

Inputs:

Ints from
-9 to 9

x, y, z

(opr [expr...])

use these to
estimate output

$x + y + z = \underline{\quad}$
(1 0 2 2) \rightarrow
x y z output

• RNG

- Select parts of individual $n^{\text{th}} 1 \rightarrow n$
- Swapping $\text{EXPR} \leftrightarrow \text{EXPR}$ (no $n^{\text{th}} 0$)
- mutations ~~Both EXPR~~ / OPRs (check for both)
- Div 1 if an expr $n^{\text{th}} 1 \rightarrow$ end is zero
- Score $\text{expr} = 1$
- Purge/mate

(1 1 5 7 8 0)

(Swap criteria criteria)

// pick a point from each indiv

// A = n^{th} 5 (rand) ; has to be $> n^{\text{th}} 0$

// B = n^{th} 2 () ; $n^{\text{th}} 0$ is OPR

// get part from A Part a

// get part from B Part b

// sum them

\swarrow opr
 $\underbrace{(+ 3 4)}_{\text{Expr}} \leftrightarrow (+ (\underbrace{* 3 1}_{\text{Expr}}) 4)$

critter: $(+ \ 1 \ 9 \ x \ z)$ $\{x=1 \ z=2\}$
 $-(x \ (+ \ 9 \ 5 \ x) \ z \ 1 \ -1)$

fitness: eval instead of length

Globals (Setq x sample-x y sample-y)

$x=1 \ z=2$
 (eval 'critter) \rightarrow 12 \leftarrow Fitness

55

sample $(1 \ 0 \ 2 \ 2)$

\nearrow
 $\begin{matrix} n^{\text{th}} & 0 & : & x \\ n^{\text{th}} & 1 & : & y \\ n^{\text{th}} & 2 & : & z \end{matrix} \left. \vphantom{\begin{matrix} n^{\text{th}} \\ n^{\text{th}} \\ n^{\text{th}} \end{matrix}} \right\} \text{globals}$

\searrow $n^{\text{th}} \ 3$: output (goal fitness)

Judging Fitness

- ① Run eval \rightarrow get an ans.
- ② Output - ANS \rightarrow Weighted Fitness (less is better)
- ③ Wtd. Fitness \rightarrow better critters to mate (top 1/2)