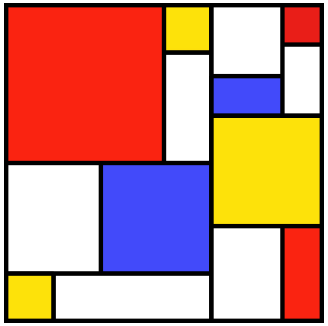
SLiM

Workshop Series



#3: The Population Hierarchy

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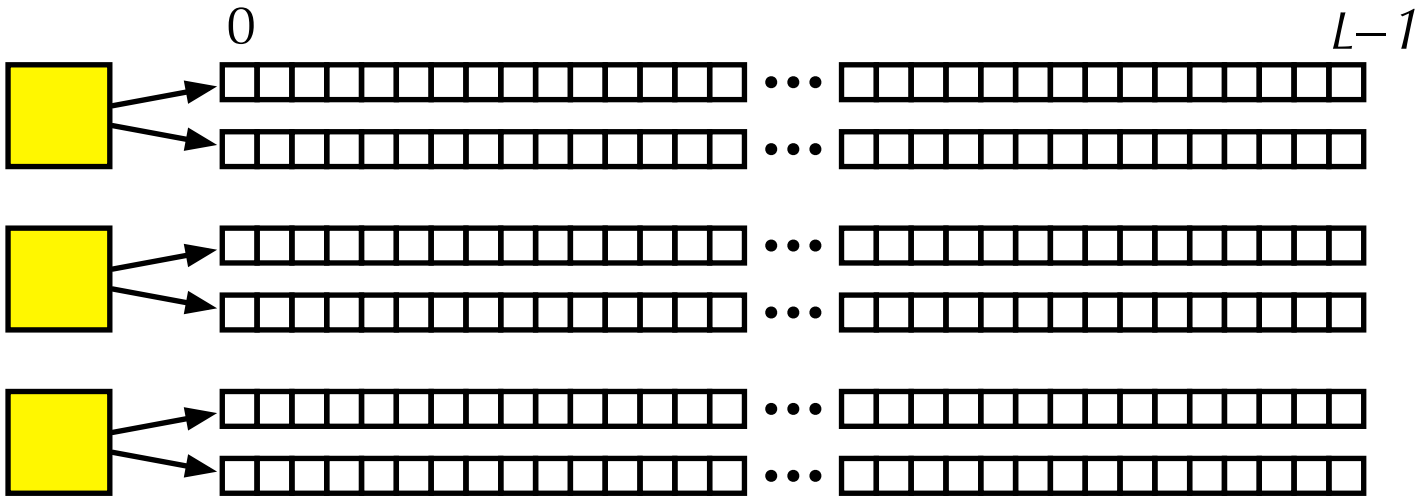
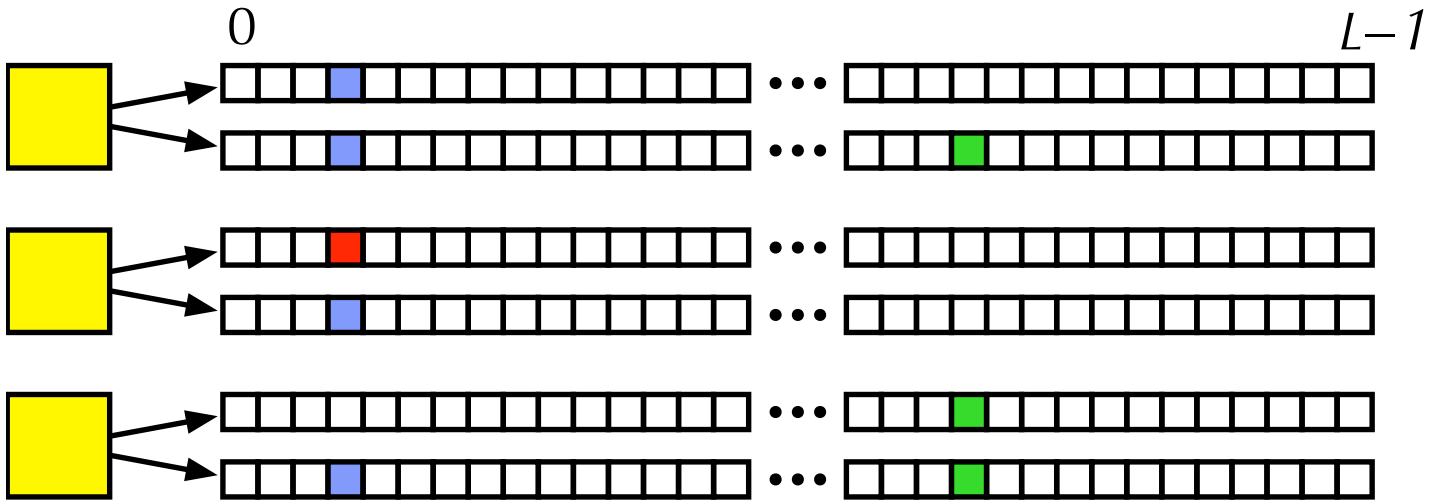
Individuals and genomes

