Alphabetic List of Existential Paths

Standard Dictionary for Path Semantics

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Binary Operators

$\exists(< k) \Longleftrightarrow$ if k == 0 { id } else { $true_1$ }
$\exists\exists(< k) \Longleftrightarrow$ if k == 0 { $true_1$ } else { id }
$\exists(<= k) \Longleftrightarrow true_1$
$\exists(> k) \Longleftrightarrow true_1$
$\exists(>= k) \Longleftrightarrow$ if k == 0 { id } else { $true_1$ }
$\exists\exists(>= k) \Longleftrightarrow$ if k == 0 { $true_1$ } else { id }
$\exists(+ k) \Longleftrightarrow \exists add(k)$
$\exists(\cdot k) \Longleftrightarrow \exists mul_{\mathbb{N}}(k)$
$\exists(\% k) \Longleftrightarrow (< k)$

A

$\exists add \Longleftrightarrow true_1$
$\exists add\{[even]\ a, [even]\ b\} := \backslash(x) =$ if x == 0 { a ∧ b } else { (a == b) == even(x) }
$\exists\exists add\{[even]\ \_, [even]\ \_\} \Longleftrightarrow true_1$
$\exists add\{[odd]\ a, [odd]\ b\} := \backslash(x) = \neg$if x == 0 { a ∧ b } else { (a == b) == even(x) }
$\exists\exists add\{[odd]\ \_, [odd]\ \_\} \Longleftrightarrow true_1$
$\exists add(k) \Longleftrightarrow \exists(+ k) \Longleftrightarrow (>= k)$
$\exists\exists add(k) \Longleftrightarrow \exists\exists(+ k) \Longleftrightarrow$ if k == 0 { id } else { $true_1$ }
$\exists and \Longleftrightarrow true_1$

D

$\exists div \Longleftrightarrow (\neg= 0)$
$\exists div(k) \Longleftrightarrow (\neg= 0)$

E

$\exists eq \Longleftrightarrow true_1$
$\exists eq(k) \Longleftrightarrow \exists(= k) \Longleftrightarrow true_1$

F

$\exists \text{false}_1$ <=> not

G

$\exists \text{ge}$ <=> true_1
$\exists \text{ge(k)}$ <=> $\exists(<= k)$ <=> true_1
$\exists \text{gt}$ <=> true_1
$\exists \text{gt(k)}$ <=> $\exists(< k)$ <=> if k == 0 { id } else { true_1 }

I

$\exists \text{id}$ <=> true_1

L

$\exists \text{le}$ <=> true_1
$\exists \text{le(k)}$ <=> $\exists(>= k)$ <=> if k == 0 { id } else { true_1 }
$\exists \text{len}$ <=> true_1
$\exists \text{lt}$ <=> true_1
$\exists \text{lt(k)}$ <=> $\exists(> k)$ <=> true_1

N

$\exists \text{neg}$ <=> true_1
$\exists \text{not}$ <=> true_1
$\exists \text{mul}_{\mathbb{N}}$ <=> true_1
$\exists \text{mul}_{\mathbb{N}}\text{(k)}$ <=> $\exists(\cdot\ k)$ <=> \(x) = (x == 0) || (x % k) == 0
$\exists\exists \text{mul}_{\mathbb{N}}\text{(k)}$ <=> $\exists\exists(\cdot\ k)$ <=> if k == 0 { true_1 } else if k == 1 { id } else { true_1 }

O

$\exists \text{or}$ <=> true_1

S

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

T

$\exists true_1 <=> id$

U

$\exists unit <=> true_1$

X

$\exists xor <=> true_1$