Alphabetic List of Existential Paths

Standard Dictionary for Path Semantics

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Binary Operators

∃(< k) <=> if k == 0 { id } else { true$_1$ }
∃∃(< k) <=> if k == 0 { true$_1$ } else { id }
∃(<= k) <=> true$_1$
∃(> k) <=> true$_1$
∃(>= k) <=> if k == 0 { id } else { true$_1$ }
∃∃(>= k) <=> if k == 0 { true$_1$ } else { id }
∃(+ k) <=> ∃add(k) <=> ∃(+ k) <=> (>= k)
∃(· k) <=> ∃mul$_{\mathbb{N}}$(k) <=> \(x) = (x == 0) || (x % k) == 0
∃(% k) <=> (< k)

A

∃add <=> true$_1$
∃add{[even] a, [even] b} := \(x) = if x == 0 { a ∧ b } else { (a == b) == even(x) }
∃∃add{[even] _, [even] _} <=> true$_1$
∃add{[odd] a, [odd] b} := \(x) = ¬if x == 0 { a ∧ b } else { (a == b) == even(x) }
∃∃add{[odd] _, [odd] _} <=> true$_1$
∃add(k) <=> ∃(+ k) <=> (>= k)
∃∃add(k) <=> ∃∃(+ k) <=> if k == 0 { id } else { true$_1$ }
∃and <=> true$_1$

D

∃div <=> (¬= 0)
∃div(k) <=> (¬= 0)

E

∃eq <=> true$_1$
∃eq(k) <=> ∃(= k) <=> true$_1$

F

∃false$_1$ <=> not

G

∃ge <=> true$_1$
∃ge(k) <=> ∃(<= k) <=> true$_1$
∃gt <=> true$_1$
∃gt(k) <=> ∃(< k) <=> if k == 0 { id } else { true$_1$ }

I

∃id <=> true$_1$

L

∃le <=> true$_1$
∃le(k) <=> ∃(>= k) <=> if k == 0 { id } else { true$_1$ }
∃len <=> true$_1$
∃lt <=> true$_1$
∃lt(k) <=> ∃(> k) <=> true$_1$

M

∃mul$_{\mathbb{N}}$ <=> true$_1$
∃mul$_{\mathbb{N}}${(< k), _} <=> \(x) = if k == 1 {x == 0} else {k != 0}
∃mul$_{\mathbb{N}}$(k) <=> ∃(· k) <=> \(x) = (x == 0) || (x % k) == 0
∃mul$_{\mathbb{N}}$(k){(= 0)} <=> \(x) = x == 0
∃mul$_{\mathbb{N}}$(k){(> 0)} <=> \(x) = if k == 0 {x == 0} else {(x > 0) && ((x % k) == 0)}
∃mul$_{\mathbb{N}}$(k){even} <=> \(x) = if k == 0 {x == 0} else {(x % (2 * k)) == 0}
∃mul$_{\mathbb{N}}$(k){odd} <=> \(x) = if k == 0 {x == 0}
    else {(x >= k) && (((x-k) % (2 * k)) == 0)}
∃∃mul$_{\mathbb{N}}$(k) <=> ∃∃(· k) <=> if k == 0 { true$_1$ } else if k == 1 { id } else { true$_1$ }

N

∃neg <=> true$_1$
∃not <=> true$_1$

O

∃or <=> true$_1$

R

∃random <=> probl

S

∃sequence(0, 2) <=> even
∃sequence(1, 2) <=> odd
∃sequence(a, b) <=> linear(a, b)
∃$\text{sub}_{\mathbb{N}}$ <=> true_1
∃sym <=> true_1

T

∃true_1 <=> id

U

∃unit <=> true_1

X

∃xor <=> true_1