

Scoping

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The diagram illustrates the evaluation of the expression $f(x)$ where x is bound to the value 2. The derivation is as follows:

$$\begin{aligned} f(x) &= \int x \, dx = \int t \, dt = \\ &= \left[\frac{t^2}{2} \right]_x^{2x} = \frac{1}{2} \left((2x)^2 - x^2 \right) = \frac{3x^2}{2} \end{aligned}$$

Annotations in the original image:

- A blue circle around the x in $f(x)$ and another blue circle around the x in the lower limit of the integral.
- A red arrow points from the x in $f(x)$ to the x in the integrand $x \, dx$.
- A red arrow points from the $2x$ in the upper limit to the $(2x)^2$ term in the final result.
- A red arrow points from the x in the lower limit to the x^2 term in the final result.

DSL \rightarrow $\delta\sigma\lambda$
DSLsofMath

$$f: \mathbb{R} \rightarrow \mathbb{R}$$

$$\underline{f(x)} = \frac{3x^2}{2}$$

$$\underline{g(s)} \stackrel{?}{=} x \cdot s$$

$$\underline{h(t)} = t$$

$$\underline{i(k)} \stackrel{?}{=} f(a \cdot k) = \frac{3(a \cdot k)^2}{2}$$

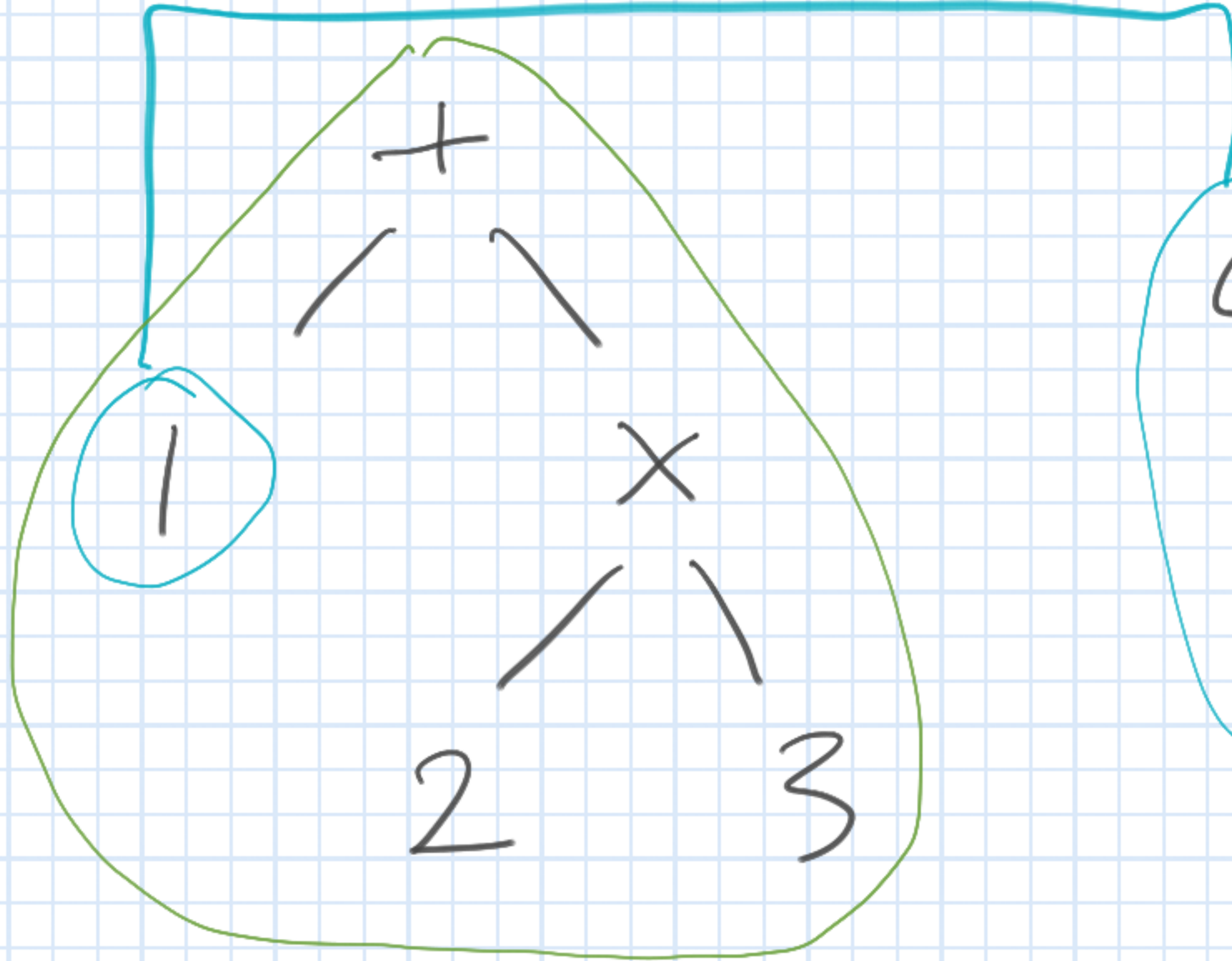
~~"the function $f(x)$ "~~

"the function f "

$$f(3): \mathbb{R}$$

$$\frac{3(a \cdot k)^2}{2}$$

$1 + 2 \times 3$



Abstrakt syntax

Add



Con
1
2

Con
1
3

Types and their values

$$\text{Bool} = \mathbb{B}$$

$$\mathbb{N}, \mathbb{Z}$$

$$\mathbb{Q}, \mathbb{R}, \mathbb{C}$$

$$\{F, T\}$$
$$\{0, 1, 2, 3, \dots\}$$

$$\mathbb{B} \times \mathbb{B} = \{(F, F), (F, T), (T, F), (T, T)\}$$

$$\mathbb{B} \rightarrow \mathbb{B} = \{\text{not}, \text{id}, \text{const } T, \text{const } F\}$$

$$\text{Table} = S \rightarrow \mathbb{Z} = \{\text{const } 0, \text{const } +738, \dots, \text{testTab}, \dots\}$$