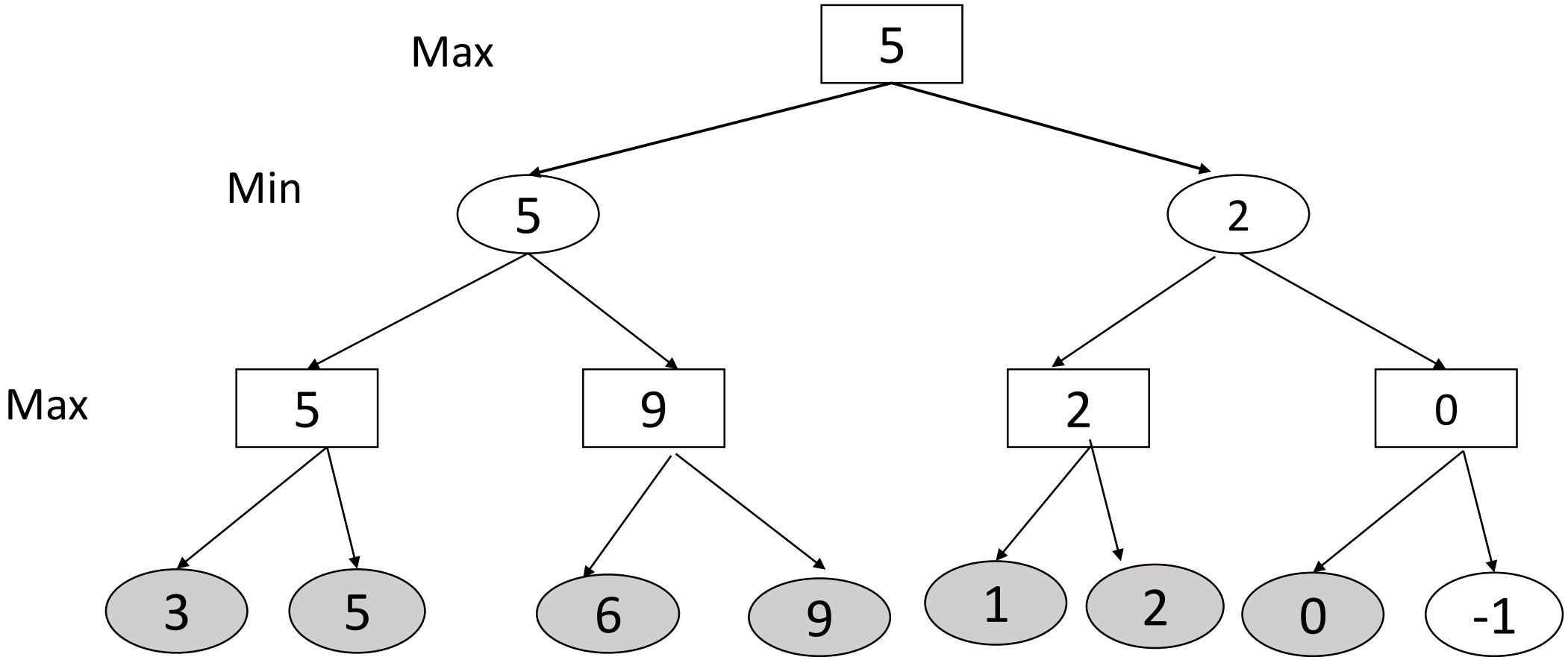

Max
Min
Max
5
5
5
9
1
3
5
6
9
1
2
0
-1

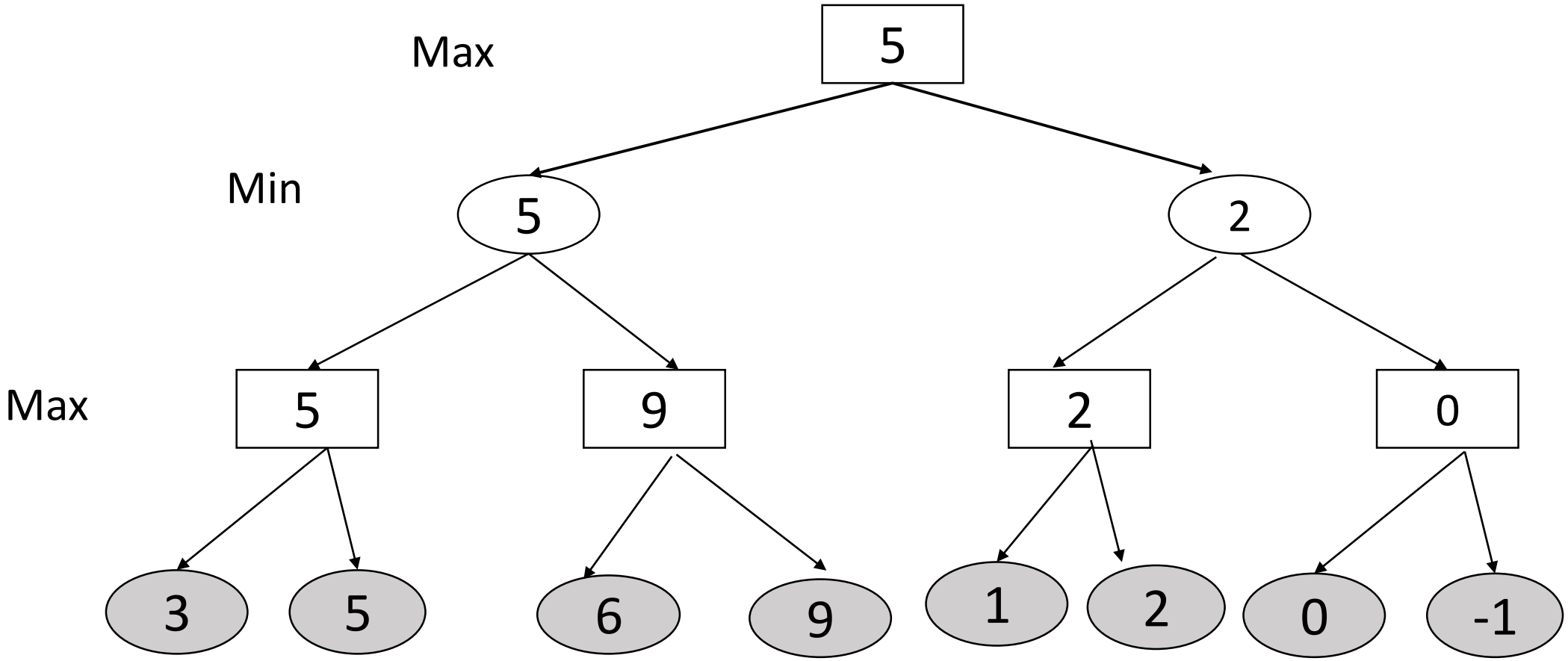

Max
Min
Max
5
5
5
9
