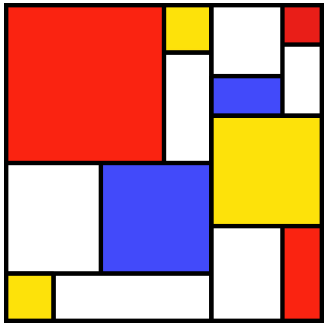
SLiM

Workshop Series



#5: Demography

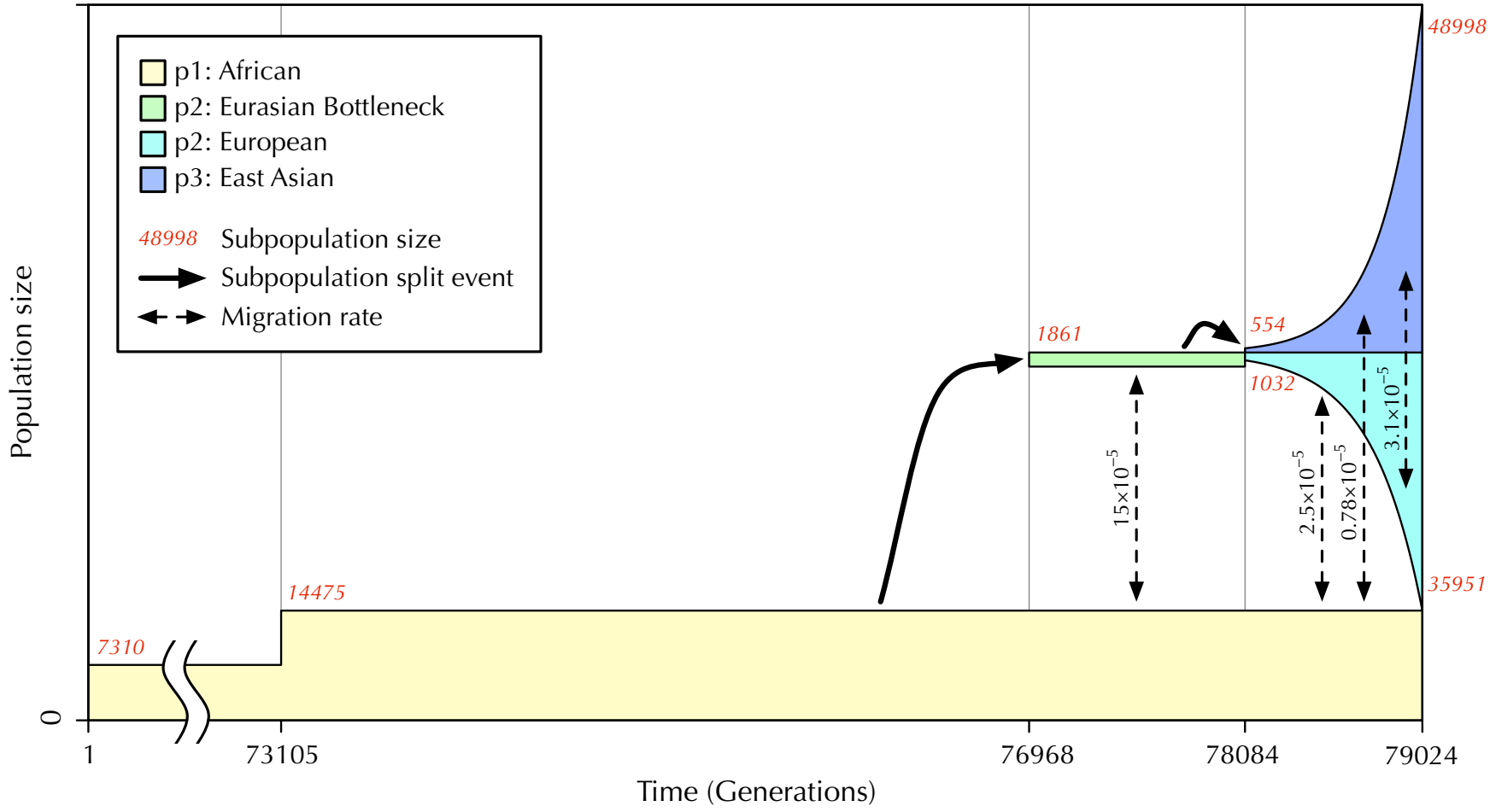
Benjamin C. Haller

Messer Lab, Cornell University

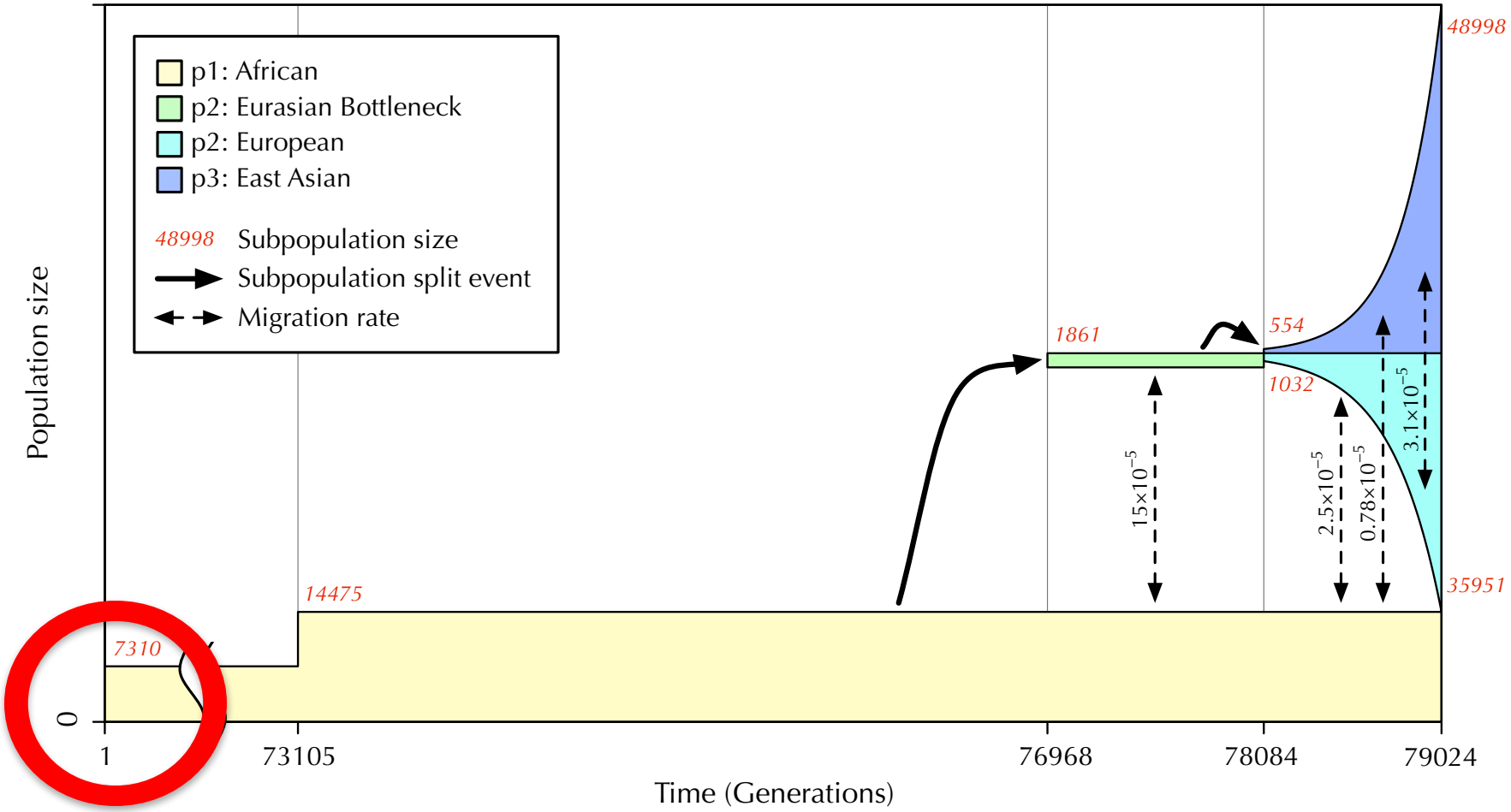
Demography

- Demographic events in SLiM:
  - new subpopulation: `addSubpop()`
  - splits a subpopulation: `addSubpopSplit()`
  - change in size: `setSubpopulationSize()`
  - remove a subpop: `setSubpopulationSize(0)`
  - set migration rate: `setMigrationRates()`
  - merge subpops:
    `addSubpop() + setMigrationRates()`

