1165-52-272 **Nora Youngs*** (nora.youngs@colby.edu), **R. Amzi Jeffs** and **Caitlin Lienkaemper**.
Order-forcing in neural codes.

Convex neural codes are subsets of the Boolean lattice that record the intersection patterns of convex sets in Euclidean space. Much work in recent years has focused on finding combinatorial criteria on codes that can be used to classify whether or not a code is convex. In this paper we introduce order-forcing, a combinatorial tool which recognizes when certain regions in a realization of a code must appear along a line segment between other regions. We use order-forcing to construct novel examples of non-convex codes, and to expand existing families of examples. We also construct a family of codes which shows that a dimension bound of Cruz, Giusti, Itskov, and Kronholm (referred to as monotonicity of open convexity) is tight in all dimensions. (Received January 19, 2021)