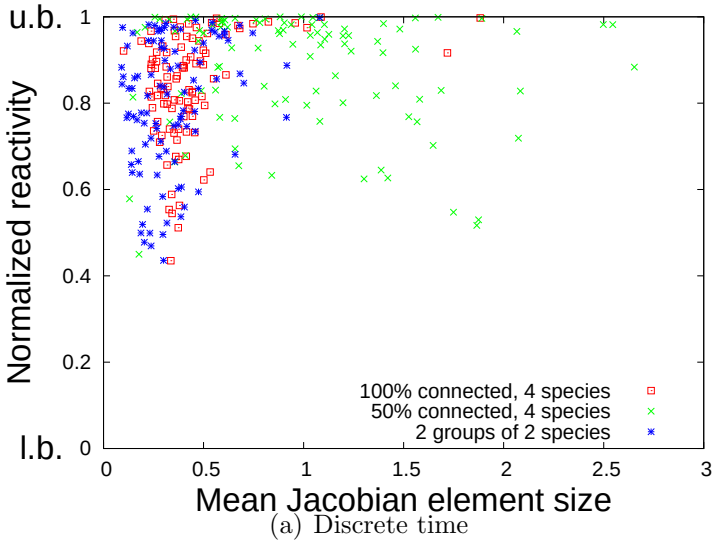
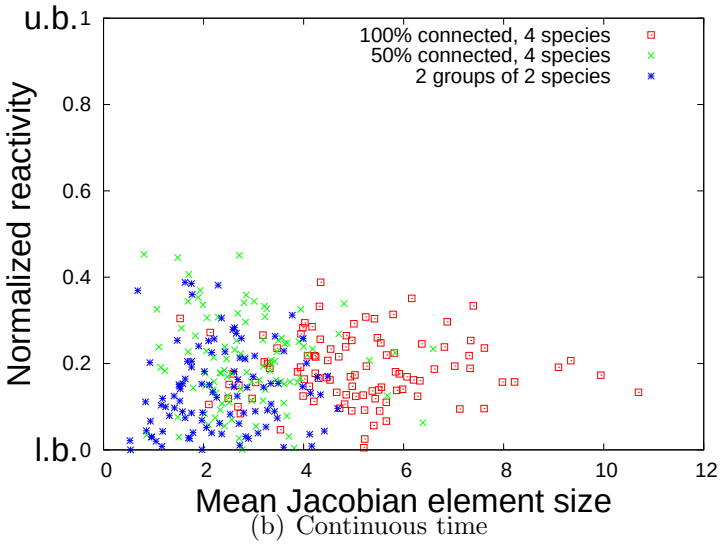
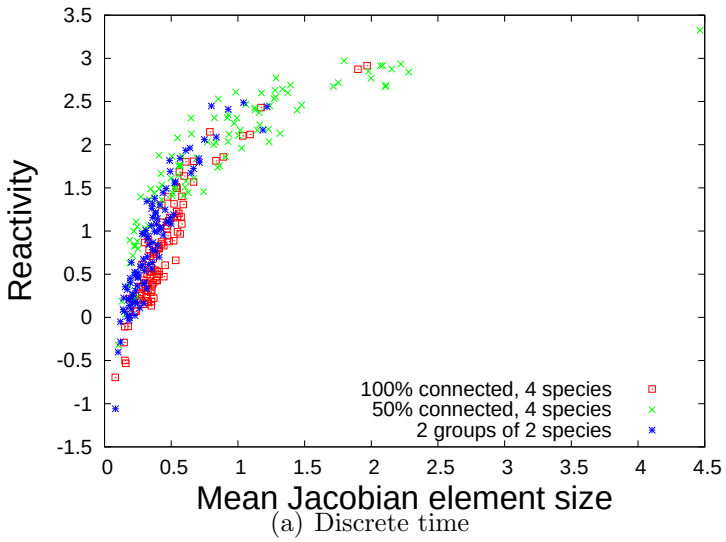


(a) Discrete time

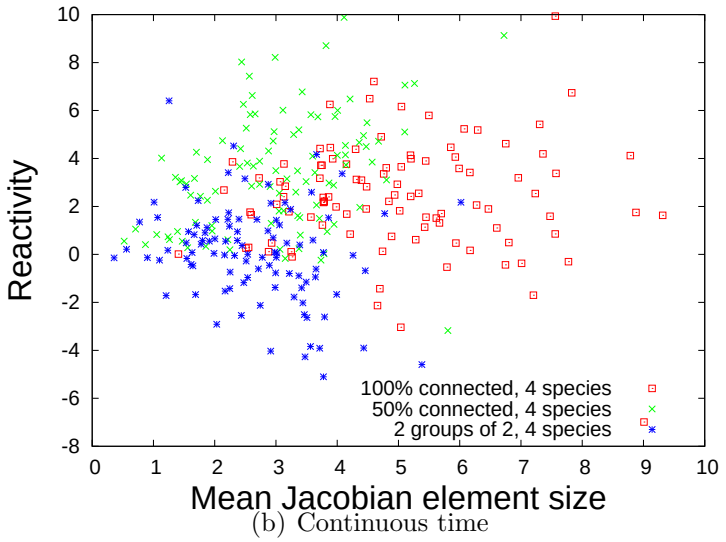


(b) Continuous time

Figure 1: Reactivity as a proportion of the distance from lower bound to upper bound for the hierarchical interactions food web models: (reactivity - l.b.)/(u.b. - l.b.). For discrete time systems, l.b. $= \max\left(\ln\left(\frac{||\mathbf{J}||_F}{\sqrt{n}}\right), \ln(\max(|J_{ij}|))\right)$ and u.b. $= \ln(||\mathbf{J}||_F)$ (eqs. 9, 11). For continuous time systems, l.b. $= \mathrm{Re}\lambda_1(\mathbf{J})$ and u.b. $= ||\mathbf{J}||_F$ (eqs. 8, 16). Maximum interaction strength $g = 2$. I use only 4 species, as finding stable systems with more than 4 species become computationally prohibitive when the food web is 100% connected.



(a) Discrete time



(b) Continuous time

Figure 2: Reactivity vs mean Jacobian element size for the hierarchical interactions food web models, $g = 2$.