1
3
5
6
9
1
2
0
-1

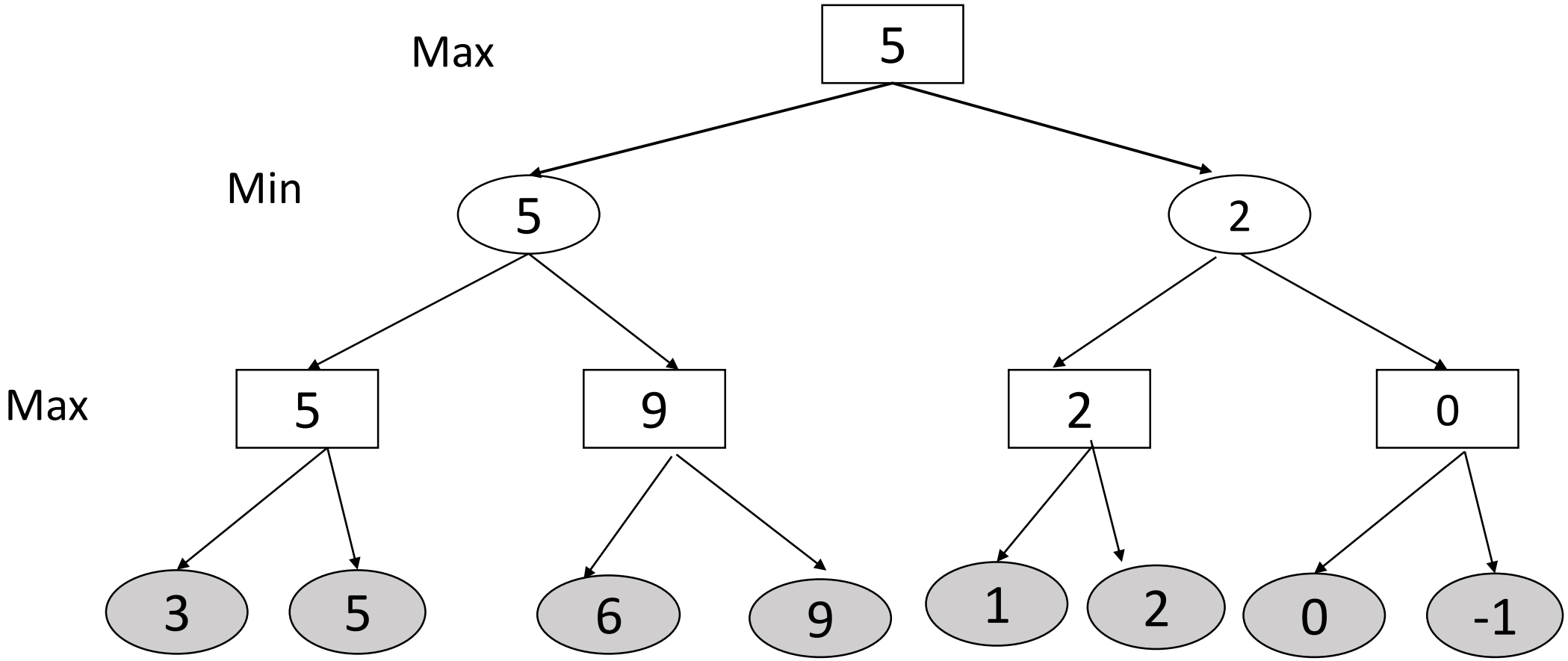

Max
Min
Max
5
5
5
9
2
3
5
6
9
1
2
0
-1

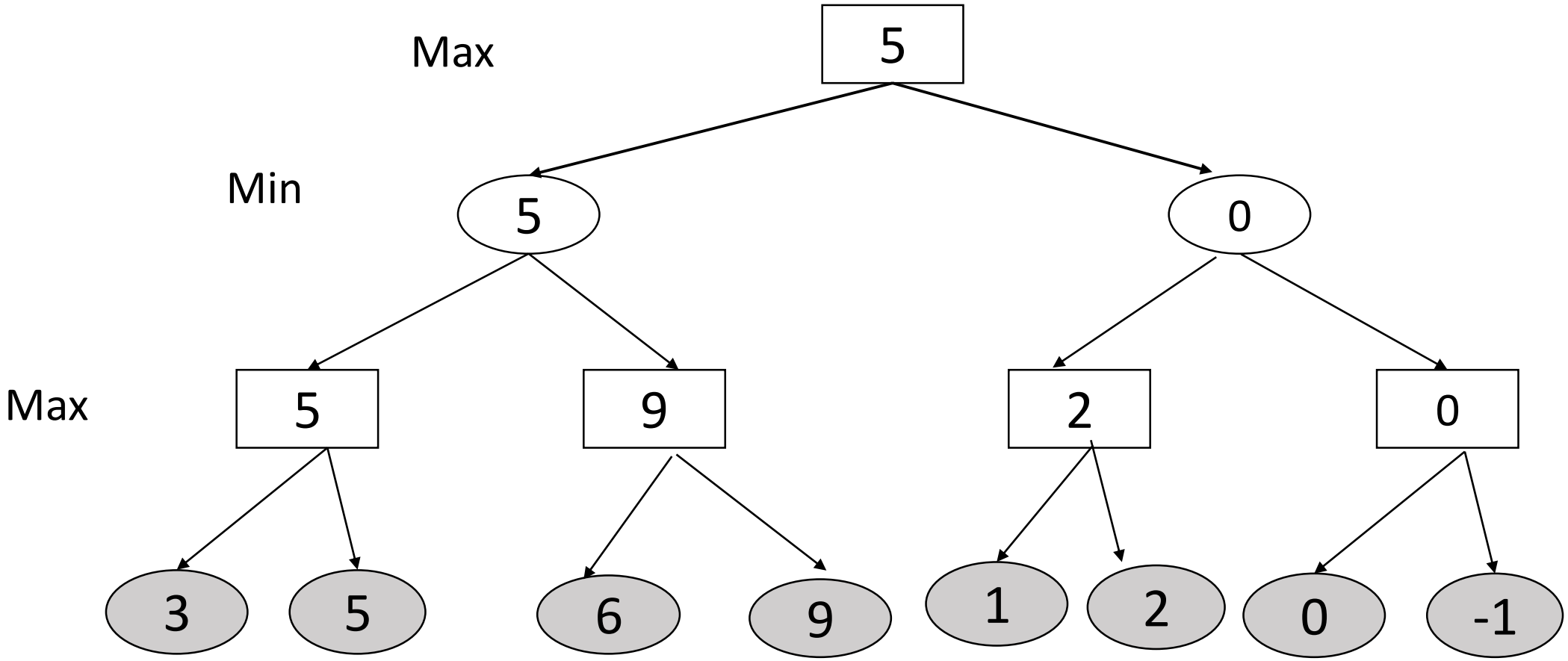

