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$f = pr(\underset{h}{0_2}, \underset{g}{1_0})$

$f(0,\_) = g(\_) = 1_0$

$f(n+1) = h(n, f(n)) = 0_2$

$$f(x) = \begin{cases} 1 & x = 0 \\ 0 & \text{so-st} \end{cases}$$

$f = co(s, so(\pi_2^2, \pi_1^2))$

$f(x,y) = add(sub(x,y), (so(\pi_2^2, \pi_1^2))(x,y))$

$= add(sub(x,y), sub(y,x))$

$= max\{x-y, 0\} + max\{y-x, 0\}$

$x \leq y \Rightarrow \quad 0 \quad + \quad y-x \quad = \quad -(x-y)$

$x > y \quad \quad x-y \quad + \quad 0$

$\rightsquigarrow f(x,y) = |x-y|$

Sub

$$\underbrace{pr\left(v \circ \overset{4}{\overbrace{\pi_2^3}}, \overset{g}{\overbrace{\pi_1^1}}\right) \circ \left(\pi_2^2, \pi_1^2\right)}$$

$$S(x,y) = y \dot{-} x$$

$$S(0,y) = \pi_1^1(y) = y = y \dot{-} 0$$

$$S(x+1,y) = h(x, S(x,y), y) = S(x,y) \dot{-} 1 = (y \dot{-} x) \dot{-} 1 = y \dot{-} (x+1)$$

Vorgänger $v : \mathbb{N} \to \mathbb{N}$

$$pr(\overset{4}{\overset{|}{\pi_1^2}}, \overset{g}{\overset{|}{O_0}})$$

$$v(0) = O_0 = 0$$

$$v(x+1) = h(x, v(x)) = x$$

TODO: $sqrt^*(x) := \min\{q \in \mathbb{N} \mid q^2 \geq x\}$