

Vg:  
a [1] [2] [3] [4] [5]  
5 4 3 2 1

$$4: 3 + 2 + 1 = 6$$

$$5: 4 + 3 + 2 + 1 = 10$$

⋮

$$n: (n-1) + (n-2) + \dots + 1 = \text{Vert. Versagl. im WC}$$

$$O(B) = n^2$$

$$\sum_{i=1}^{n-1} i = \frac{1}{2} n(n+1) = \frac{1}{2} (n-1)(n)$$
$$= \frac{1}{2} n^2 - \frac{1}{2} n$$

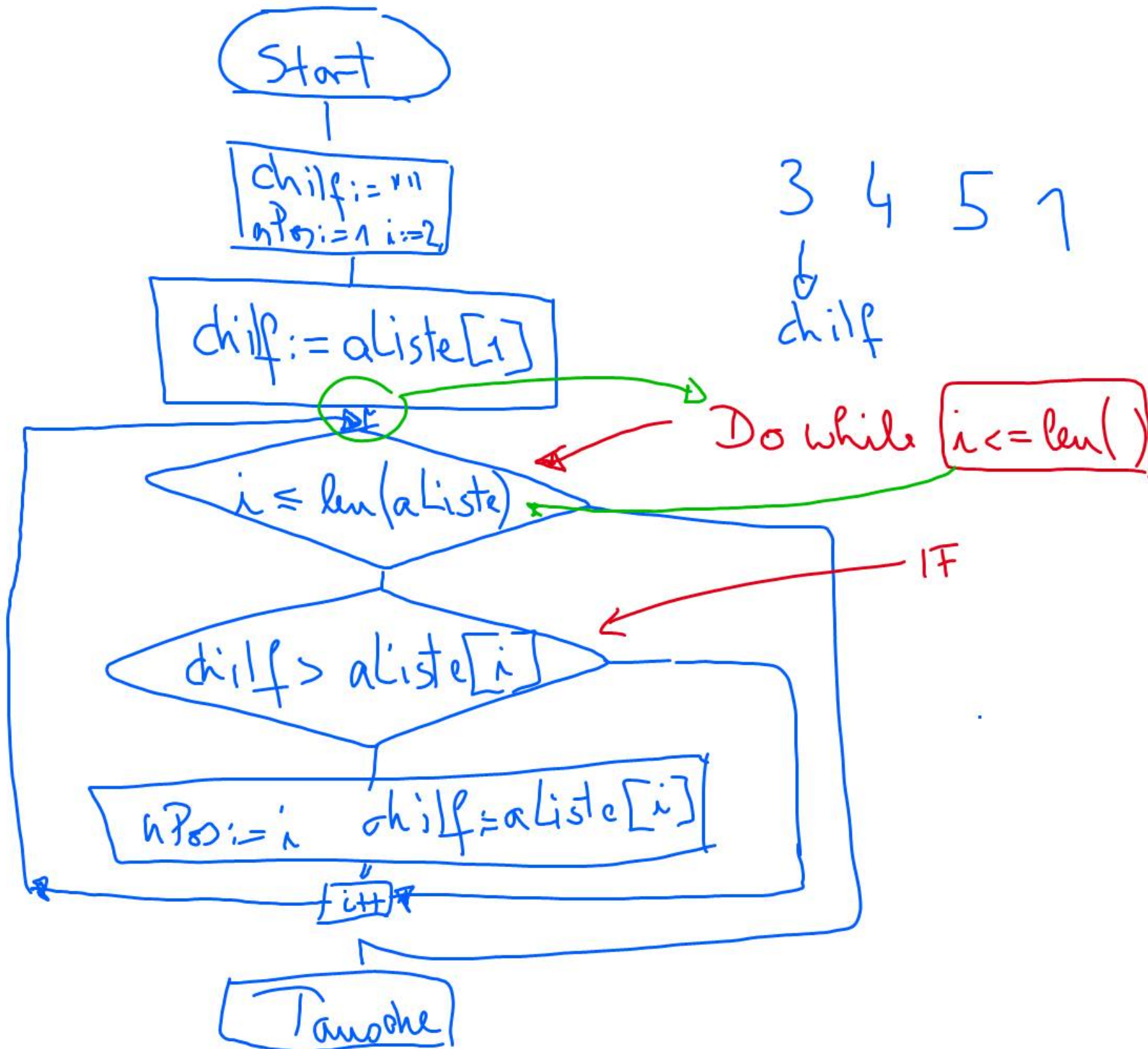
Vert.: 54321 → 43215 → 32145 → 21345 → 1

BC 1 2 3 4 5

5:  $\textcircled{4} + 3 + 2 + 1 \Rightarrow O(n^2)$  Vergl.

print @pt n

5: Verst. 0



BC:

10 Elemente

Vert: 0

Vgl:  $9+8+7+\dots+1$

$$(2n)^2 = 4n^2$$

$$\sum_{i=1}^n i = \frac{1}{2} n(n+1) \quad O(S) = n^2$$

$$\begin{aligned} \Rightarrow \sum_{i=1}^{n-1} i &= \frac{1}{2} (n-1)(n+1-1) \\ &= \frac{1}{2} n(n-1) = \frac{1}{2} n^2 - \frac{1}{2} n \end{aligned}$$

|||||  
|||  
||  
|  
0+  
8-

WC

Vgl:  $O(S_{vg}) = n^2$

Vrt: innere Schleife 1x  
 $\Rightarrow O(S_{vt}) = n$

2. Vergleich: Bubblesort

Vgl.:  $O(B) = n^2$

Vrt.:  $O(B) = n$