



# Natural Addition

## 1 Why

TODO We want to combine two groups.

## 2 Definition

Let  $m$  and  $n$  be two natural numbers. If we apply the successor function to  $m$   $n$  times we obtain a number. If we apply the successor function to  $n$   $m$  times we obtain a number. Indeed, we obtain the same number in both cases. We call this number the **sum** of  $m$  and  $n$ . We say we **add**  $m$  to  $n$ , or vice versa. We call this correspondence, between  $(m, n)$  and the sum, **addition**.

### 2.1 Notation

We denote the function addition by  $+$  and so denote the sum of the naturals  $m$  and  $n$  by  $m + n$ .