- Individuals (class `Individual`) are organisms
- Individuals are born, mate, die, …
- Each individual has two genomes (class `Genome`)
- Each genome has *L* discrete base positions



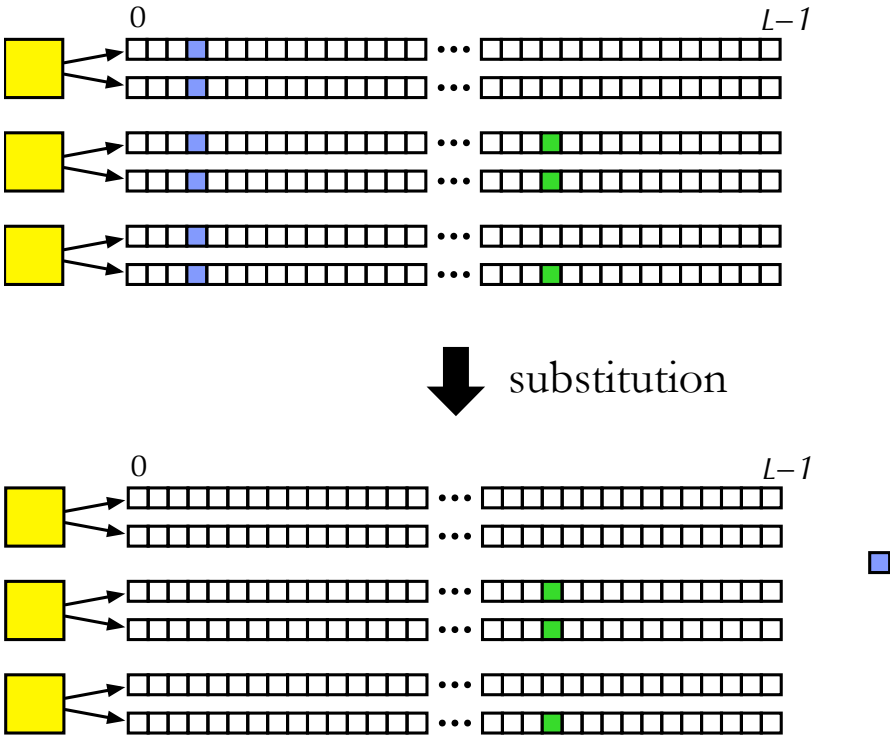
Mutations

- Mutations (class `Mutation`) live in genomes
- Genomes begin empty (the *ancestral* state)
- Mutations represent a *non-ancestral* allele (SNP)
- Mutations have properties: selection coefficient



