Eye-Arr-Arr: At Wit's End

A GAME DESIGNED BY STATHI AVDIS

Gameplay:

You and a pirate take turns "shooting" at each other's ship, each located at the solution of an IRR problem along 2 different x-axes that face each other.

The pirate is controlled by the game. You win if you land your shot at his/her location (you "take their eye out," so they yell "ARR") before they hit you.

There are three weapons and three opponents, each one harder to use/play against.

The location of each ship is at r, $0 \le r \le 1$, where

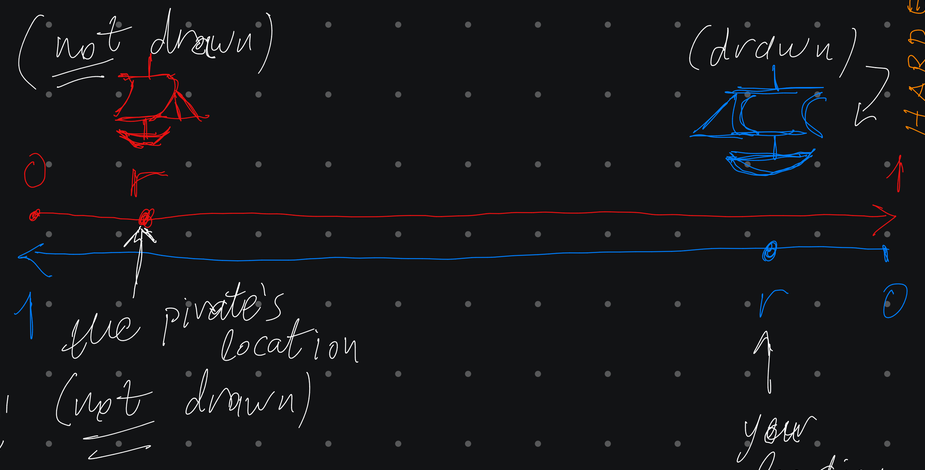
$$\text{Blood} = \text{Booty}\left(\frac{1}{1+r} + \frac{1}{(1+r)^2} + \cdots + \frac{1}{(1+r)^{\text{PLUNDERS}}}\right)$$

(Booty: parameters set by game; PLUNDERS: chosen by player before game starts)

but each ship is drawn on a different axis. You do not see each other's r ($r_{\text{your}} \neq r_{\text{pirate}}$)

Completion benchmarks (a.k.a. "levels")

- Judged by how many (and which) weapons and opponents you implement.



Opponents:

- Bisection method
- Newton-Raphson method
- Ada Grad (applied to root finding)

The opponent uses their namesake method to determine their inputs. The player goes by feel.

Weapons:

HARDER

- Parrot: "delivers" droppings directly at a location input by player
- Cannon: projectile, with ballistic path shown, with player choosing angle and initial force
- Blunderbuss: same as cannon, but the ballistic curve is now adjusted by superimposing an AR(1) process on it