Is the underlying manifold structure irrelevant? The correlation between label propagation and distance along the graph from a labeled point is not the same for a random graph (\(t_{\text{moons}}^b\)) and manifold graph (\(t_{\text{moons}}^n\)).

Evidence indicates participants are not blindly following the highlighting!

4. Are people capable of learning the manifold or are they blindly following the highlighting?

- Participants perform ‘leaps-of-faith’. A ‘leap-of-faith’ occurs when a participant classifies \(x\) as class \(y\) while all \(x\)’s neighbors are either unlabeled or have labels other than \(y\).
- \(t_{\text{moons}}^b\) average of 17 leaps-of-faith out of about 78 classifications.
- Blindly following the highlighting would yield zero leaps-of-faith.
- Is the underlying manifold structure irrelevant?

A new random manifold graph is created by taking a random permutation of the \(t_{\text{moons}}^b\) graph and mapping the \(i\)’th unlabeled point to the new permutation while keeping the adjacency matrix the same. \(t_{\text{moons}}^b\) and \(t_{\text{moons}}^n\) both have two connected components with consistent labeled points.

Blindly following means participants are more likely to classify unlabeled points the same as a labeled point the nearer the two are along the graph. This correlation should be the same for \(t_{\text{moons}}^b\) and \(t_{\text{moons}}^n\), but it wasn’t.

The Punchline

People can learn the half-moons dataset, if we give them (not just 2) labeled points and give them clues about the graph.