Max
Min
Max
5
5
2
5
9
2
3
5
6
9
1
2
0
-1

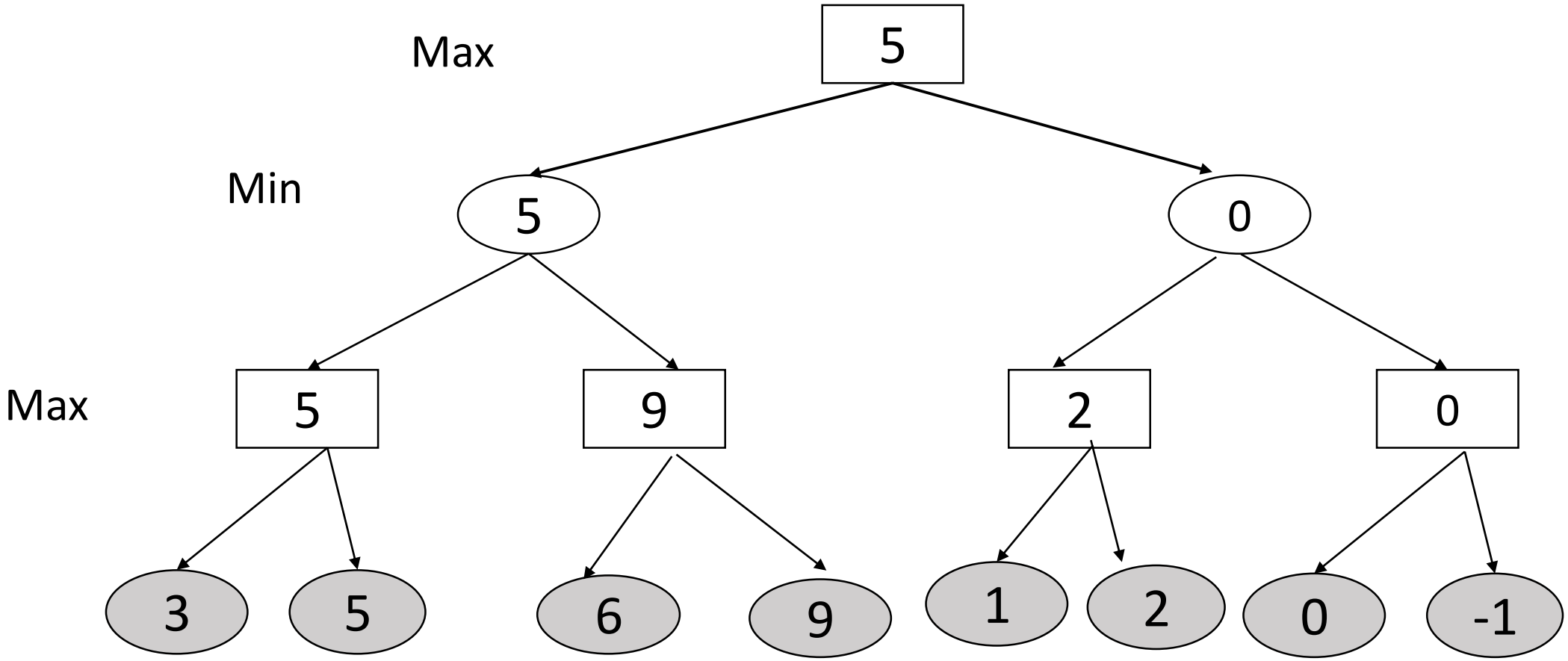

Max
5
Min
5
2
Max
5
9
2
3
5
6
9
1
2
0
-1