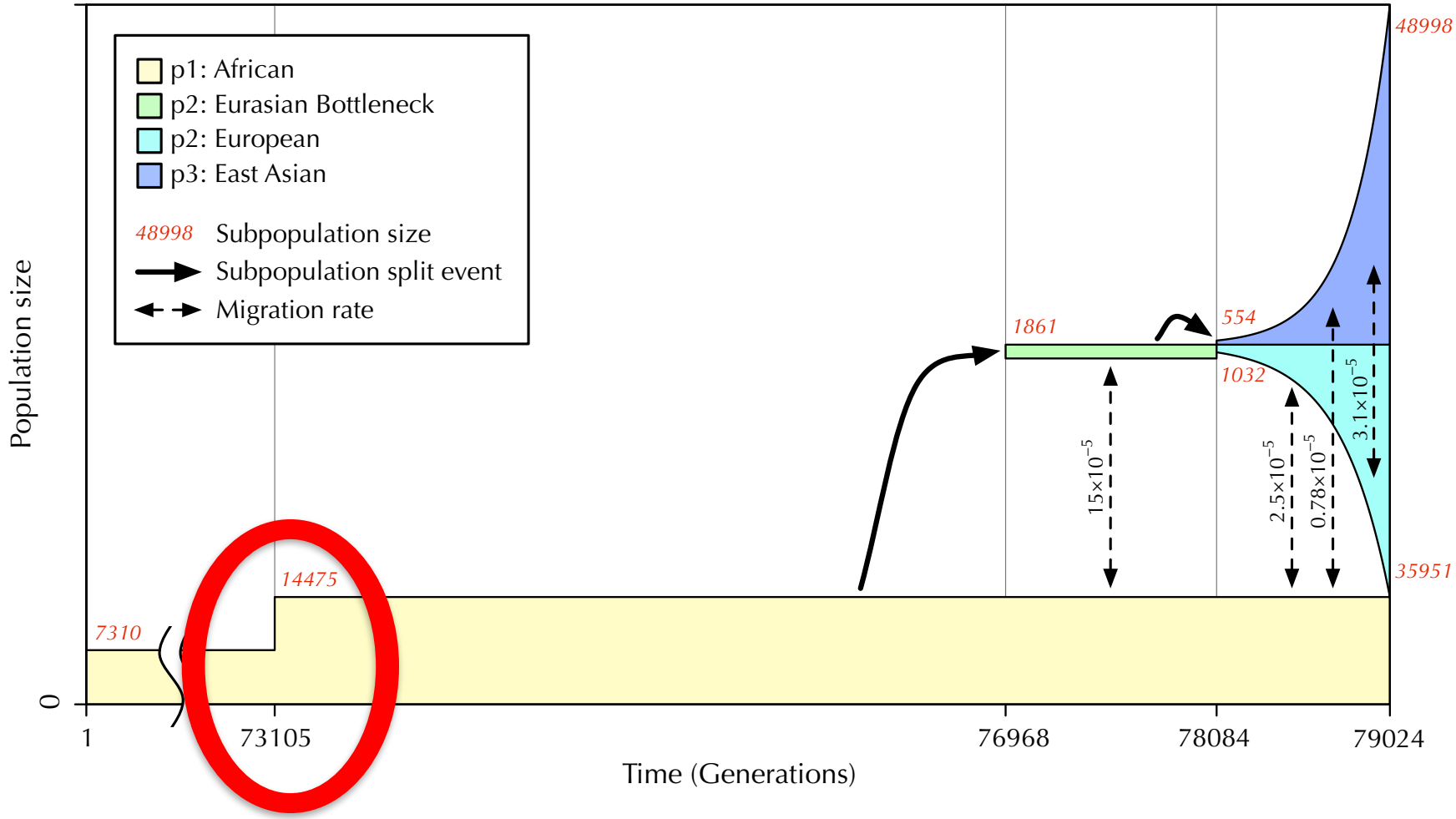
The Gravel Model



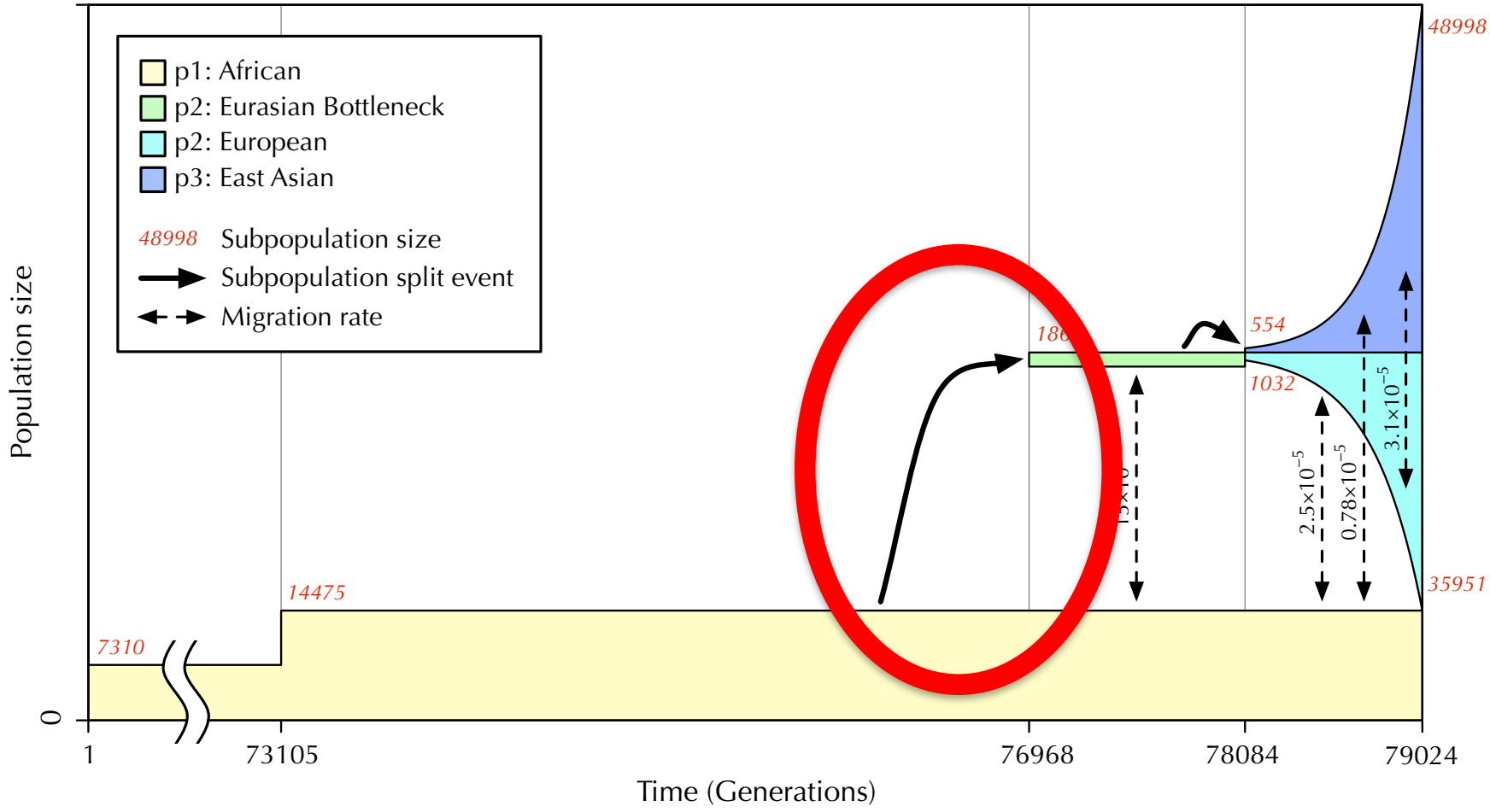
The Gravel Model



