How rare is linear pattern?

- Probability of a binary $n \times n$ matrix having "dictionary order"
- $2^{n(n-1)/2}$ possible symmetric binary matrices
- $n!$ possible dictionary orders
- Each dictionary order can lead to at most $n!$ matrices that can be reordered in dictionary order
- Prob[has dic. order] $\leq (n!)^2 / 2^{n(n-1)/2}$

Benzer's Dictionary Order

- Dictionary order is equivalent to Consecutive Ones Order when looking at cliques x rows
- A clique is a maximal set of intersecting mutants
- Problems of this sort also apper in mapping by hybridization
- Probes x clones matrix: looking for consecutive ones property (C1P)

Algorithm for C1P

- Separate rows into strictly-overlapping components
- Solve each component
- Join solutions of components into general solution

Separating components

- Graph with vertices = rows and edges = strictly ovelapping rows
- Strict overlap: $A \cap B \neq \emptyset$, $A \cap B \neq A$, $A \cap B \neq B$
- No strict overlap:
  - A and B disjoint
  - B contains A
  - A contains B

Joining component solutions

- Easy: solutions from different components do not interfere with one another
- Components form an acyclic graph