Discussion:

**Summary of results:**

1. Introducing thresholds to the model has a strong impact on eco-evolutionary dynamics.
2. Thresholds lead to emergence of highly modular network structures.
3. Strong deviations from expected patterns of trait overdispersion can be observed.

**Explanation of why threshold and intraspecific variation lead to high modularity:**

Basic premise of the model is that competition will invariably lead to divergent patterns in trait evolution and eventually, all the species will diverge enough to escape competition. Before this eventuality, persistent patterns in network structures and trait distributions can be observed. Stringent (low) threshold combined with high trait variation create very persistent modules of species that compete strongly. These modules are formed because of the thresholds and persist longer since high intraspecific trait variation slows the response to divergent selection pressure.

**Relevance of using thresholds:**

Using thresholds

1. generalizes the description of niche overlaps i.e. whole guild of competitors that depend on common resource spectrum can be incorporated in the analysis.
2. fundamentally alters the eco-evolutionary dynamics by controlling the number of potential competitors (at individual level)
3. ??

**Relevance of results:**

Modularity of networks strongly influence the stability of networks in response to disturbances near equilibrium. Our model suggests a simple mechanism by which such structures may emerge.

Our outcome also shows that we may not always observe trait overdispersion as a signature of competitive interactions. Threshold to competition and high trait variation leads to clustered patterns in trait distributions.

**Model limitations:**

No indirect interactions

No stochasticity

No abiotic selection pressures

Population genetic model which informs that trait variance won’t change as a response to selection + no mutation or drift

**Implications of this analysis:**

Adaptive landscapes of species in a “biotic environment” or a trait space of interacting species can be analysed using our framework. Complexity of these landscapes should inform more viable community configurations. Extension of this idea could also be applied to the questions about susceptibility of rare species or success of invasive species in a given community.