

Pseudocode for left-to-right

| | | |
|---|------|--|
| swaps = 0 | s.c. | - 1 |
| For k = 0 to n - 1 do | s.c. | -(n) * (36n - 18) = 36n ² - 18n |
| For k = 0 to 2 * n - 2 do | s.c. | -(2n - 1) * 18 = 36n - 18 |
| If disks[i] == '0' && disks[i] != disks[i+1] then | s.c. | - 7 + max(11,0) = 18 |
| temp = disks[i] | s.c. | - 2 |
| disks[i] = disks[i+1] | s.c. | - 4 - 11 |
| disks[i+1] = temp | s.c. | - 3 |
| swaps = swaps + 1 | s.c. | - 2 |

s.c total = 36n² - 18n + 1

Inner loop # of executions = $\frac{2n - 2 - 0}{1} + 1 = 2n - 1$

Outer loop # of executions = $\frac{n - 1 - 0}{1} + 1 = n - 1 + 1 = n$

36n² - 18n + 1 = O(n²)

36n² - 18n + 1 ≤ c * n² For all n ≥ n₀

Let c = 55

36n² - 18n + 1 ≤ 55n² For all n ≥ n₀

0 ≤ 55n² - 36n² + 18n - 1 For all n ≥ n₀

0 ≤ 21n² - 18n - 1 For all n ≥ n₀

Let n₀ = 1, 0 ≤ 21(1)² - 18(1) - 1

0 ≤ 21 - 18 - 1

0 ≤ 2

36n² - 18n + 1 = O(n²)