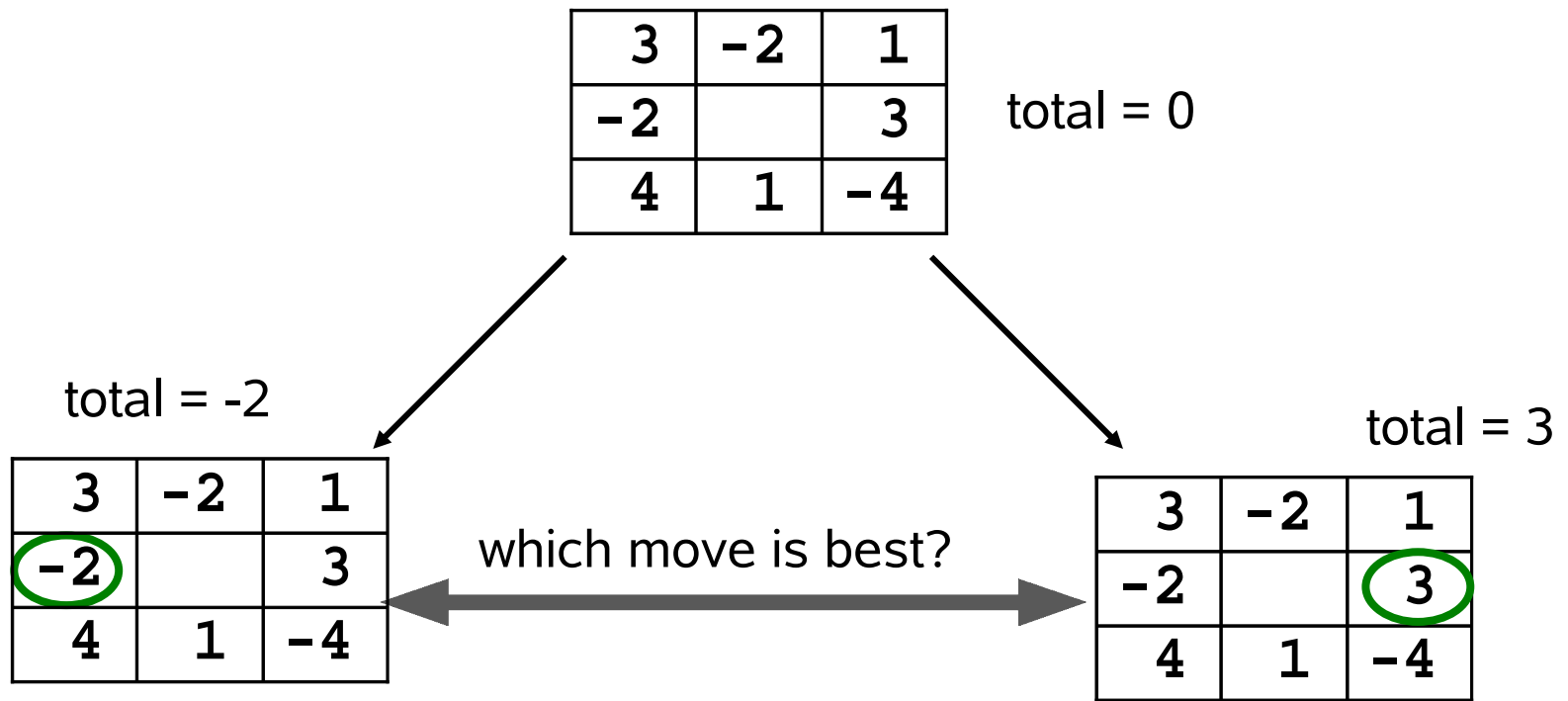


The Game of Min-Max

3	-2	1
-2		3
4	1	-4

- Start in the center square.
- Player MAX picks any number in the current row (added to a running total).
- Player MIN then picks any number in the resulting column (added to total).
- The game ends when a player cannot move.
- MAX wins if the total > 0 .



3	-2	1
-2		3
4	1	-4

total = 0

total = -2

3	-2	1
-2		3
4	1	-4

3	-2	1
-2		3
4	1	-4

total = 1

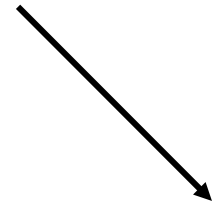
3	-2	1
-2		3
4	1	-4

total = 2

which move will MIN make?

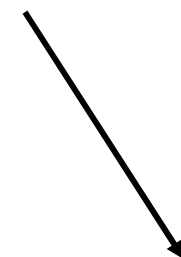
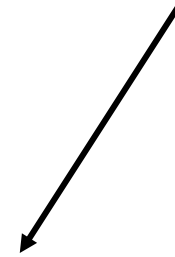
3	-2	1
-2		3
4	1	-4

