















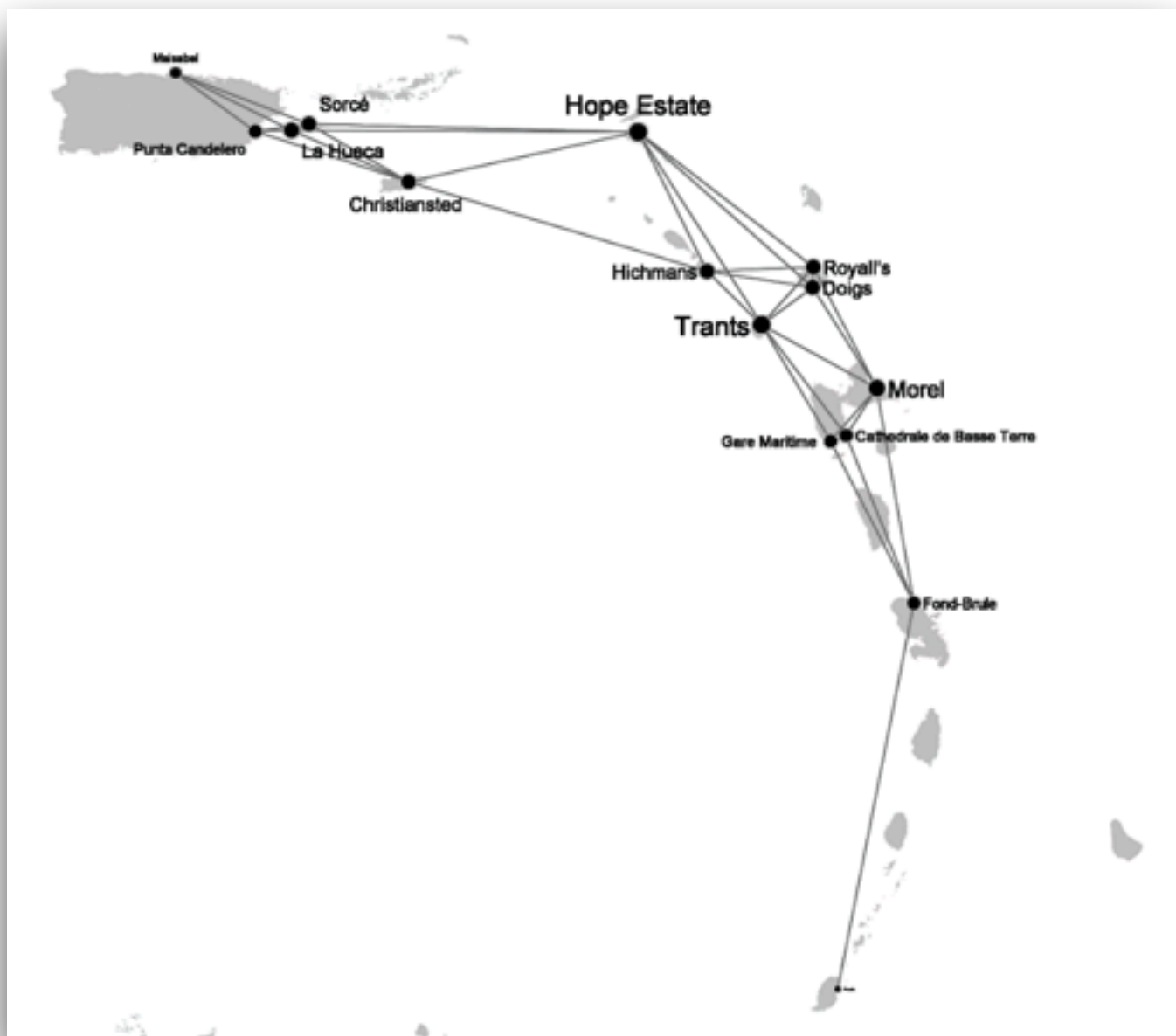






archaeological networks: new frameworks using ERGMs





# reconstructing networks of the past

## archaeological networks: new framework using ERGMs

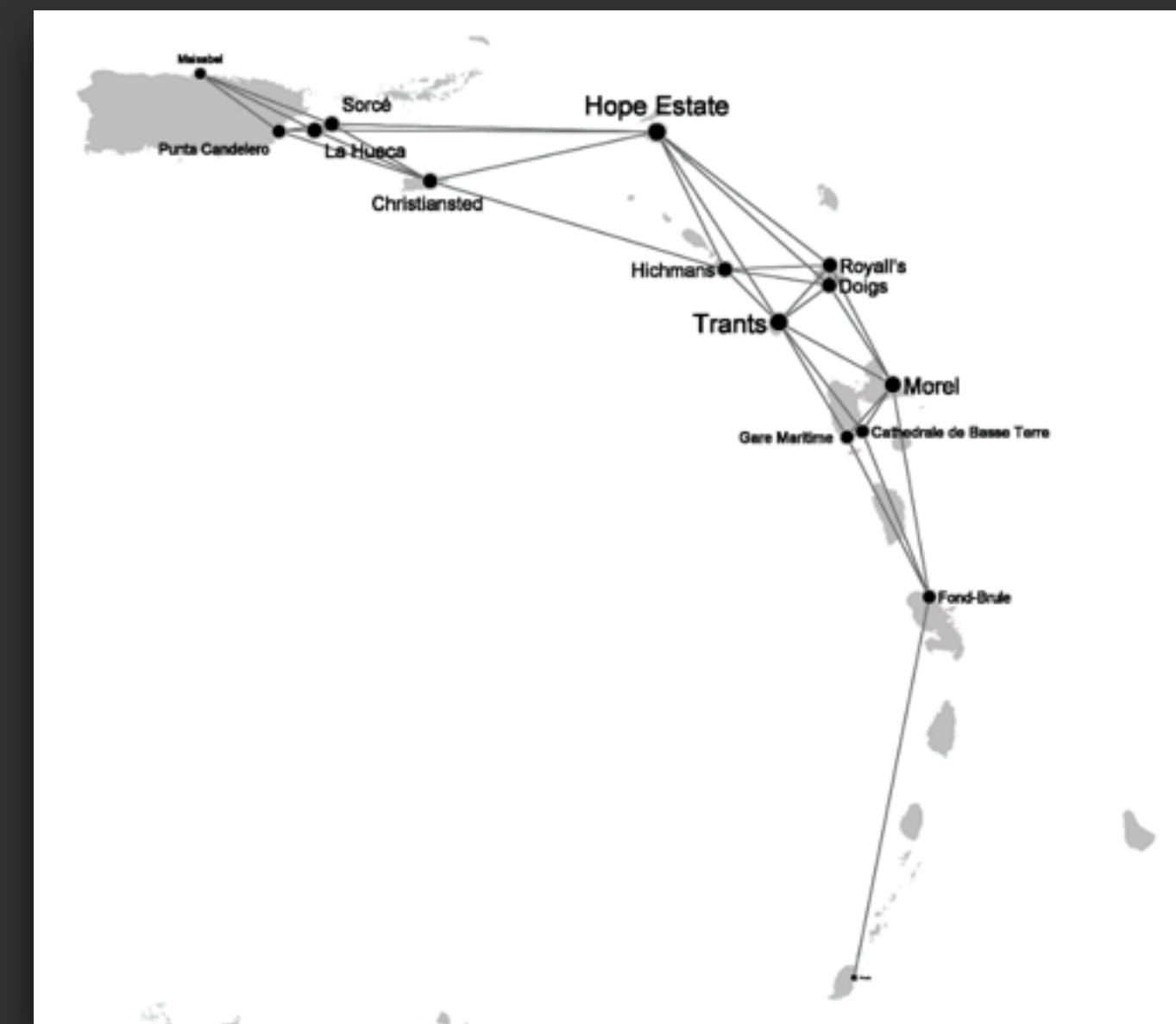
- ERGM: the probability of a graph is a function of two components
  - (1) set of network statistics
  - (2) set of parameters (associated with statistics)

$$P(G) = \frac{1}{\kappa} \exp \left( \sum_{i=1}^p \theta_i \cdot s_i \right)$$

- example:

$$P(G) = \frac{1}{\kappa} \exp \left( \theta_1 \cdot L + \theta_2 \cdot S_2 + \theta_3 S_3 + \theta_4 T \right)$$

$$\approx \theta_1 \times \# \begin{array}{c} \bullet \\ | \\ \bullet \end{array} + \theta_2 \times \# \begin{array}{c} \bullet \\ \diagup \quad \diagdown \\ \bullet \quad \bullet \end{array} + \theta_3 \times \# \begin{array}{c} \bullet \\ \diagup \quad \diagdown \quad \diagup \\ \bullet \quad \bullet \quad \bullet \end{array} + \theta_4 \times \# \begin{array}{c} \bullet \\ \diagup \quad \diagdown \\ \bullet \quad \bullet \end{array}$$



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