

systematic games creation

the question

is there a way to have a system to systematically create games?

the thought process

can we use mathematics for this ?

what would be a mathematical definition of *fun* ?

game theory ?

game theory is more about definining what an optimal strategy is. . .

what do games have in common ?

lots of games are np-hard // np-complete !!

... so ?

... so ?

so ?????

so!!!!!!

so maybe...

... so maybe... we could use this feature to create games based on known np-hard problems ??

a first game

based on the independent set of a graph

goal: to create the largest independent set in a turn-based coloring of a graph

a second game

the art gallery

you need to decide what is the smallest number of guards needed
for a given art gallery

next step: make it procedural ?

why it works (kinda) ?

np-hard problems that are easy to state in non-mathematical language often feels approachable - but they don't have A Way to solve them!

so you are always on the tip of your toes, so close to the optimal solution - and yet... not there ?

maybe ?

the heuristic

- ▶ take a np-hard, not too mathy problem (a problem you can state in plain language)
- ▶ make the game turn-based by alternating whose turn it is to find a solution
- ▶ make the game competitive by adding a component that allows one player to change or influence the other player moves
- ▶ voilà !
- ▶ the best solution wins :tada:

thank you !!!

Thank you :)