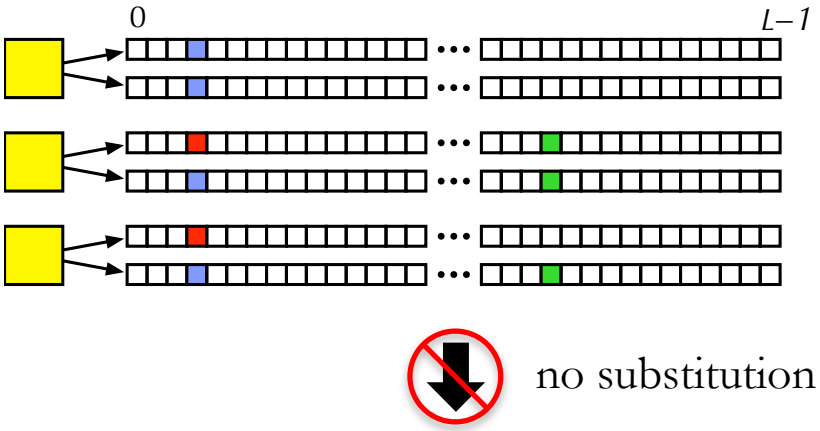
Substitutions

- Substitutions (class `Substitution`) are fixed
- Fixed mutations become substitutions by default



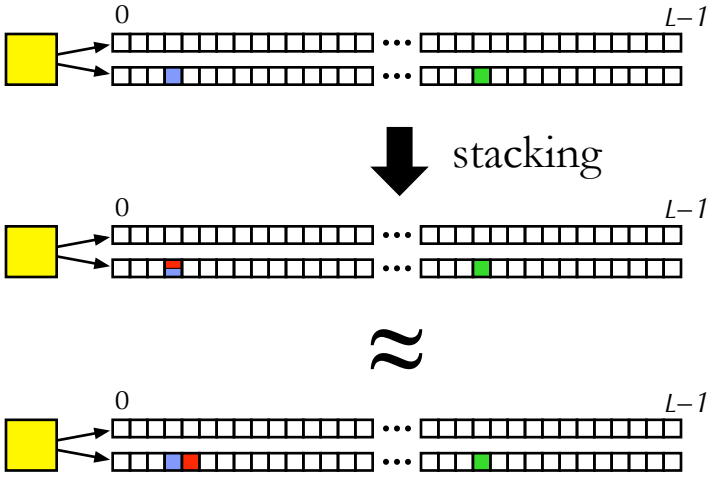
Substitutions

- Every mutational lineage is distinct!
- Even with identical selection coefficients, etc.



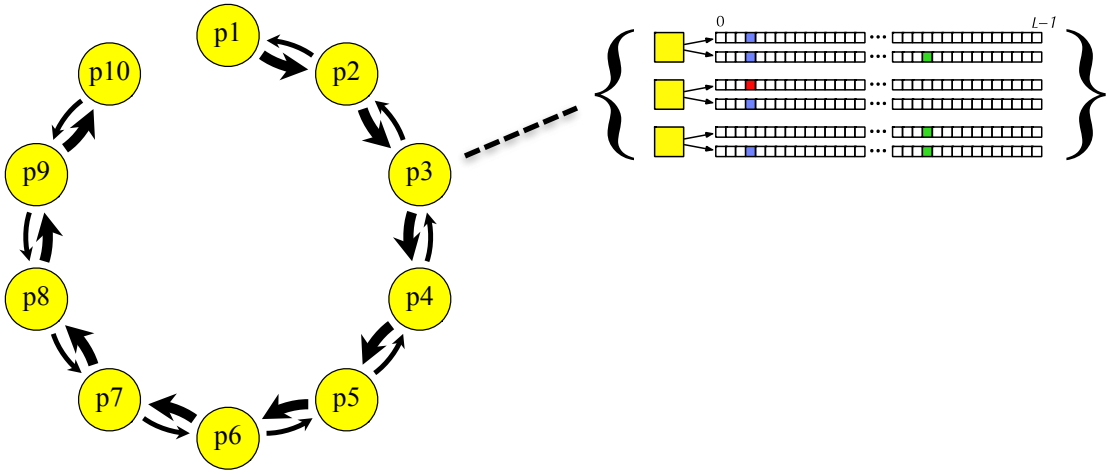
Mutation stacking

- If mutation A exists in a genome at position *P*…
- And then mutation B occurs at *P*…
- By default, *both* are kept; they "stack"
- Stacking policy can be modified, however