total = 0



total = 3

3	-2	1
-2		3
4	1	-4

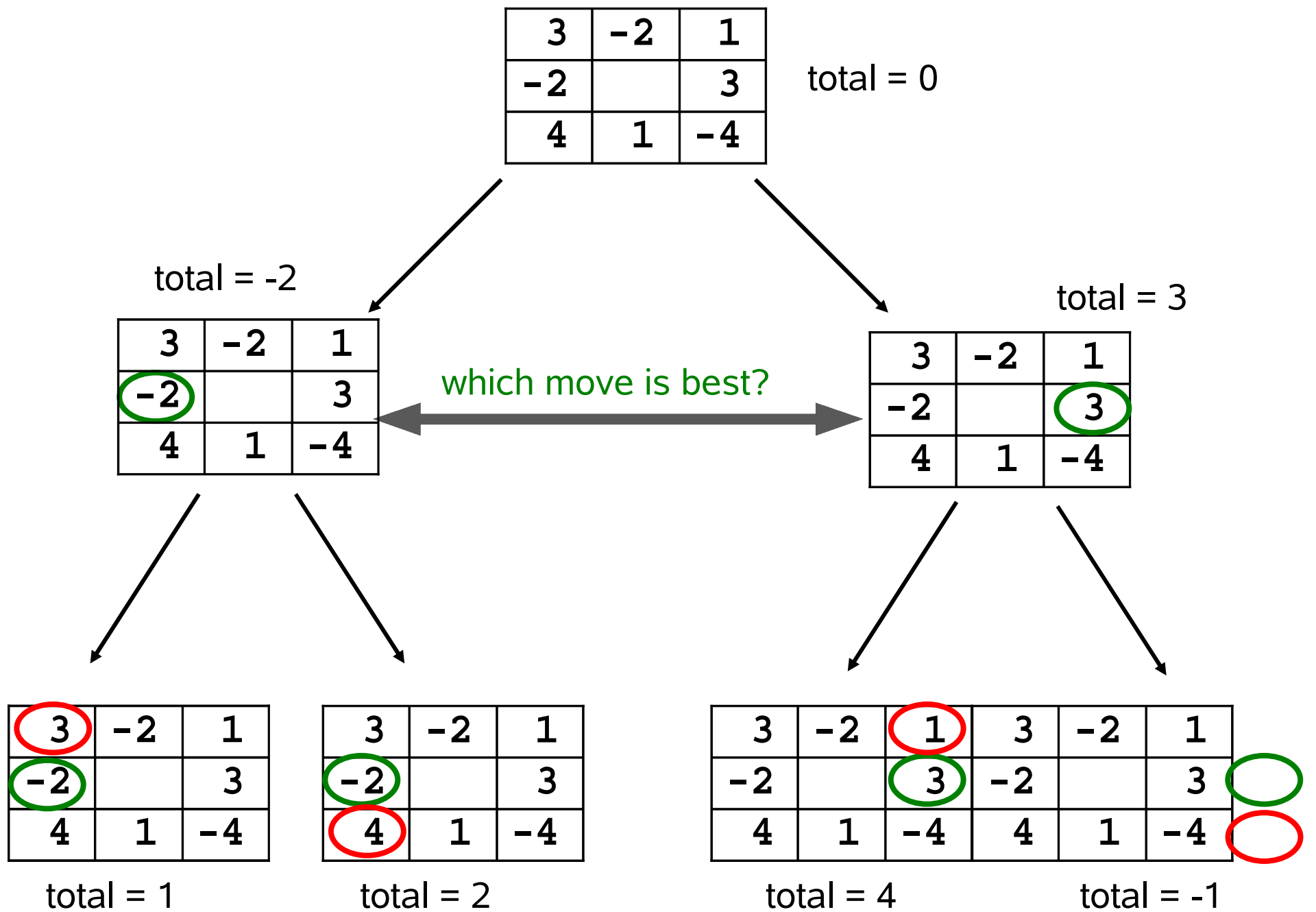


3	-2	1	3	-2	1
-2		3	-2		3
4	1	-4	4	1	-4

total = 4

total = -1

which move will MIN make?



We can look farther ahead

- Evaluate each the possible moves for MAX by evaluating each of the entire subtree under each move.
 - possible here only because this is a small game tree!

