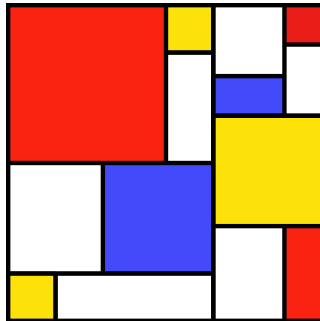


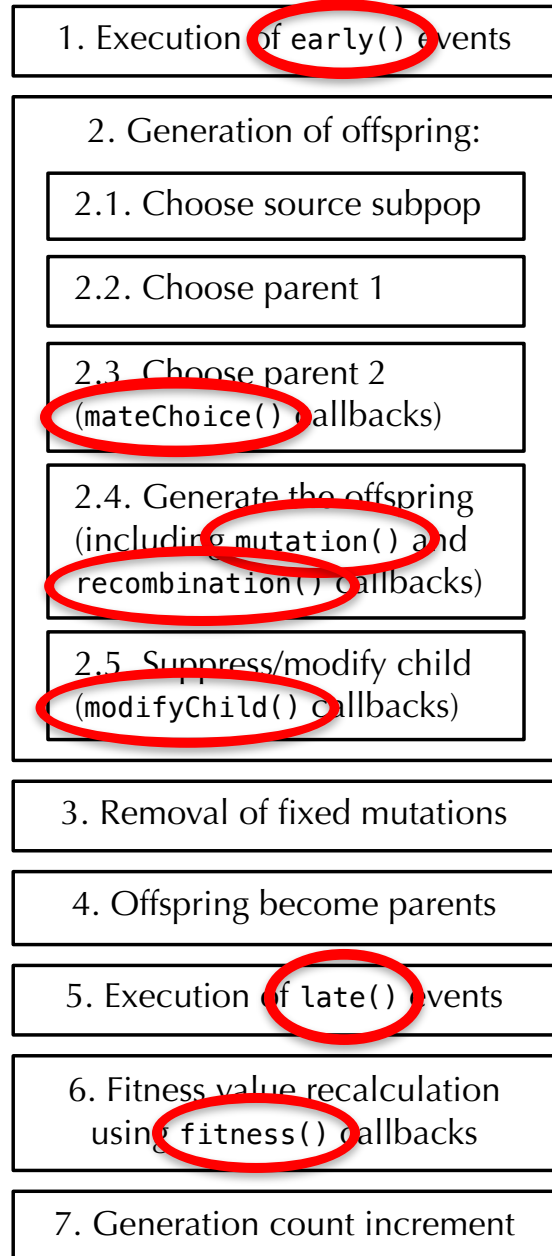
SLiM

Workshop Series



#11: Callbacks II (`mateChoice()`)

The sequence of events within one generation in WF models.



The WF Generation Cycle

- Callbacks:
 - early() events
 - mateChoice() callbacks
 - mutation() callbacks
 - recombination() callbacks
 - modifyChild() callbacks
 - late() events
 - fitness() callbacks
 - interaction(), reproduction()

The sequence of events within one generation in WF models.

mateChoice() callbacks

- called during mate choice
- override default mating
- often used to implement:
 - assortative mate choice
 - sequential mate choice
 - monogamy
 - spatial mate choice
 - parental infertility

1. Execution of early() events

2. Generation of offspring:

2.1. Choose source subpop

2.2. Choose parent 1

2.3. Choose parent 2
(mateChoice() callbacks)

2.4. Generate the offspring
(including mutation() and
recombination() callbacks)

2.5. Suppress/modify child
(modifyChild() callbacks)

3. Removal of fixed mutations

4. Offspring become parents

5. Execution of late() events

6. Fitness value recalculation
using fitness() callbacks

7. Generation count increment

The sequence of events within one generation in WF models.

1. Execution of `early()` events

2. Generation of offspring:

2.1. Choose source subpop

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2.3. Choose parent 2
(`mateChoice()` callbacks)

2.4. Generate the offspring
(including `mutation()` and
`recombination()` callbacks)

2.5. Suppress/modify child
(`modifyChild()` callbacks)

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4. Offspring become parents

5. Execution of `late()` events

6. Fitness value recalculation
using `fitness()` callbacks

7. Generation count increment

`mateChoice()` callbacks

```
mateChoice( [<subpopID>] )  
{  
    ...  
}
```

- apply to *one or all* subpops
- called for each **focal parent**
- return value:
 - a vector of mating weights
 - a singleton `Individual`
 - `float(0)` (no suitable mate)
 - `NULL` (use default weights)

The sequence of events within one generation in WF models.

mateChoice() callbacks

- there is a *focal first parent*
- there are also default mating weights, based on fitness
- **pseudo-parameters:**
 - individual
 - genome1
 - genome2
 - subpop
 - sourceSubpop
 - weights

1. Execution of early() events

2. Generation of offspring:

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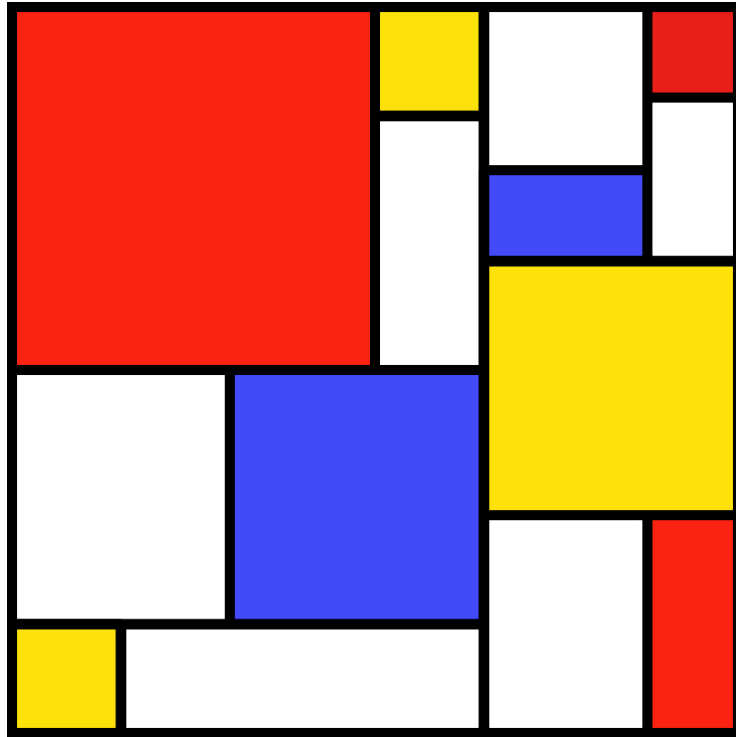
3. Removal of fixed mutations

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using fitness() callbacks

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SLiM Workshop Exercise #11