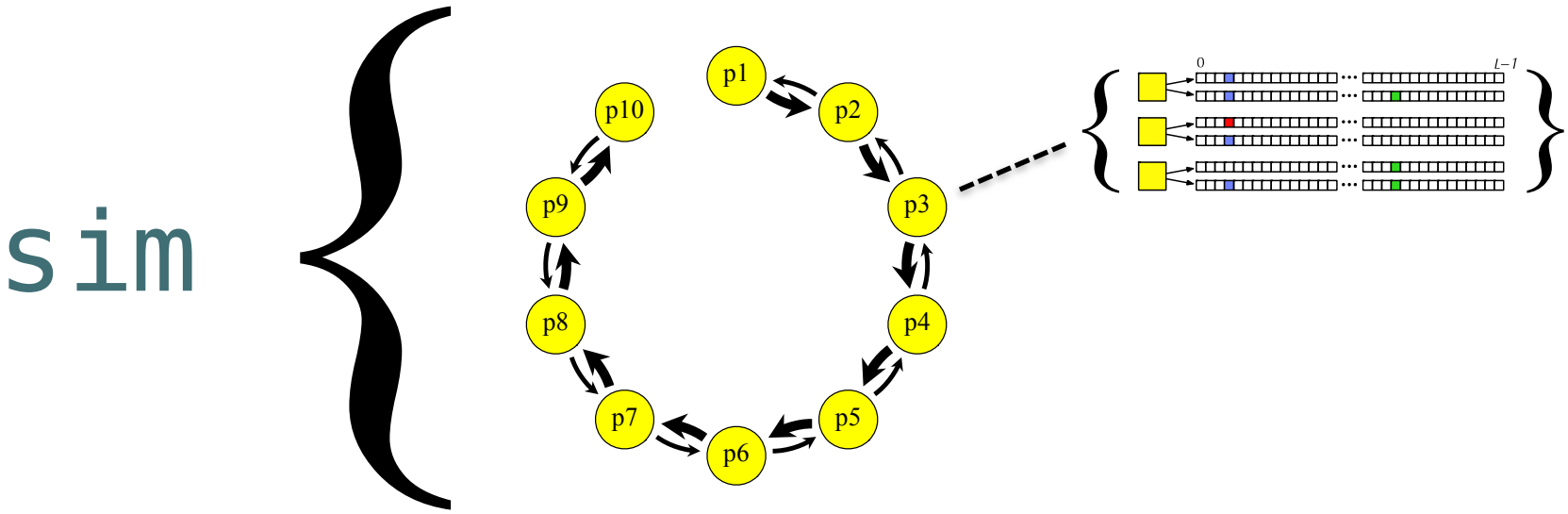
Subpopulations and migration

- Subpops (`Subpopulation`) contain individuals
- Any number of subpopulations can exist
- They can be connected by migration in any way
- Population structure can change over time