3	-2	1
-2		3
4	1	-4

total = 1

total = -1

3	-2	1
-2		3
4	1	-4

3	-2	1
-2		3
4	1	-4

total = 2

total = 0

3	-2	1
-2		3
4	1	-4

total = 5

3	-2	1
-2		3
4	1	-4

total = -2

3	-2	1
-2		3
4	1	-4

total = 4

3	-2	1
-2		3
4	1	-4

total = -4

3	-2	1
-2		3
4	1	-4

total = -3

3	-2	1
-2		3
4	1	-4

3	-2	1
-2		3
4	1	-4

total = 2

3	-2	1
-2		3
4	1	-4

total = -1

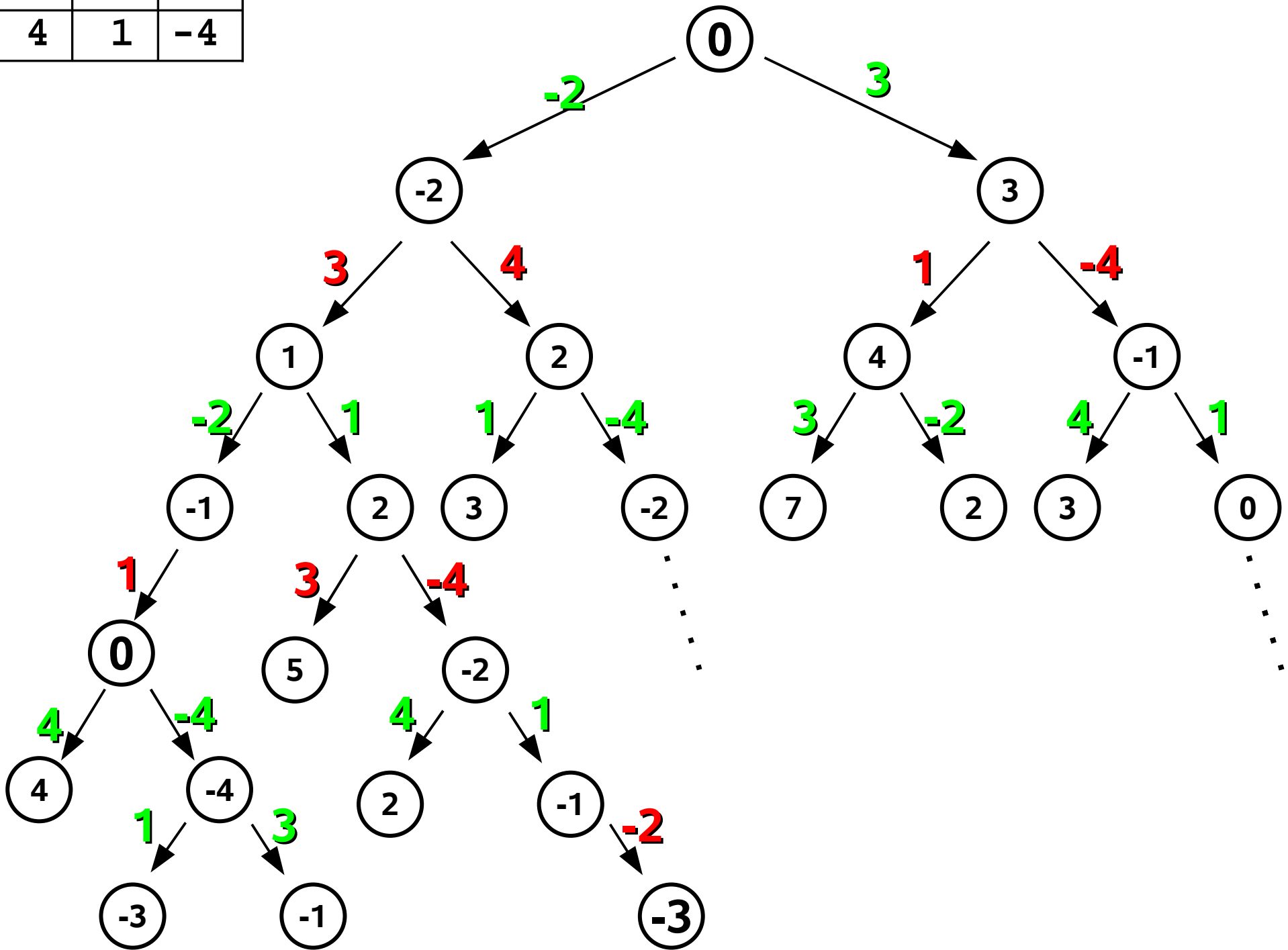
3	-2	1
-2		3
4	1	-4

total = -3