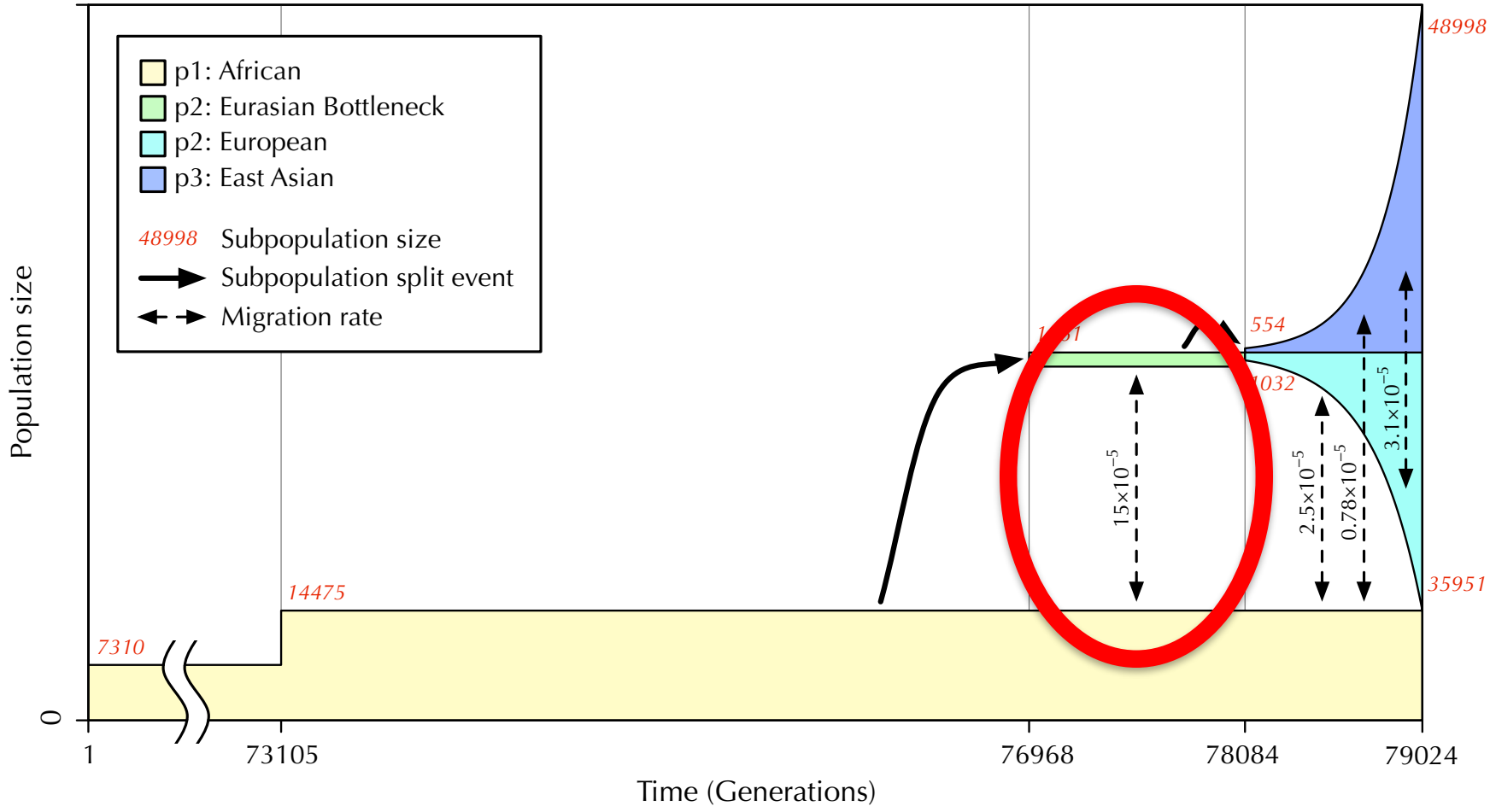
The Gravel Model



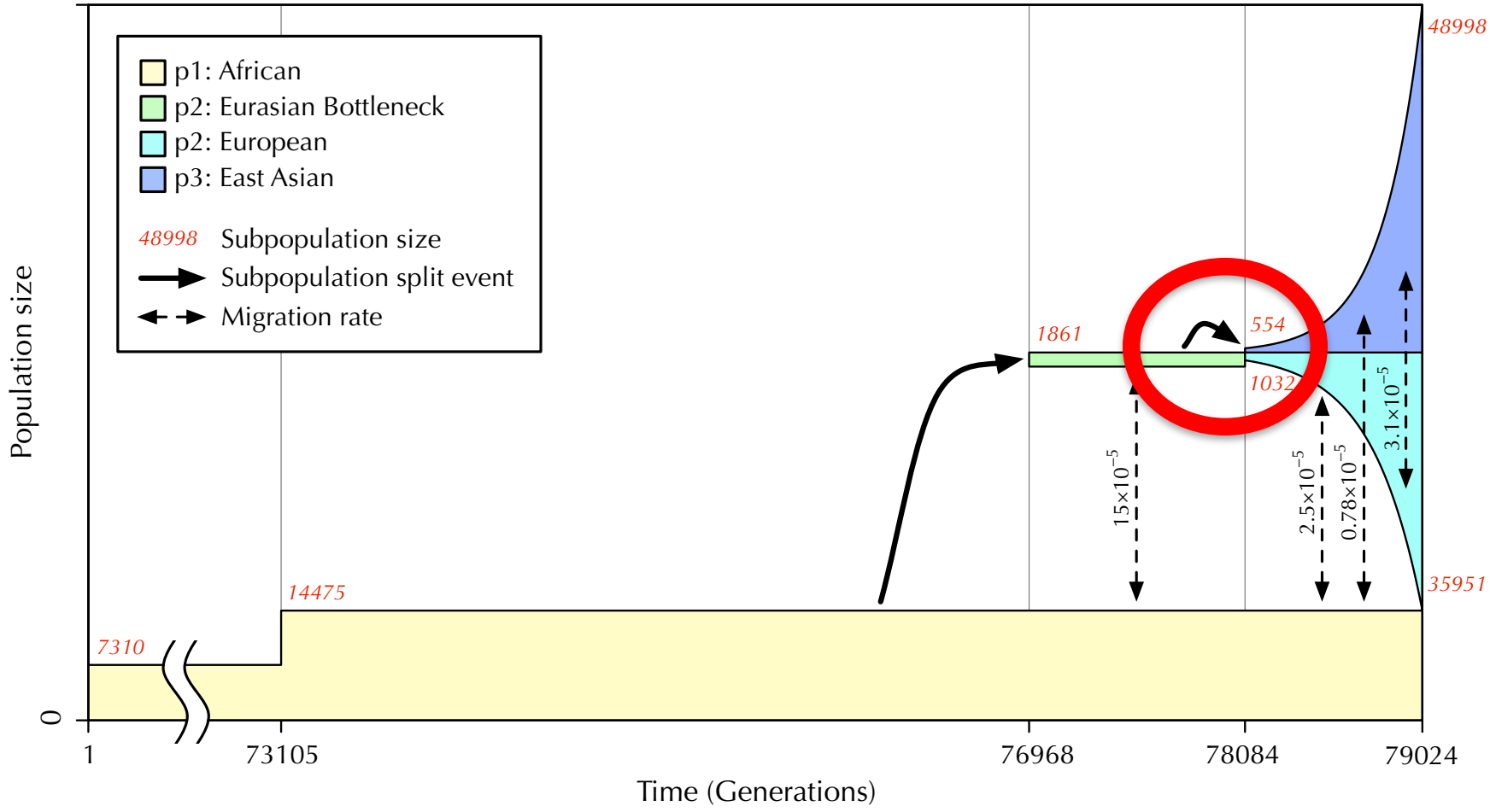
The Gravel Model



