

1116-VH-1753 **Arnold Yim*** (ayim@purdue.edu), 150 N University St, West Lafayette, IN 47907. *Cake cutting, cartography, and flows along barriers.*

Given a cake, if you makes n cuts, how many pieces will you have? The answer depends rather much on exactly how you make the cuts. Using a counting technique called “deletion-restriction,” one can give a recursive answer. This in turn can be used to determine how to make the maximum number of pieces with n cuts, and what that number is.

Seemingly unrelated, if we are given a graph, one might consider the ways to color the vertices of the graph while making sure that adjacent vertices have different colors. Interestingly, we can also count the number of ways using “deletion-restriction.”

In yet a different setup, the ideas behind “deletion-restriction” show up when one looks at flows (that is, vector fields) which are tangent to each one of a collection of planes in space. Intriguingly, the study of these flows can actually help us answer our counting problems.

The talk will explain the connections between cutting, coloring, and flowing, by way of pictures and examples. (Received September 21, 2015)