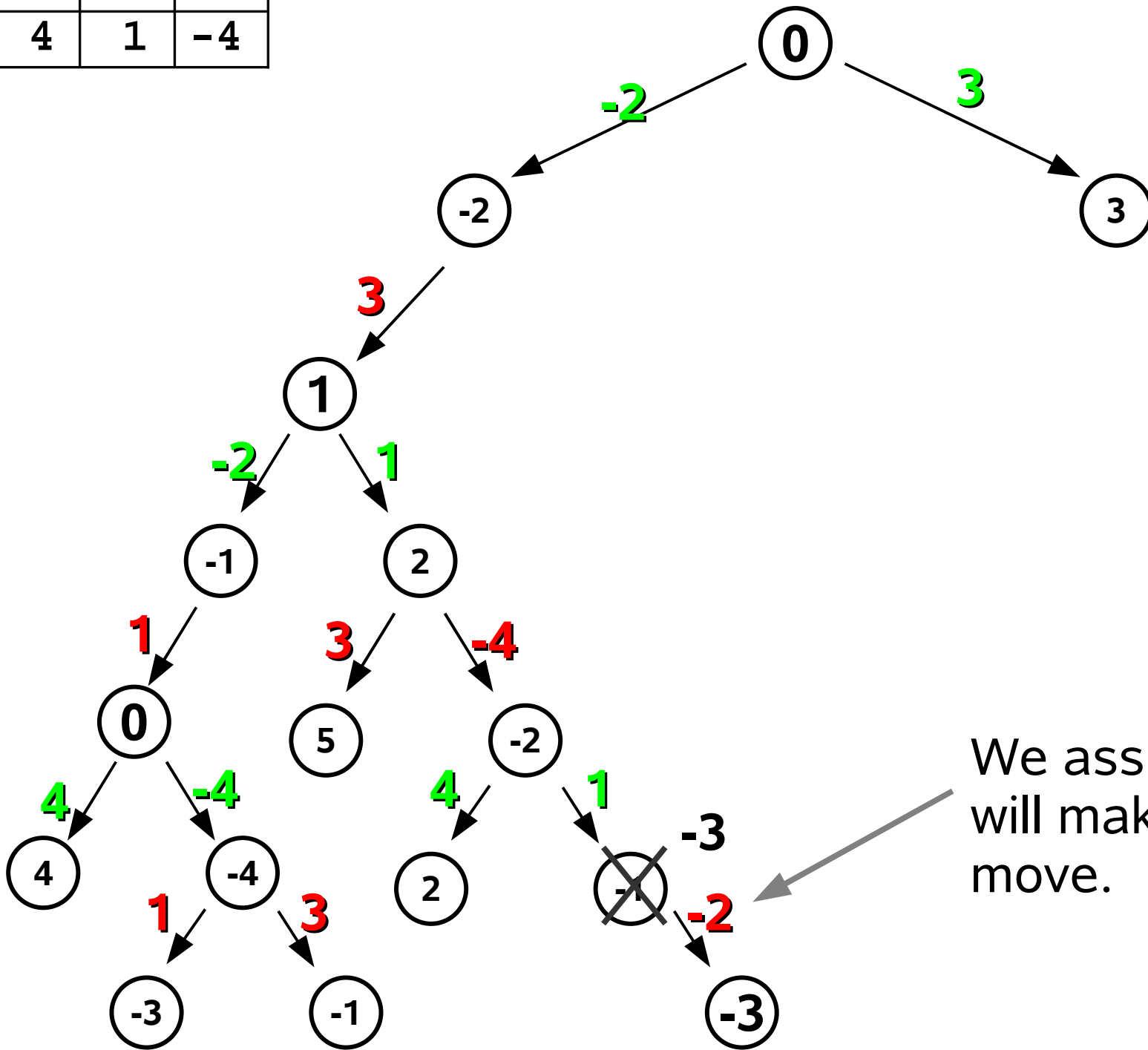
total = -1

3	-2	1
-2		3
4	1	-4

3	-2	1
-2		3
4	1	-4

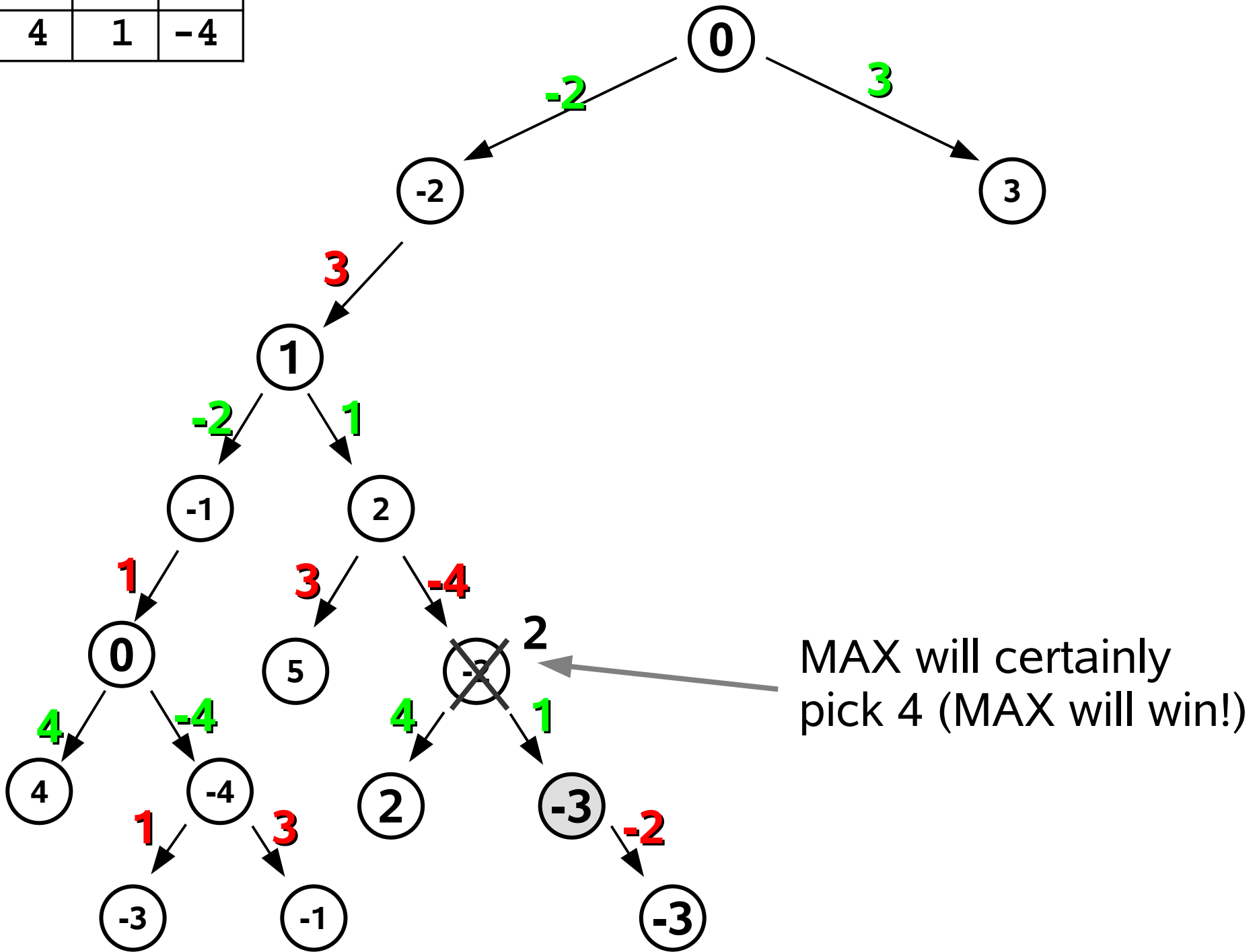


3	-2	1
-2		3
4	1	-4

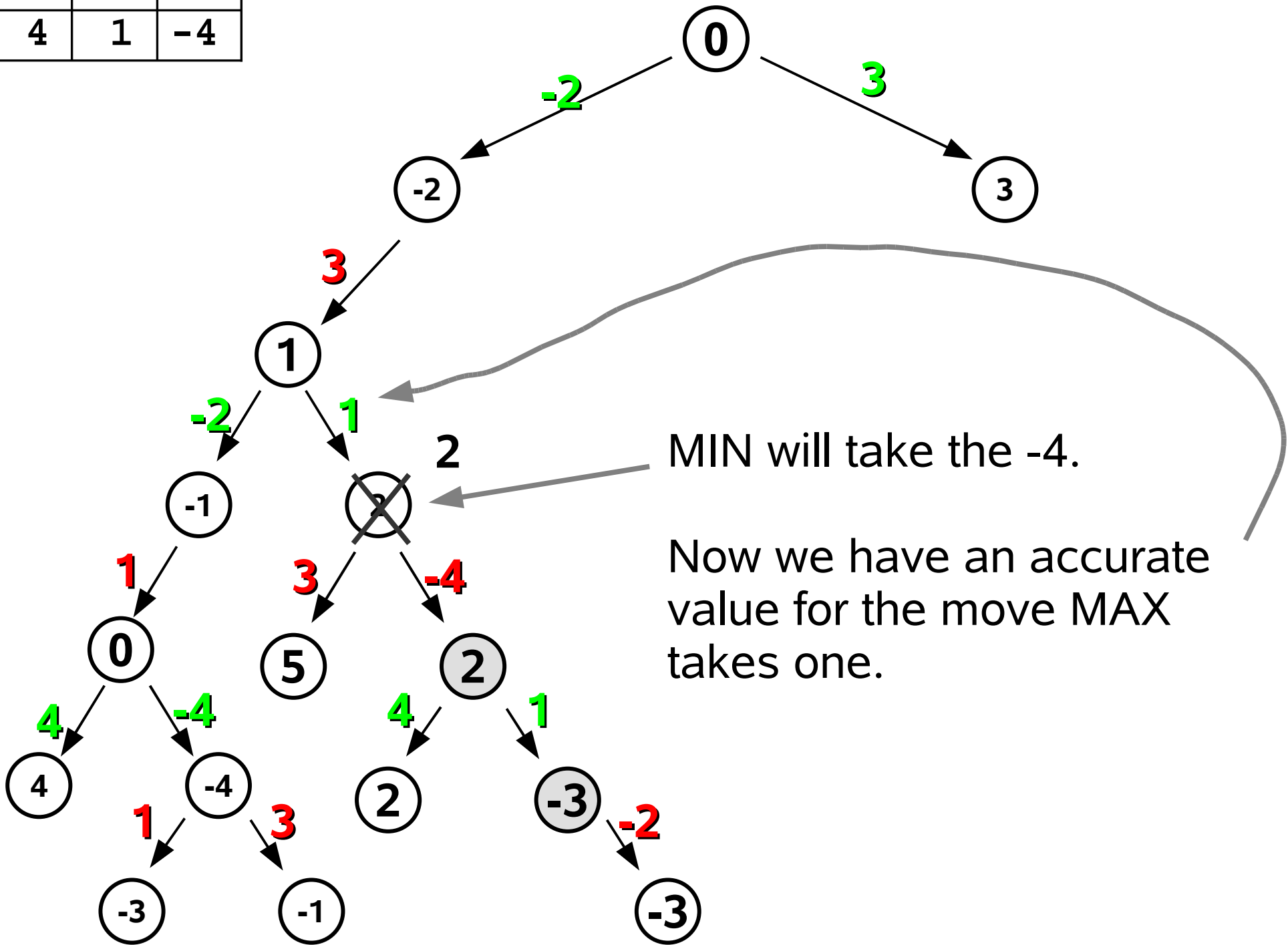


We assume MIN will make this move.

