Seth Temple
sdtemple@uw.edu

Slides Handout

June 2021

Color Scheme

- Orange: times
- Violet: before infection probabilities
- Blue: infection rates
- Purple: removal rates

Glossary

- N total individuals and n infected individuals
- r_j and i_j are removal and infection times for j
  - Removal means an individuals can no longer infect others
  - E.g. time of death, time of quarantine, time of case diagnosis
- β_{kj} is infection rate k applies to j
  - $B_j := \sum_{k=n+1}^{N} \beta_{jk}$ is sum of rates j applies to never-infecteds
- θ_j parameterizes infectious period $r_j - i_j \sim P_{\theta_j}$
  - $\theta_j = (m_j, \gamma_j)$ for Erlang periods
  - $\delta_j := \gamma_j + B_j$ is new rate after change of variable
- τ_{kj} is time k applies pressure to j
  - $\omega_{jk} = \tau_{jk} + \tau_{kj}$ is joint time
  - $W = \sum_{j=2}^{n} \sum_{k \neq j}^{n} \tau_{kj}$ is cumulative time infective pressure is exerted
- ψ_j is $P(j$ evades infection until time $i_j)$
  - ψ_{kj} is $P(j$ evades infection from k until time $i_j)$
- χ_j is infective pressure on j at i_j
  - χ_{kj} is infective pressure on j applied by k at time i_j
- ϕ_j is $P(j$ fails to infect the $N - n$ never-infecteds)