

0.1 Gödel numbering

Gödel numbering assigns a unique number to each formula.

To construct this we first assign a natural number to each symbol.

This gives us a sequence:

$$\{x_1, x_2, x_3, \dots, x_n\}$$

We can assign a unique number to this by using the first n prime numbers.

$$2^{x_1} 3^{x_2} 5^{x_3} \dots$$

This number can then be prime factored to recover the sequence, and therefore the formula.