Rubik's Cube Solvability Classes

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March, 2020

Abstract

blah blah cube blah blah maths blah blah stupid.

Contents

1 Introduction

1.1 History

blah blah 1980's blah blah Rubik blah blah Hungary

1.2 Notation

blah blah F F' and so on

1.3 Question

blah blah ECSC story here

2 Solving the 3x3x3 Rubik's

blah blah summary of the aproach

2.1 Reduction to last-layer

blah blah proof by contradiction and deterministic solution

2.2 Searchspace bruteforce result

blah blah only code here

2.3 Giving an answer

2.3.1 Corner orientation

3

2.3.2 Edge orientation

2

2.3.3 Edge position

2

2.3.4 Final independence

3*2*2=12

3 Solving 4x4x4

blah blah analyse differences from 3x3x3

3.1 Generalizing theorems

easy to say, hard to do

3.2 Solving the symmetry problem

blah blah parity blah blah symmetric slices from the center

3.3 Solve the geometric invariant

blah blah probably said something dumb here

3.4 Results for 4x4x4

Hmmm...

4 Solving NxNxN

blah blah why not take it further

4.1 Prove independece of non-symmetric layers

probably true

4.2 Reduce to 3x3x3 and 4x4x4 cases

not to hard, maybe induction

4.3 Flex with vector spaces to calculate the answer

lol, mathy boiiiis

5 Generalizing to cuboids

blah blah even crazier idea

6 Solve the problem for other platonic solids

lol what is this even.