



E Summary of definitions

$x_i(t)$ = species abundances, locations $i = 1, \dots, N$, times $1, \dots, T$.
 $\mu_i = \text{mean}(x_i)$; $v_{ii} = \text{var}(x_i)$; $v_{ij} = \text{cov}(x_i, x_j)$; $m_{iii} = 3^{\text{rd}}$ moment of x_i ; $x_{\text{tot}} = \sum_i x_i(t)$.

$CV_{\text{com}}^2 = \text{var}(x_{\text{tot}}) / (\text{mean}(x_{\text{tot}}))^2$ = community instability measured using variance.
 CV_{nta}^2 = what CV_{com}^2 would be without tail associations.
 $CV_{\text{ind}}^2 = (\sum_i v_{ii}) / (\sum_i \mu_i)^2$ = what CV_{com}^2 would be without species interactions.

$S_{\text{com}} = \text{skew}(x_{\text{tot}})$ = community instability measured using skewness.
 S_{nta} = what S_{com} would be without tail associations.
 $S_{\text{ind}} = (\sum_i m_{iii}) / (\sum_i v_i)^{3/2}$ = what S_{com} would be without species interactions.