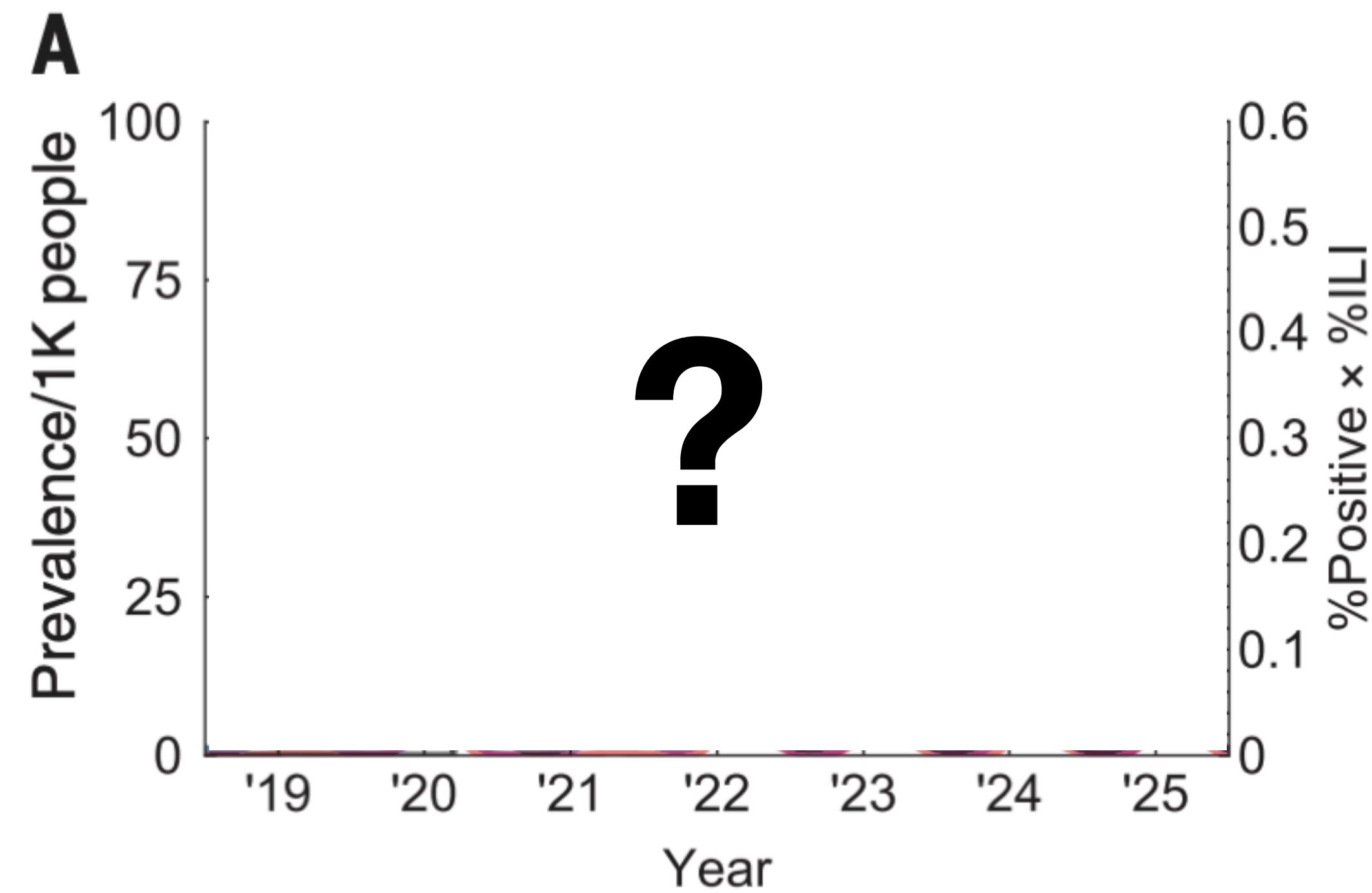
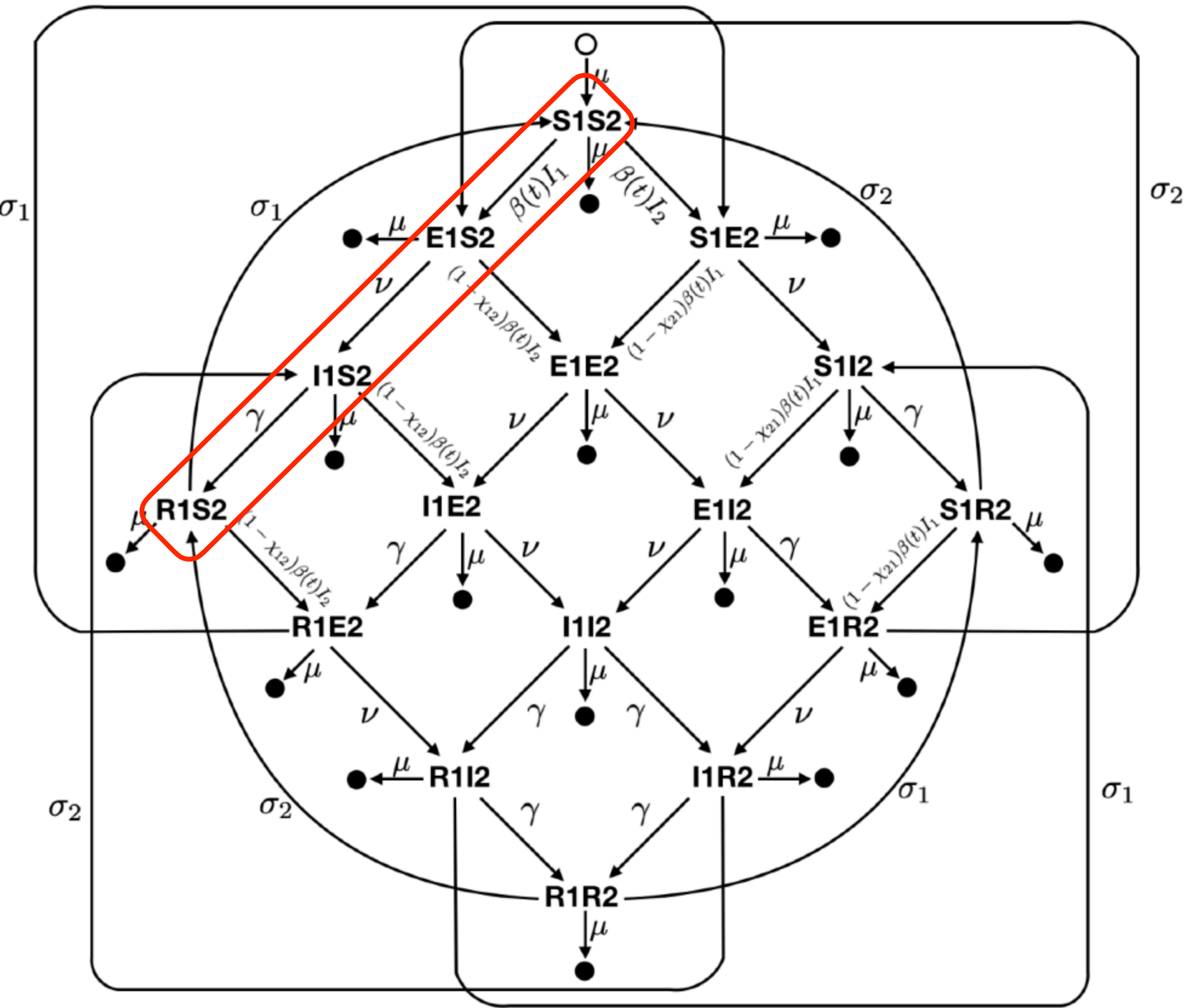
