### Example: Sets

number}ℕℤ is the set of natural numbers. We can write this as MPU ℤ := { ., −3, −2, −1, 0, 1, 2, 3, ℕ := {1, 2, 3, 4, M := {1, 2, 3, 4}U := {u|u is an odd.}P := {p|p has.}

is the set of integers. We can write this as blond hair}.

Let be the set of numbers 1, 2, 3, 4. We can write this as .

Let be the set of all people with blond hair. Then we can write this as

Let be the set of all odd numbers. Then we can write this as

.

Often, however, this notation is too general. For example, if you look at the set of people with blonde hair, the question inevitably arises: from which greater set or larger group of set UU defined above. From which basic set do you choose the odd numbers as elementsℕ ℤ people are they selected? Do you look at all the people in a particular city? Or all the students in a course? Or the entire world population? The same applies, for example, to the

for ? Only from the natural numbers ? Or from the whole numbers ? To make this more precise, we introduce the terms subset and superset.

A set ⊆ MN is called a subset of a set M M, if every element of N N is also in M. For this we write N Definition: Subset and Superset

. The set is then called superset of . 1. Let A := {1, 2, 3, 4}P P' and P'N' and let B ⊆ AB := {2, 4}Pℕ P' := {p ∈ P|p has blond hair}. Then A is a superset of N' ⊆ ℕ B and BP is a subsetℕ