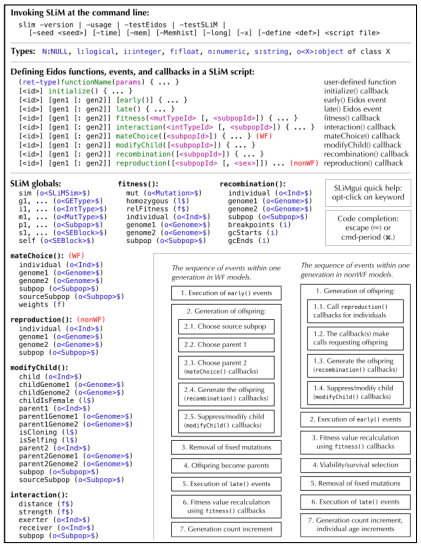


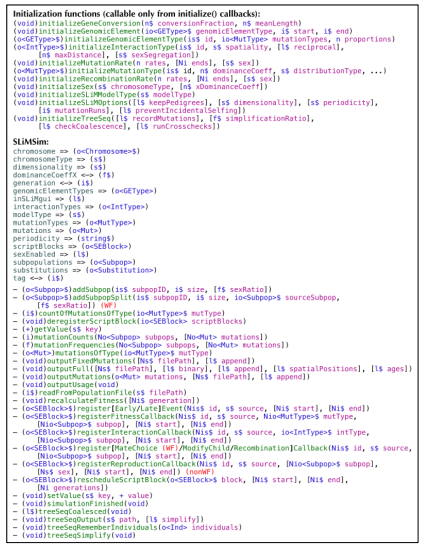
The population

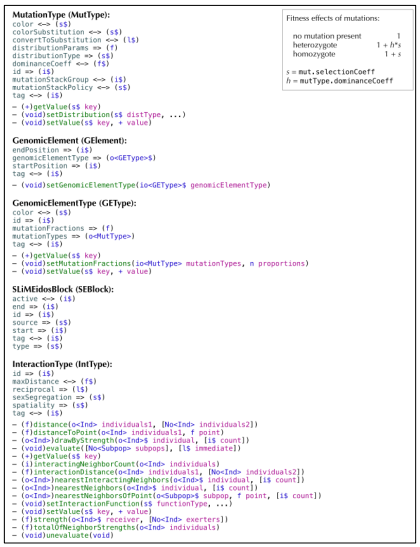
- The population contains subpopulations
- Only one population can exist in a model
- It is managed by the simulation object
- The simulation object is a global, `sim` (`SLiMSim`)

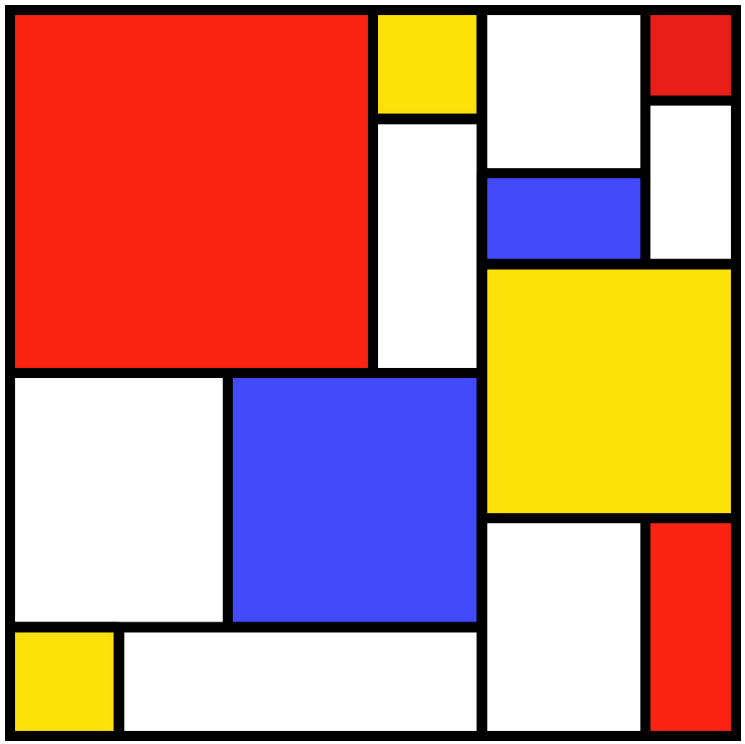


SLiM reference sheet









SLiM Workshop Exercise #3