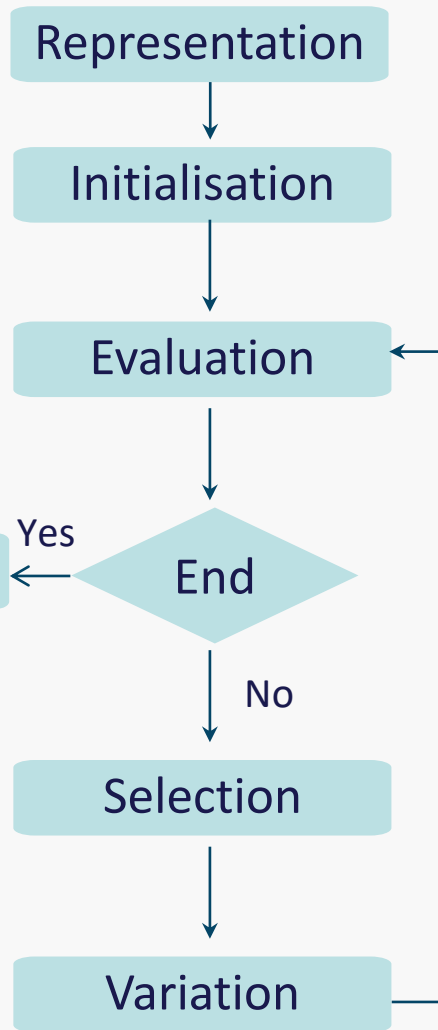
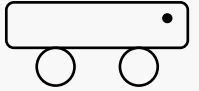


# Design **wheels** for a racing car



## Parameters

### Wheel Shape:

- 1) square,
- 2) triangle, or
- 3) circle.

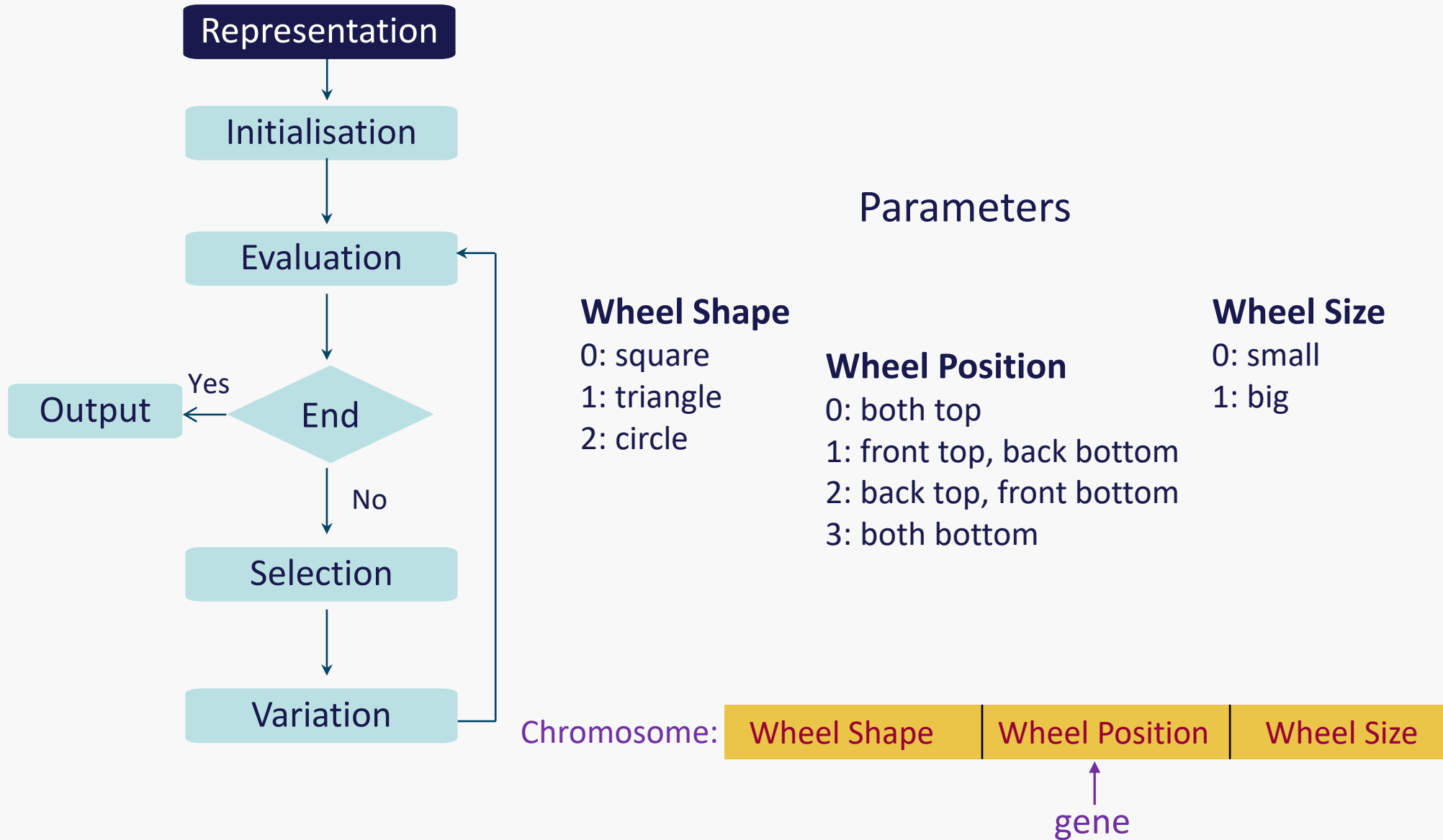
### Wheel Position:

- 1) both top,
- 2) front top, back bottom,
- 3) back top, front bottom, or
- 4) both bottom.

### Wheel Size:

- 1) small, or
- 2) big.

# Representation



# Initialise the population

Representation

Initialisation

Evaluation

End

Output

Selection

Variation

## Wheel Shape

0: square  
1: triangle  
2: circle

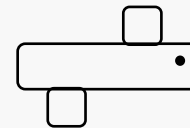
## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

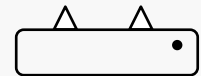
## Wheel Size

0: small  
1: big

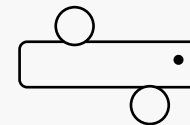
A: 011



B: 100



C: 221



D: 030



# Evaluate the population

Representation

Initialisation

Evaluation

Yes

Output

End

No

Selection

Variation

## Wheel Shape

0: square  
1: triangle  
2: circle

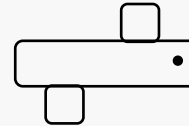
## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

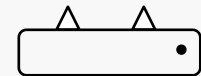
## Wheel Size

0: small  
1: big

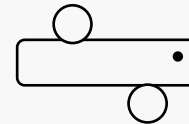
A: 011



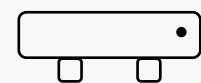
B: 100



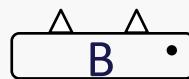
C: 221



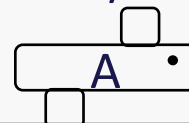
D: 030



0m/h



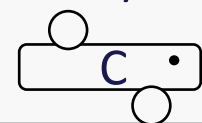
2m/h