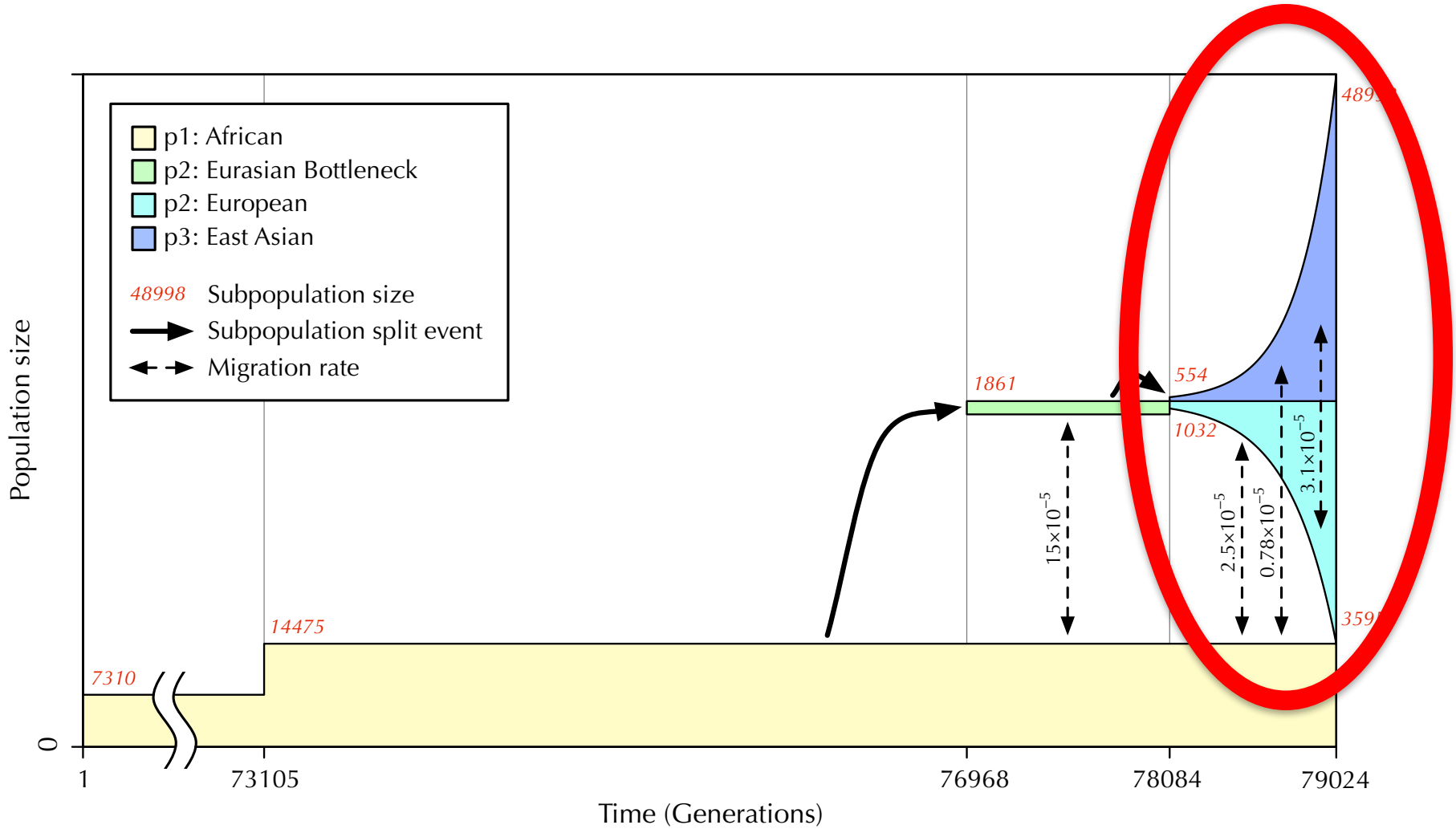
The Gravel Model



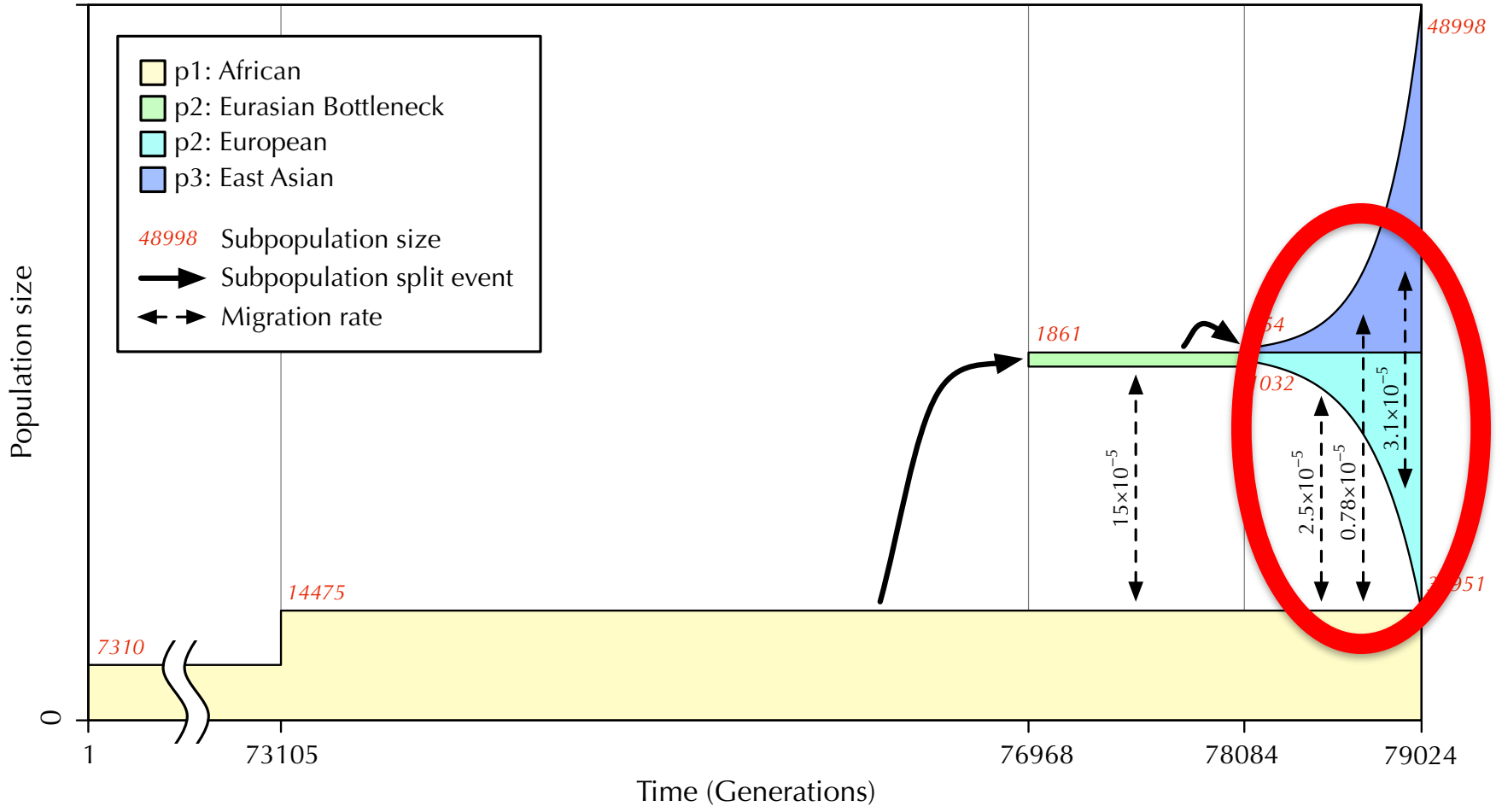
The Gravel Model



The Gravel Model



