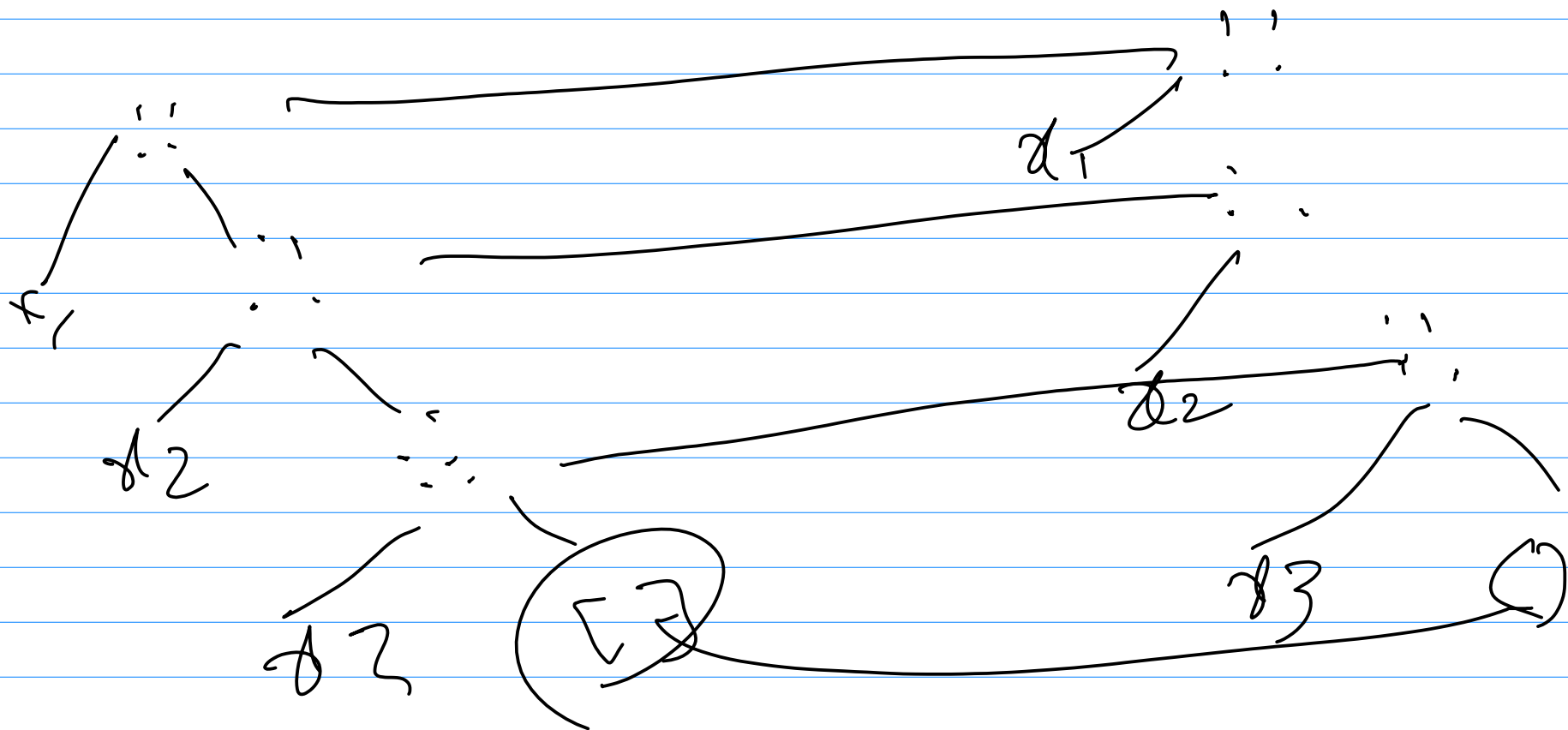




reduce: operator  $\rightarrow$  identity  $\rightarrow$  list  $\rightarrow$  ?

~~(op, id, list)~~



$$x \mapsto y = \text{func}(x, (\cdot), y)$$

$$x_1 \mapsto (y_2 \mapsto (x_3 \mapsto (\cdot)))$$

$$(\lambda_1 \text{ op } (\lambda_2 \text{ op } (\lambda_3 \text{ op } (\cdot))))$$

$$((\lambda_1 \text{ op } \lambda_2) \text{ op } \lambda_3)$$

$$((\lambda_1 \text{ op } \lambda_2) \text{ op } \lambda_3)$$

$$[x_1, x_2, x_3]$$

$$\left( \left( \text{id} \underset{\sim}{\text{op}} x_1 \right) \underset{\sim}{\text{op}} x_2 \right) \underset{\sim}{\text{op}} x_3$$

$$\left( x_1 \underset{\sim}{\text{op}} \left( x_2 \underset{\sim}{\text{op}} \left( x_3 \underset{\sim}{\text{op}} \text{id} \right) \right) \right)$$

$$\underset{\sim}{\text{op}}. \gamma. x = \underset{\sim}{\text{op}}. x. \gamma$$

