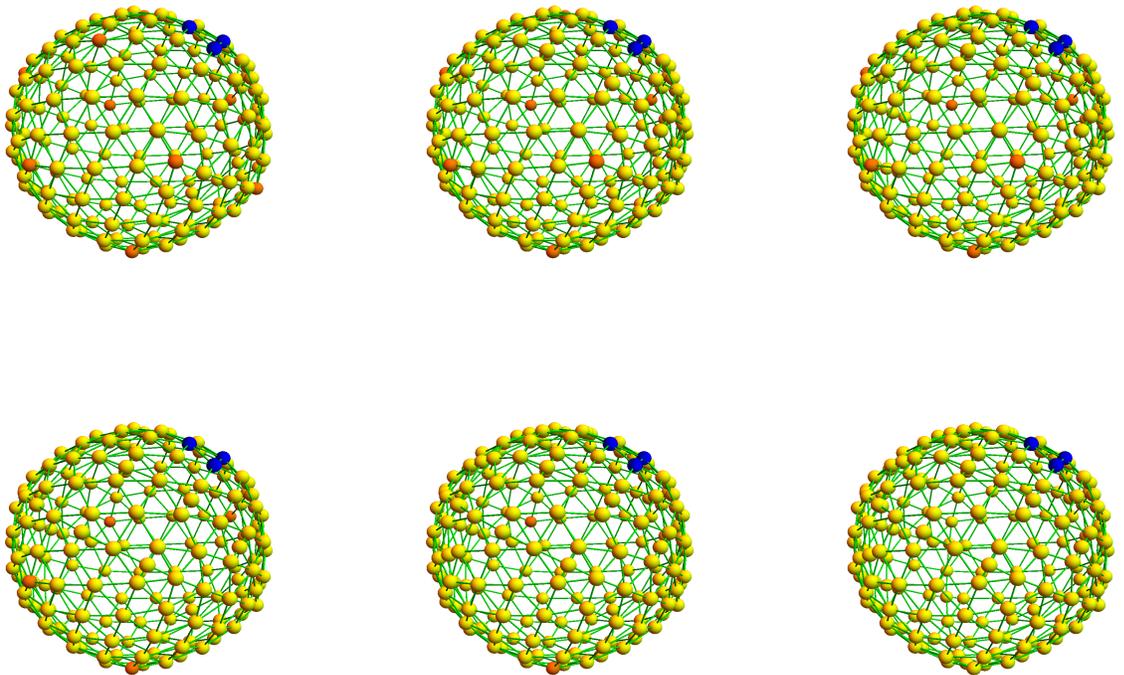


# TOWARDS A TOPOLOGICAL PROOF OF THE FOUR COLOR THEOREM IX

OLIVER KNILL

ABSTRACT. Allow to touch the boundary and avoiding a triangle  
Avoiding a triangle.



