### Examples: Partial sets and supersets

of A. So it applies that . The following figure illustrates this relationship.

Let be the set of all persons who live in Berlin. Then we can define the set of all persons with blond hair in this group as . is then a superset of N' ℕ ⊆ ℤ ⊆ ℝ is a subset of N . It therefore applies M .

superset of and is a subset of . So it applies that

We define the set of all odd natural numbers as . Then is a

Every natural number is also an integer and every integer is also a real number. It therefore applies .

To express clearly that a set is not a subset of a set , use the symbol of a subset in

crossed-out form and write N ⊈ M.

Figure 1: The set A: = {1,2,3,4} } is a superset of B: : = {2,4}, B is a subset of A. This is written as B C A.

Two sets M and N are equal if N ⊆ M and M ⊆ N are valid, i.e., if all elements of N are also in M and vice versa.

Let M: = {1, 2, 3}M and MNN: = {1, 2, 3}M NN ⊆ MN. Obviously M ⊆NM = N, because all elements of N N M N MM, i.e., Example: Equality of sets

1, 2, and 3, are also in . Likewise , because all elements of , i.e., 1, 2, and 3, are also in . Thus the sets and are equal, meaning . This example shows the manner by which we always proceed if we want to show that two sets and are equal. First, one shows that is a subset of . Then we show that is also a subset of . From this follows equality.

Next, we will introduce various operations (also called combinations) that can be performed on sets. N}Let M and M ∪ NN be sets. Then we define the union of M N M NM and N as M ∪ N := {x|x ∈ M ∨ x ∈M N M ∪ N