Norman Law

$$\text{func1} - ([x_1, x_2, x_3], \underset{\sim}{\text{op}}, \text{id})$$

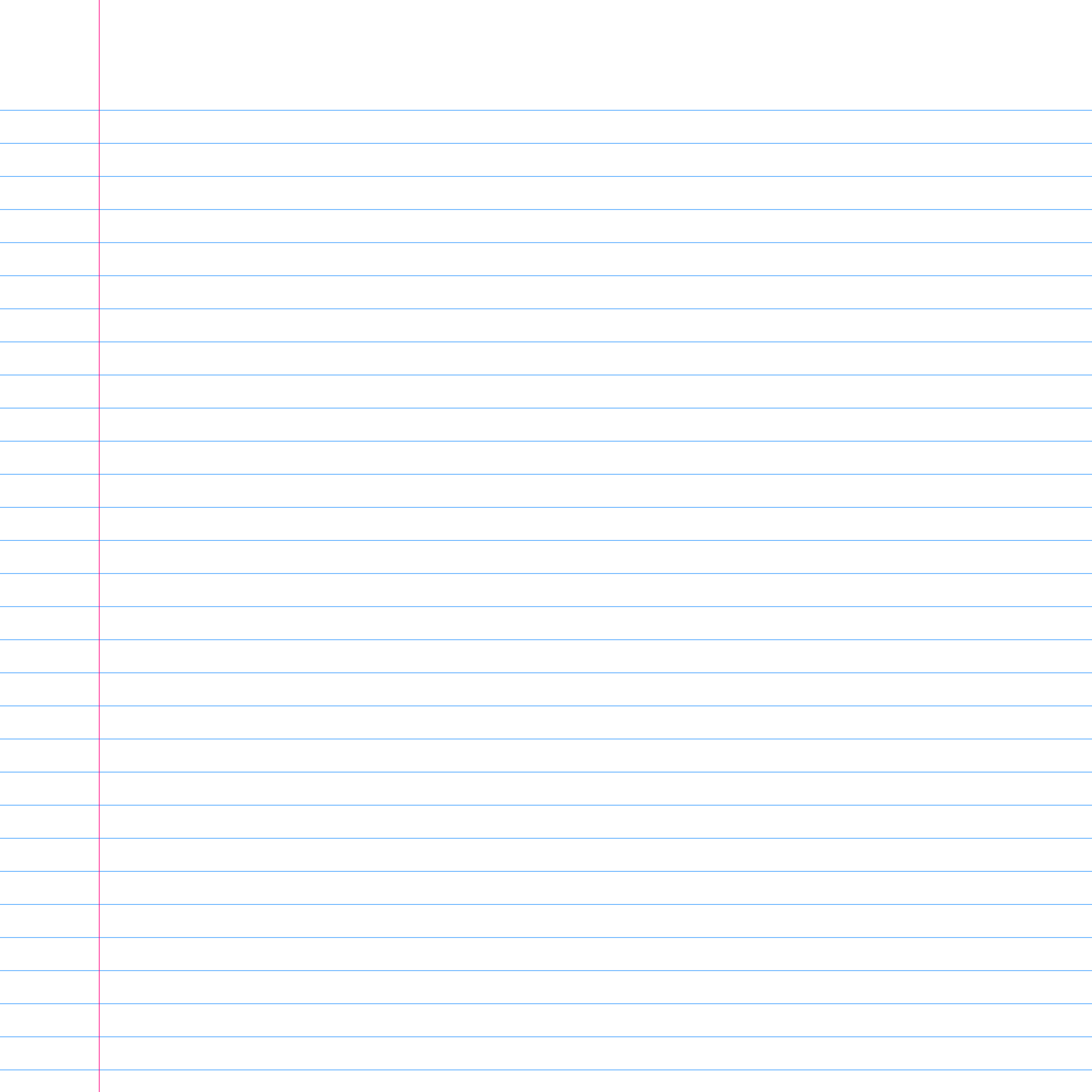
$$x_3 \underset{\sim}{\text{op}} (x_2 \underset{\sim}{\text{op}} (x_1 \underset{\sim}{\text{op}} \text{id}))$$

$$\left( (\text{id} \underset{\sim}{\text{op}} x_1) \underset{\sim}{\text{op}} x_2 \right) \underset{\sim}{\text{op}} x_3$$


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Numer's  $\text{func1} = (\text{op}, [x_1, x_2, x_3], \text{id})$

Low  
version 2  $((\text{id op } x_3) \text{ op } x_2) \text{ op } x_1$



$$[] \rightarrow id$$

$$[x_1] \rightarrow id \circ x_1$$

$$[x_1, x_2] \rightarrow (id \circ x_1) \circ x_2$$

$$[x_1, x_2, x_3] \rightarrow ((id \circ x_1) \circ x_2) \circ x_3$$