The Gravel Model



Mating Systems

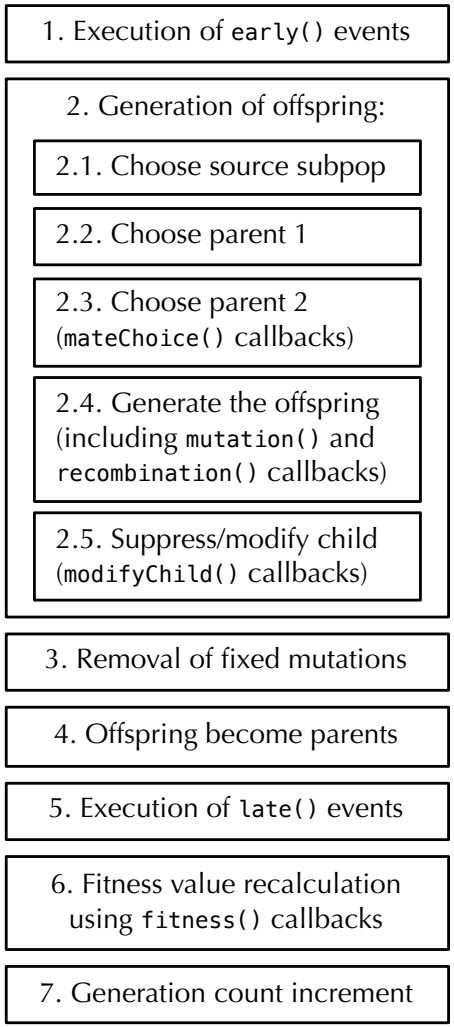
- Demographic parameters in SLiM:
  - enabling separate sexes: `initializeSex()`
  - sex ratio: `setSexRatio()`
  - cloning rate: `setCloningRate()`
  - selfing rate: `setSelfingRate()`