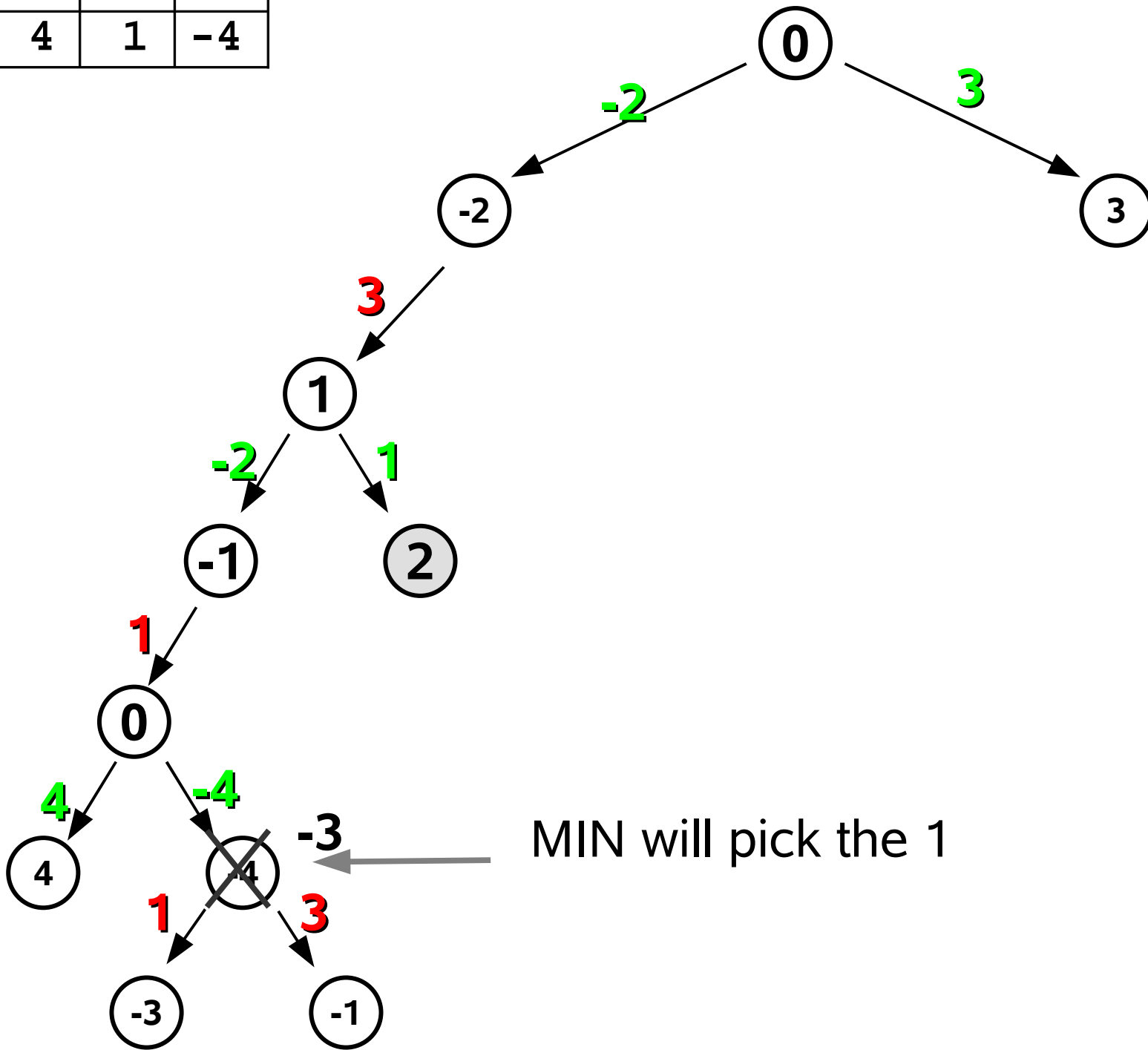
3	-2	1
-2		3
4	1	-4



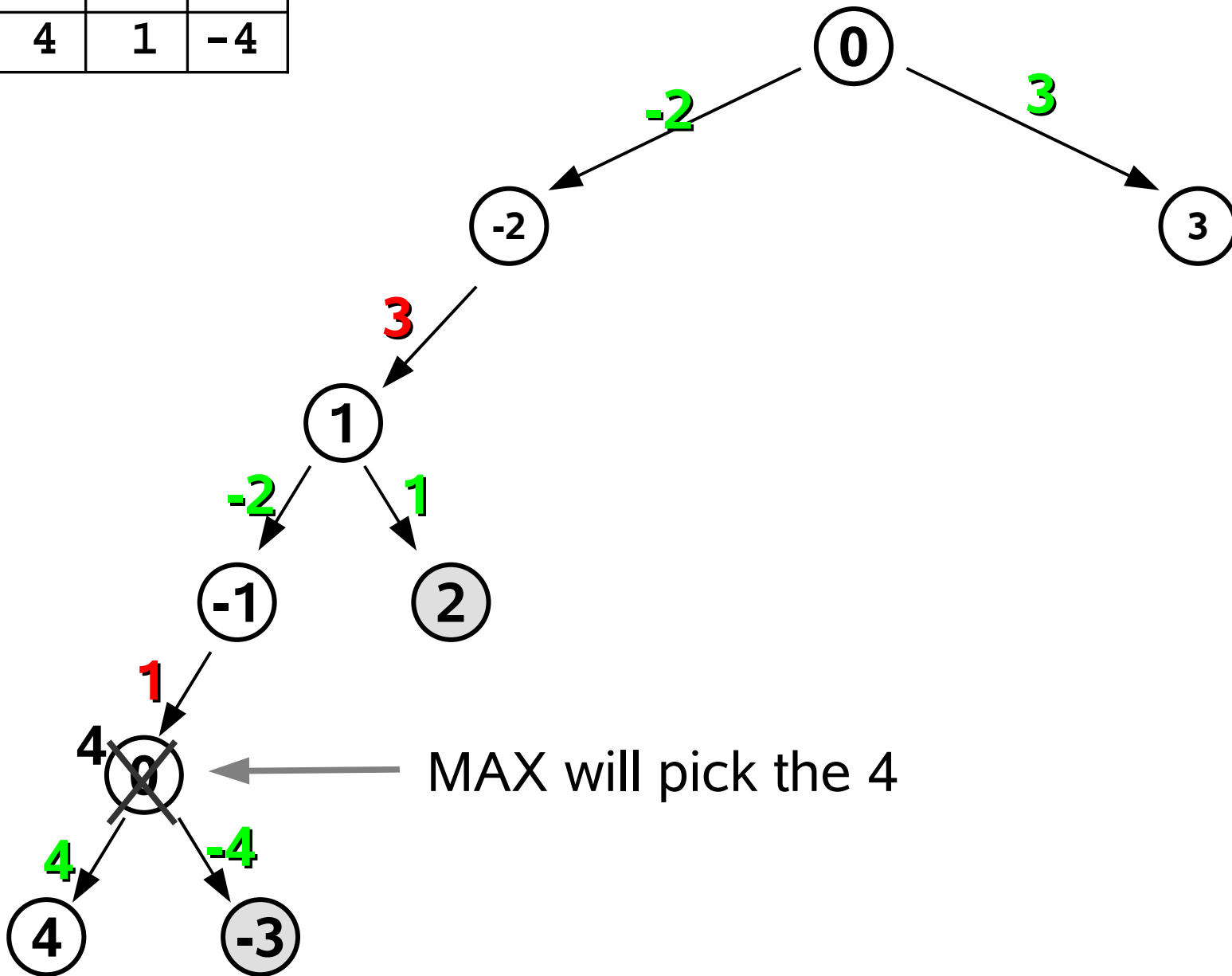
3	-2	1
-2		3
4	1	-4



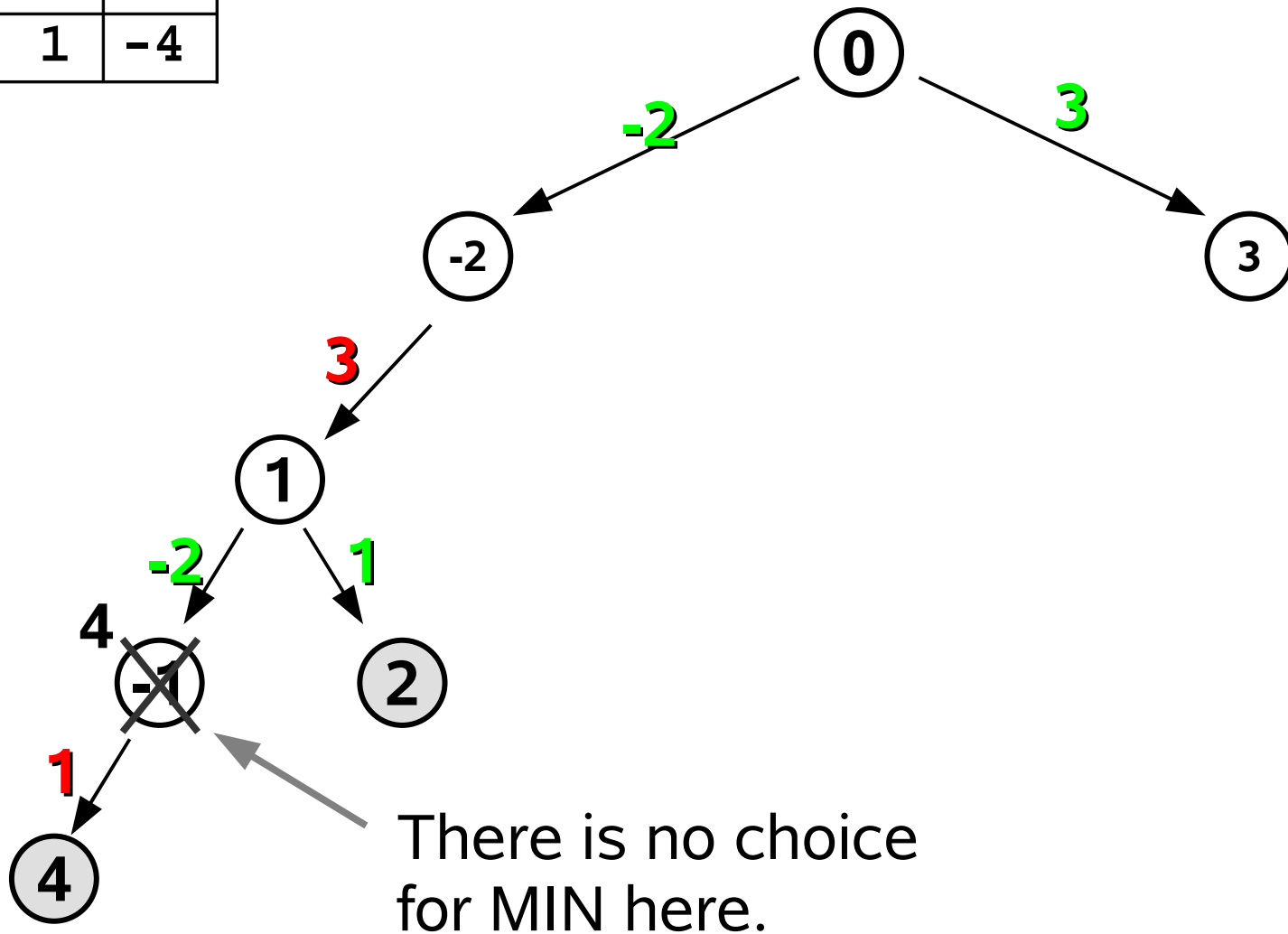
