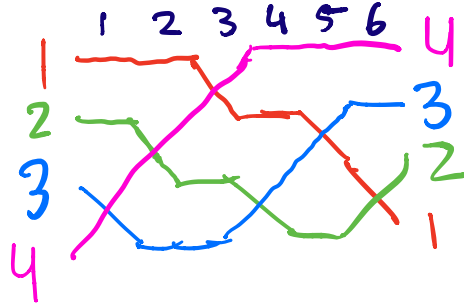


Symmetries of Sorting Networks

A sorting network:

- adjacent transpositions
- no double crossing
- reverse initial order

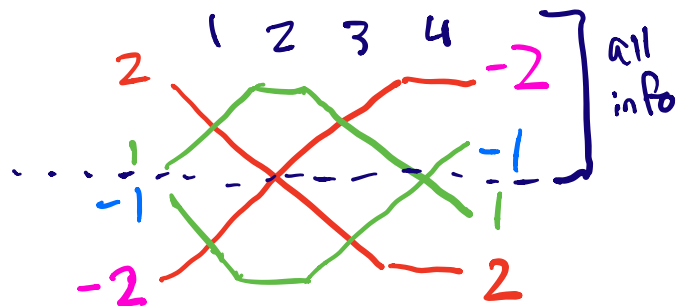


$SN(n)$ set of all sorting networks

Two symmetries:

(1) Vertical:

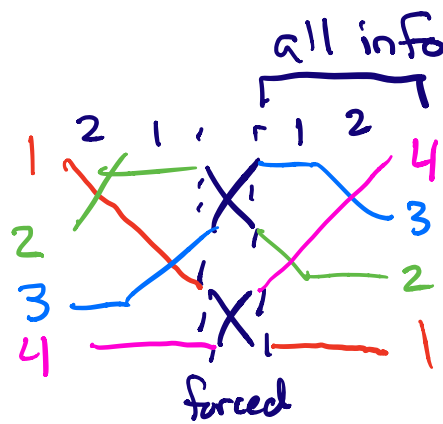
$SN^B(n)$



(2) Horizontal:

$SN^{FPF}(n)$

(n even)



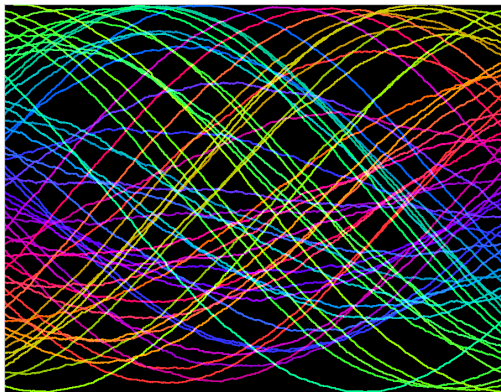
Sampling:

Edelman-Greene '87

Greene-Nienhuis-Wilf '79

Sample

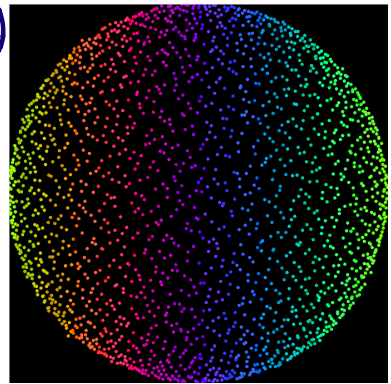
$$SN(n) \xleftrightarrow{\text{bij}} SYT(\square) \xrightarrow{\downarrow}$$



Thm: (Dabergne 201)

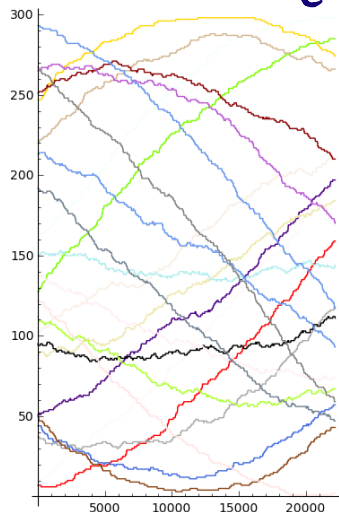
Random SN looks like this

Images by Holroyd



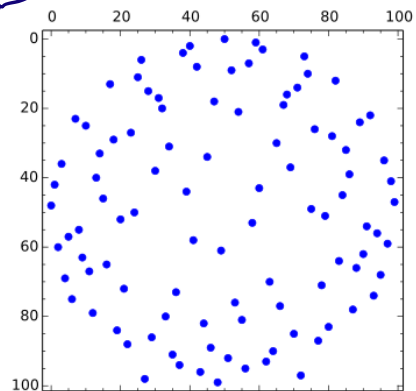
Haiman '92

$$SN^B(n) \xleftrightarrow{\text{bij}} SYT(\square)$$



Marberg '20

$$SN^{FPF}(n) \xleftrightarrow{\text{bij}} SYT(\square)_{\mathbb{R}}$$



Sagan '80
sample

Conj: Same pics for both models