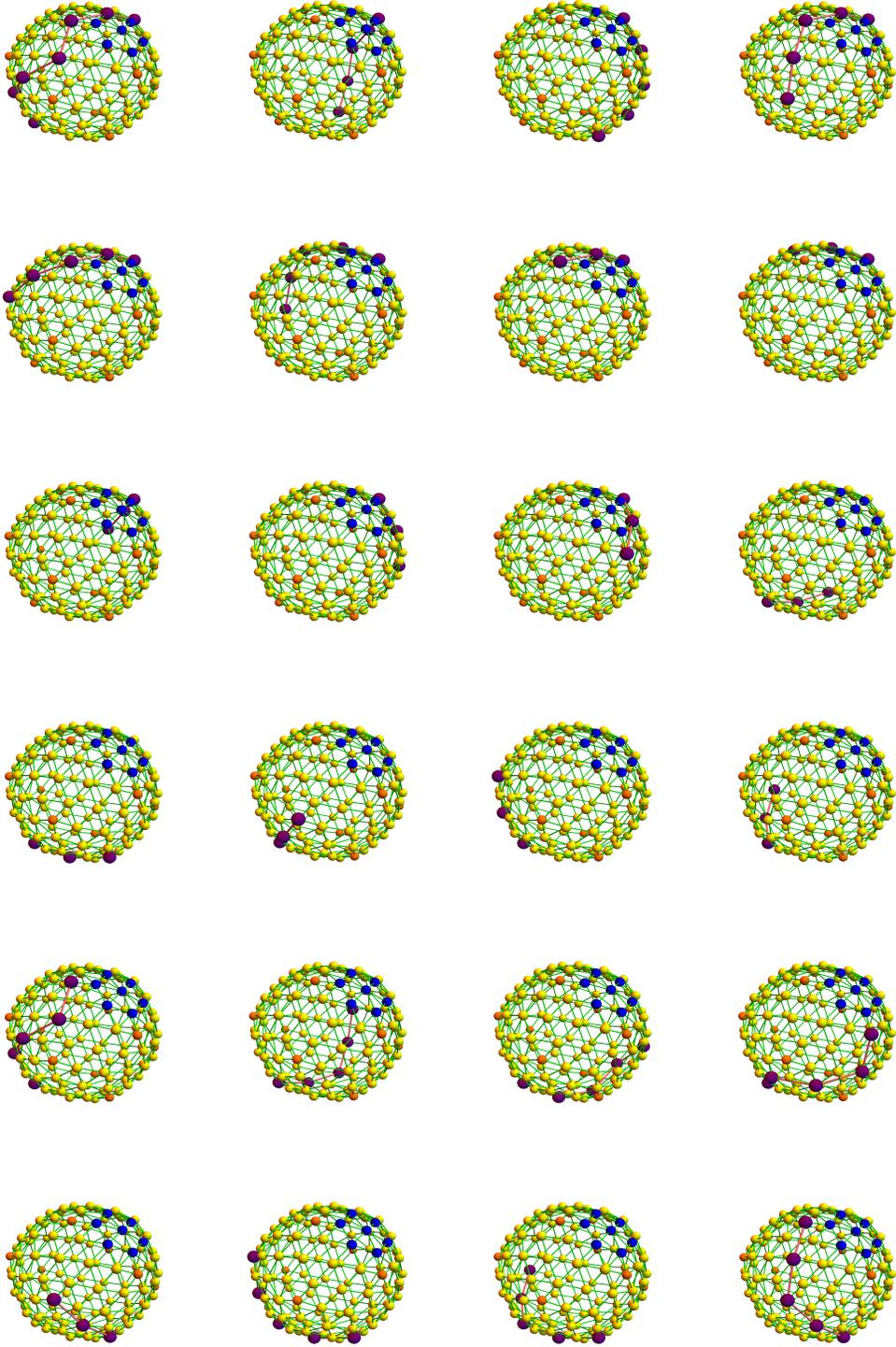
Here is how the program searches for cutting paths. We can now also hit the boundary of the forbidden region without cutting inside the forbidden region.

---

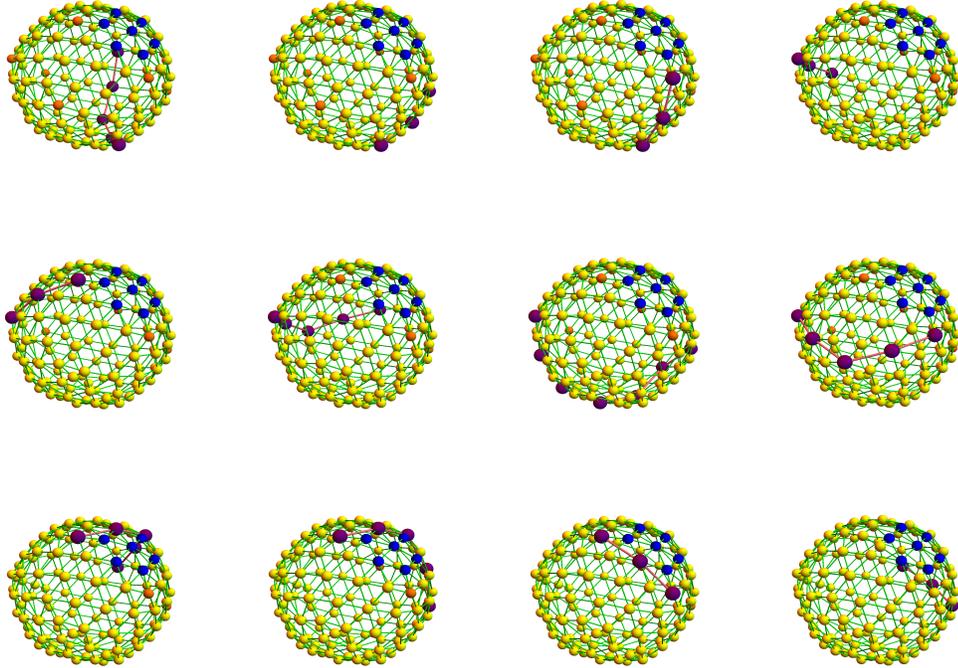
*Date:* March 14, 2015, part of public research diary. Possibly and likely to be buggy.

*1991 Mathematics Subject Classification.* Primary: 05C15, 05C10, 57M15 .

*Key words and phrases.* Chromatic graph theory, Geometric coloring.



TOWARDS A TOPOLOGICAL PROOF OF THE FOUR COLOR THEOREM IX 3



DEPARTMENT OF MATHEMATICS, HARVARD UNIVERSITY, CAMBRIDGE, MA, 02138