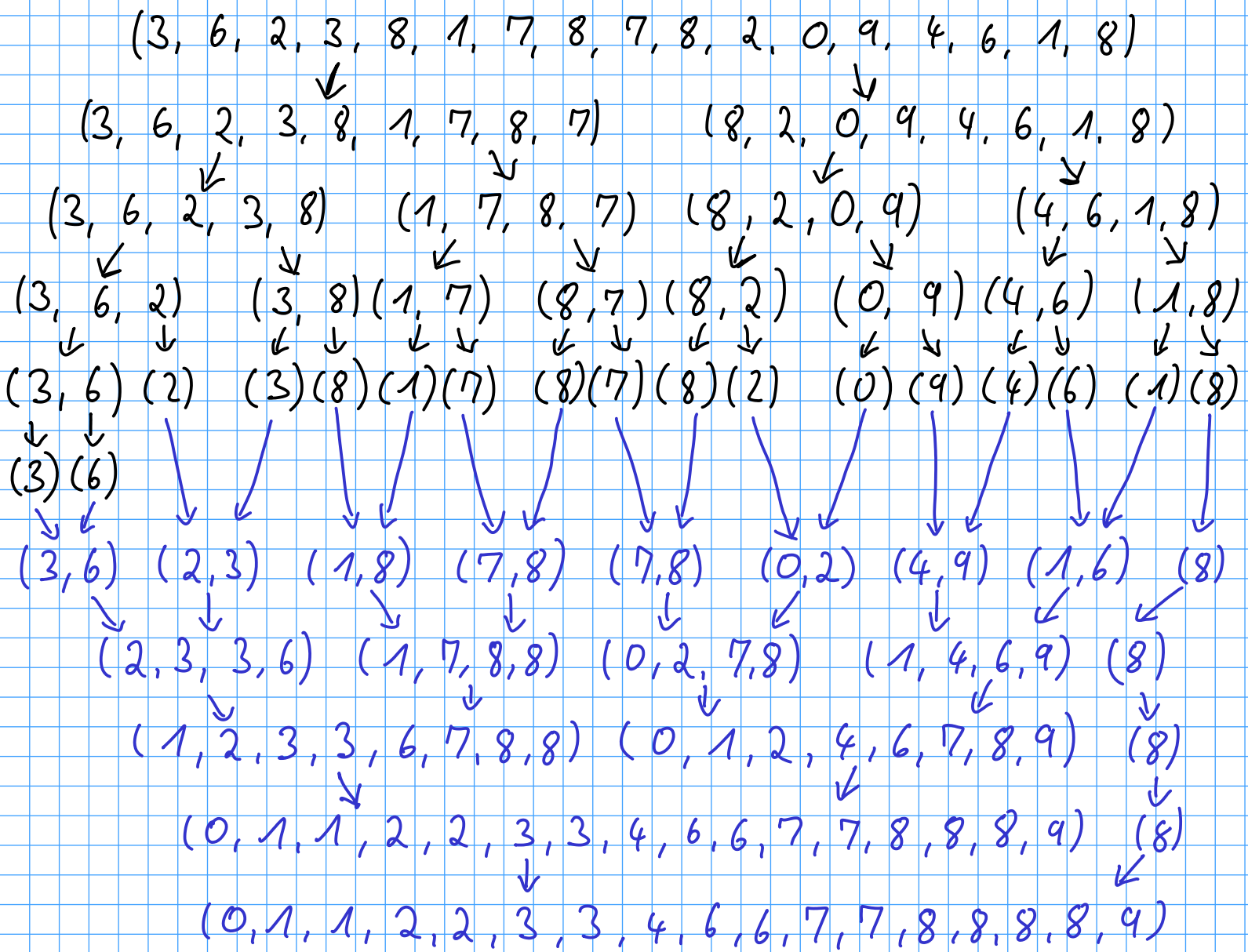
Mergesort grafische Dastellung



Rekrusionsgleichung:

$$\begin{aligned} \text{Mergesort}(n) &= \text{Mergesort}\left(\tfrac{n}{2}\right) + \text{Mergesort}\left(\tfrac{n}{2}\right) + \mathcal{O}(n) \\ &= 2\,\text{Mergesort}\left(\tfrac{n}{2}\right) + \mathcal{O}(n) \end{aligned}$$

Trivialer Fall

$$\text{Mergesort}(1) = \mathcal{O}(1)$$

Pseudocode

```
function merge_sort(n[])
  if (n.size == 1)
    return n
  if (n.size == 2)
    return merge([n[0]], [n[1]])
  else
    var splitted = split(n)
    var left     = merge_sort(splitted[0])
    var right    = merge_sort(splitted[1])
    return merge(left, right)

function merge(part0[], part1[])
  var result[]
  unless part0.empty or part1.empty
    part0.each as element0
      if(element0 < part1.first)
        result.add(element0)
        part0.remove(element0)
      else
        result.add(part1.first)
        part1.remove(part1.first)

  result.concat(part0).concat(part1)
  return result
```