Mating Systems

- Demographic parameters in SLiM:
  - enabling separate sexes: `initializeSex()`
  - sex ratio: `setSexRatio()`
  - cloning rate: `setCloningRate()`
  - selfing rate: `setSelfingRate()`
- nonWF models are more flexible:
  - monogamous mating
  - alternation of generations
  - haplodiploidy

The WF Generation Cycle

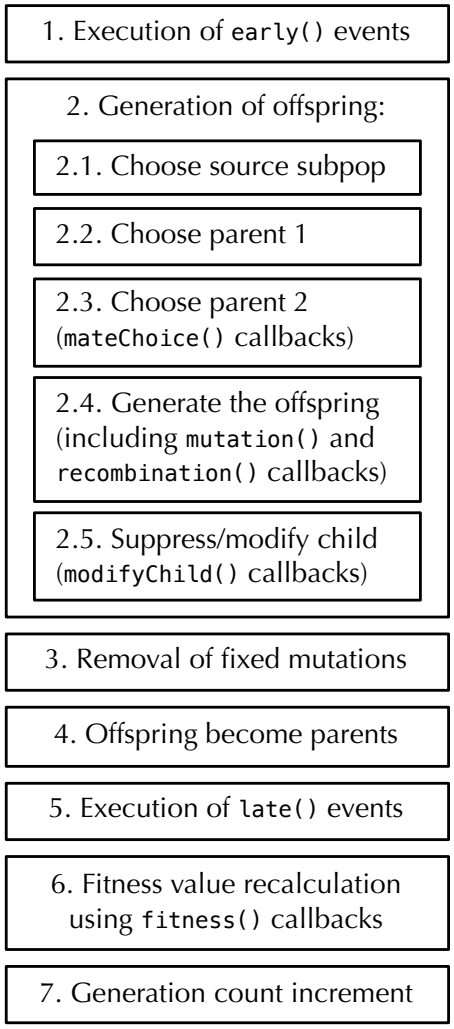
The sequence of events within one generation in WF models.



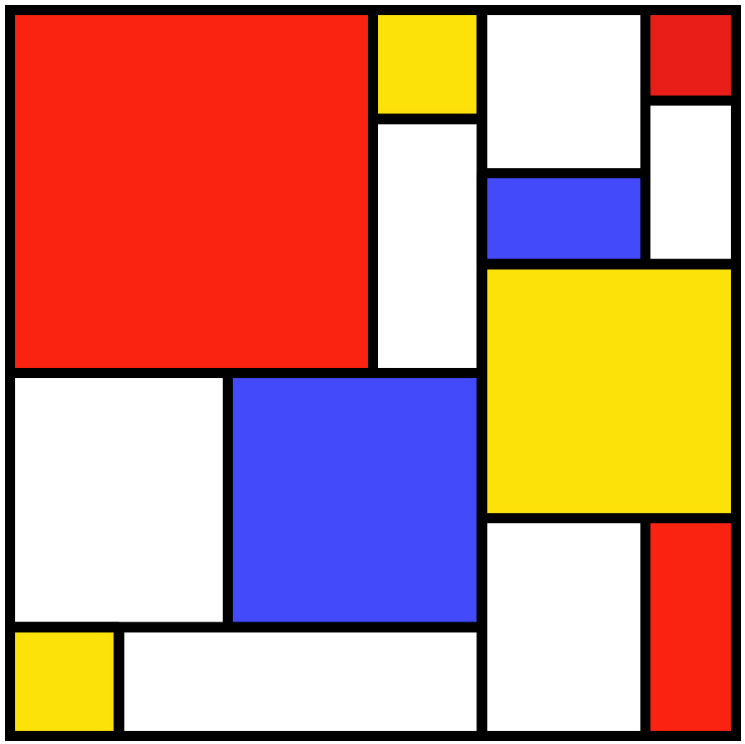
- The generation cycle
  - repeated by SLiM each generation
  - `early()` events
  - offspring generation
  - `late()` events
  - fitness recalculation

The WF Generation Cycle

The sequence of events within one generation in WF models.



- The generation cycle
  - repeated by SLiM each generation
  - `early()` events
  - offspring generation
  - `late()` events
  - fitness recalculation
- Future requests
  - many changes take effect the next time offspring are generated!



SLiM Workshop Exercise #5