1146-92-303   **Christopher M Langdon*** (`cyl5328@psu.edu`). *Threshold-Linear Networks and Mutations of Oriented Matroids.* Preliminary report.

Threshold-Linear networks are commonly-used rate models for modeling neural networks in the brain. In particular, they are an attractive model for studying the role of network connectivity in shaping dynamics. We show that the notion of a mutation of a hyperplane arrangement from oriented matroid theory is useful for understanding how network connectivity constrains the modulation of fixed point structure in TLNs. For instance, by considering mutation graphs we can obtain a precise notion of flexibility and identify some robust motifs i.e. architectures that allow no flexibility in their fixed point structure. (Received January 25, 2019)