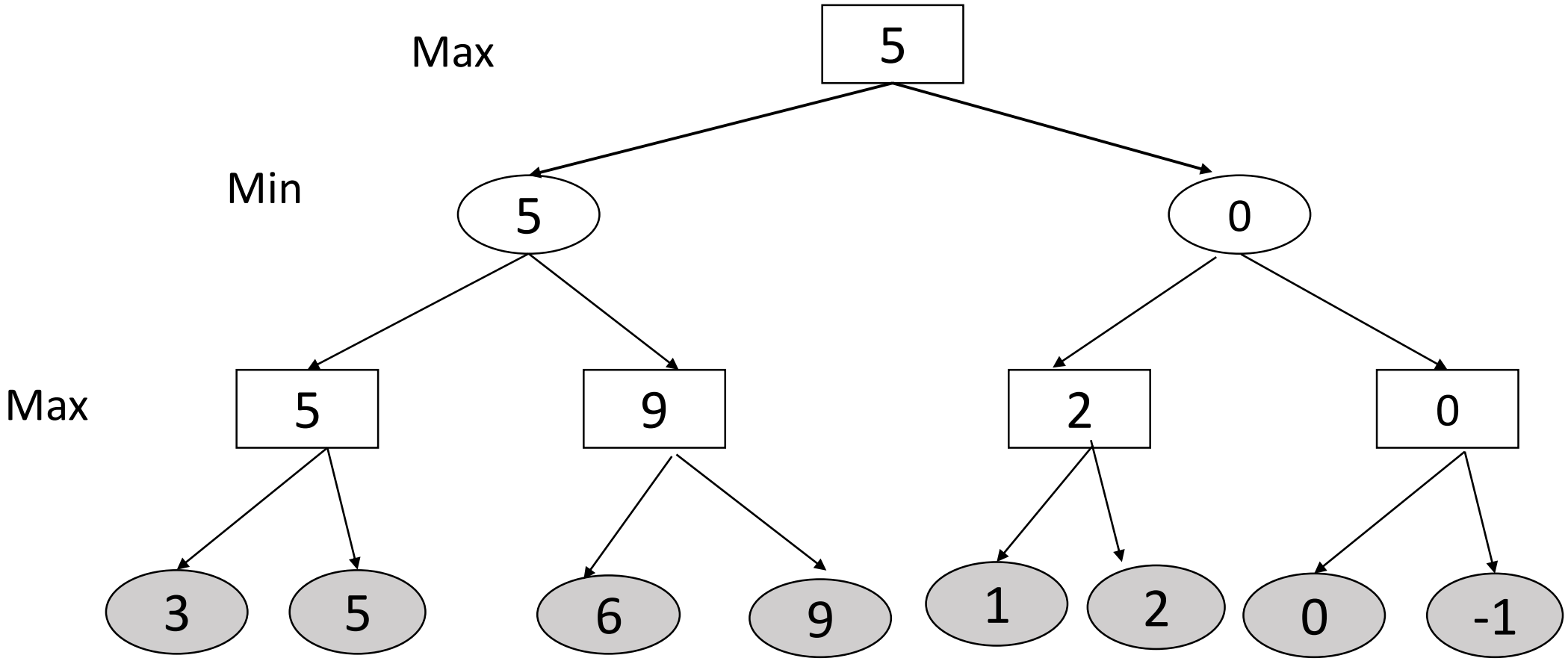

Max
Min
Max
5
5
2
5
9
2
0
3
5
6
9
1
2
0
-1


Max
Min
Max
5
5
2
5
9
2
0
3
5
6
9
1
2
0
-1


Max
Min
Max
5
5
2
5
9
2
0
3
5
6
9
1
2
0
-1


Max
5
Min
5
0
Max
5
9
2
0
3
5
6
9
1
2
0
-1


Max
5
Min
5
0
Max
5
9
2
0
3
5
6
9
1
2
0
-1


Max
5
Min
5
0
Max
5
9
2
0
3
5
6
9
1
2
0
-1