Arithmetical Symbols

The arithmetical symbols "0", "1", "+", "×" and "∧" work exactly as you'd expect: "0" and "1" name the numbers zero and one, respectively, and "+", "×" and "∧" express addition, multiplication and exponentiation, respectively. (To improve readability I will usually write "n^m" instead of "$n \wedge m$".)

Our arithmetical symbols can be combined to form complex symbols. For instance, one can construct the complex symbols "$0 + 1$" and "$(1 + 1) \times (1 + 1)$", which name the numbers one and four, respectively. For this reason, L has the expressive resources to name every natural number.

Here is a partial list:

Expression	Abbreviation	Refers to
0	-	number zero
1	-	number one
$(1+1)$	2	number two
$((1+1)+1)$	3	number three
$(((1+1)+1)+1)$	4	number four
$\vdots$	$\vdots$	$\vdots$

Note the abbreviations in the middle column of the table above. They are not officially part of our language. Instead, they should be thought of as short-hand for the complex symbols to their left. And they'll make a big difference. For instance, they'll allow us to write "12" instead of the much more cumbersome:

$$((((((((((((1+1)+1)+1)+1)+1)+1)+1)+1)+1)+1)+1)+1)$$

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