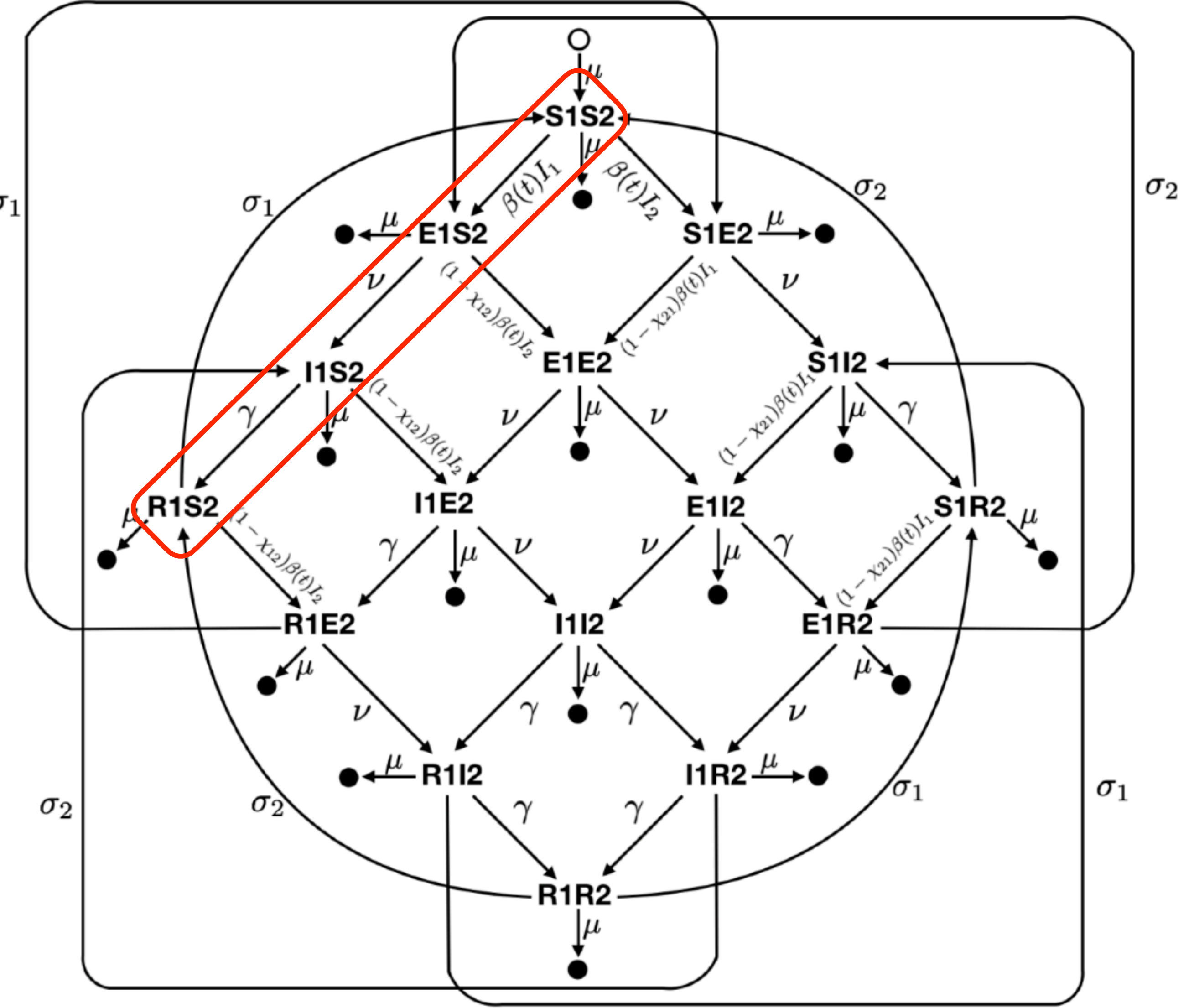


The full model

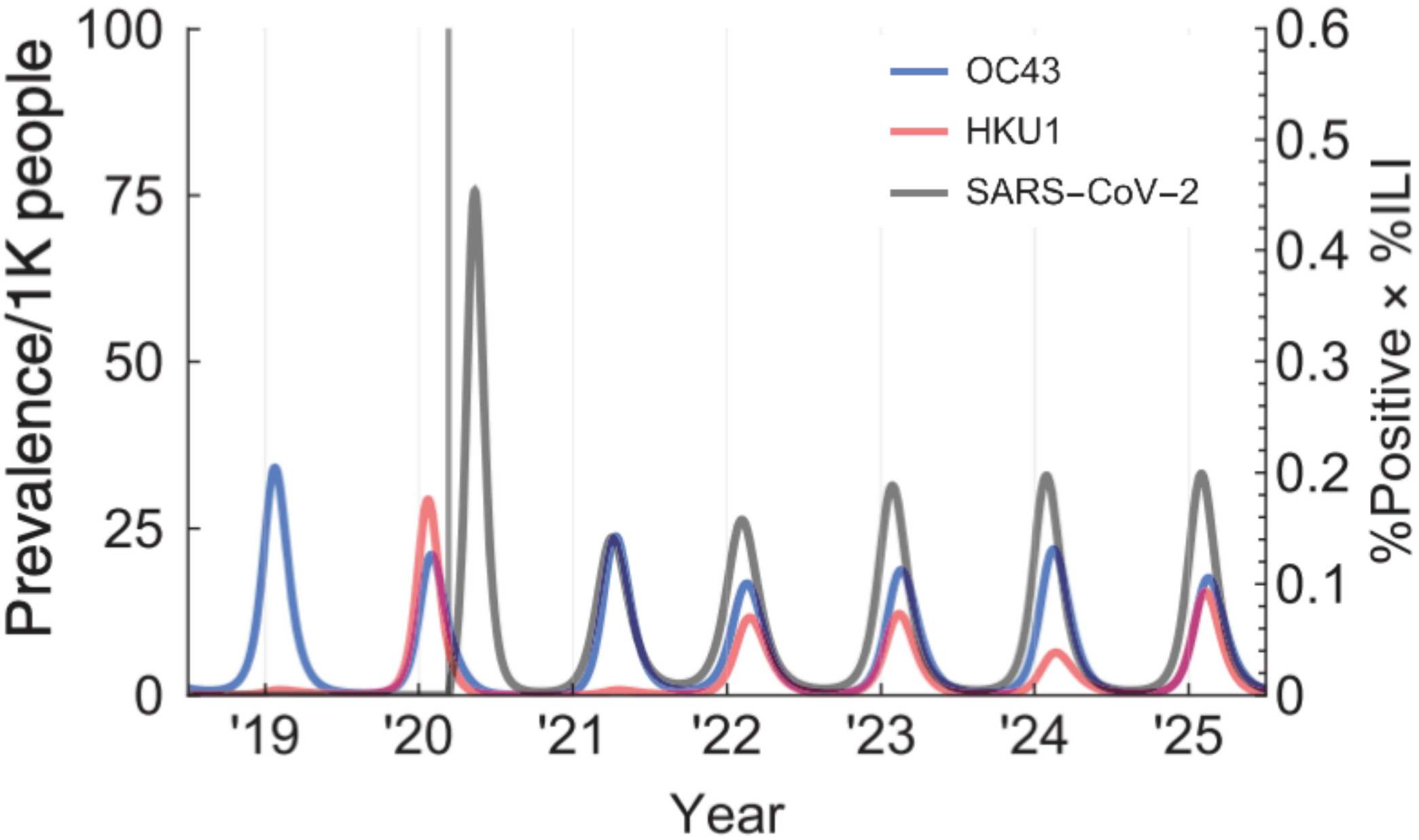


Short-lived immunity ($1/\sigma = 30$ weeks)

The full model



A



Short-lived immunity ($1/\sigma = 30$ weeks) can yield annual outbreaks of SARS-CoV-2.