3	-2	1
-2		3
4	1	-4



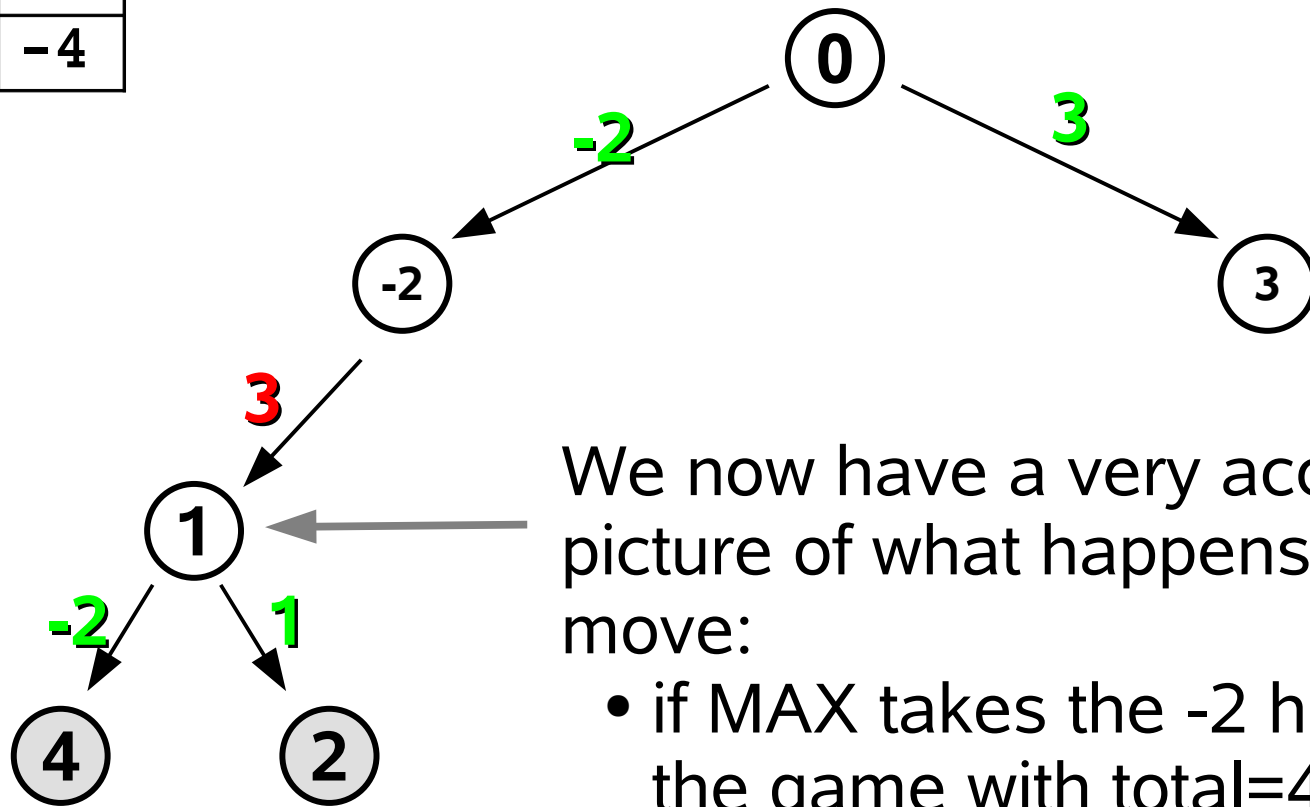
3	-2	1
-2		3
4	1	-4



3	-2	1
-2		3
4	1	-4



3	-2	1
-2		3
4	1	-4



We now have a very accurate picture of what happens at this move:

- if MAX takes the -2 he will win the game with total=4.
- if MAX takes the 1, he will win the game with total=2.