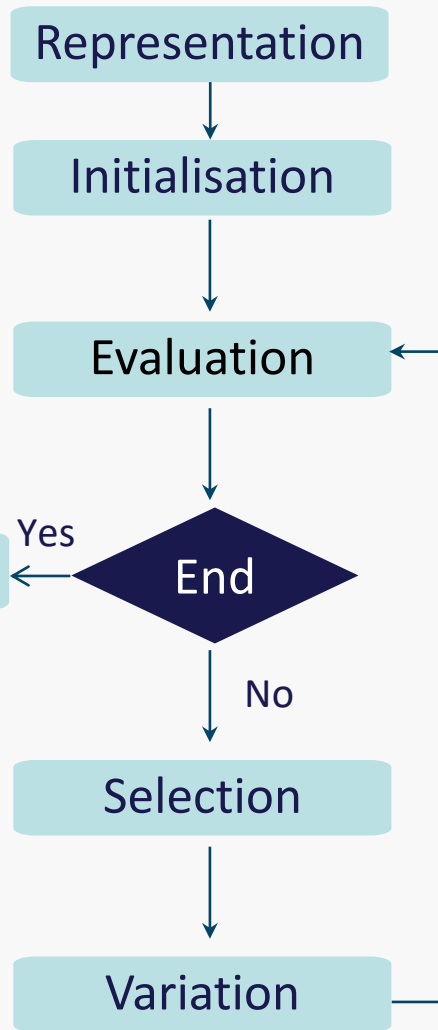
5m/h



7m/h



# Check if the evolution ends



## Wheel Shape

0: square  
1: triangle  
2: circle

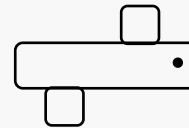
## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

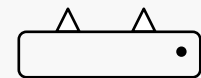
## Wheel Size

0: small  
1: big

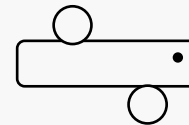
A: 011



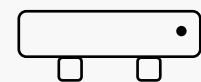
B: 100



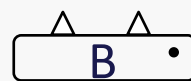
C: 221



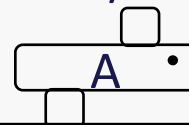
D: 030



0m/h



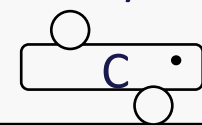
2m/h



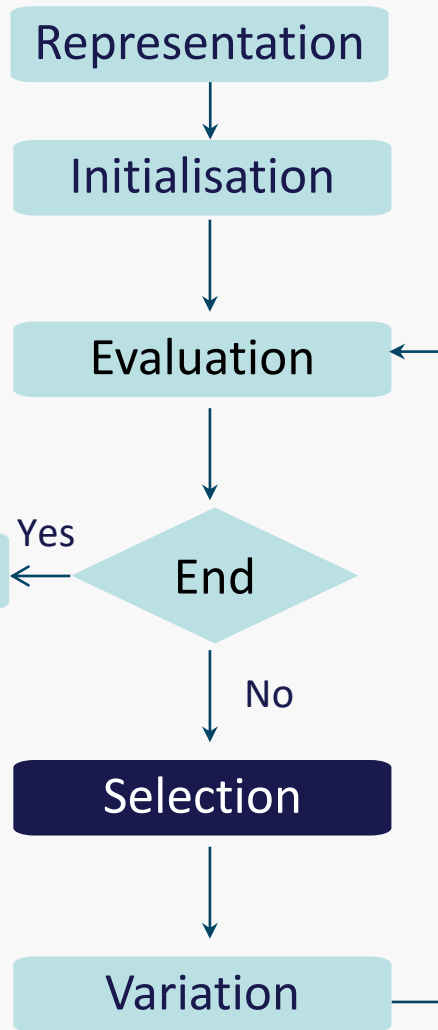
5m/h



7m/h



# Select individuals to produce offspring



## Wheel Shape

0: square  
1: triangle  
2: circle

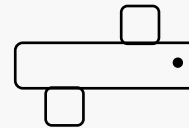
## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

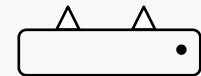
## Wheel Size

0: small  
1: big

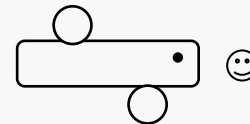
A: 011



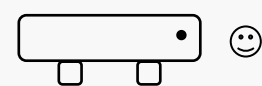
B: 100



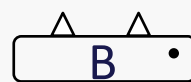
C: 221



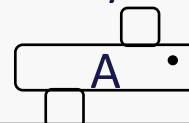
D: 030



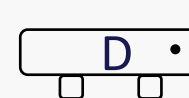
0m/h



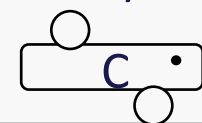
2m/h



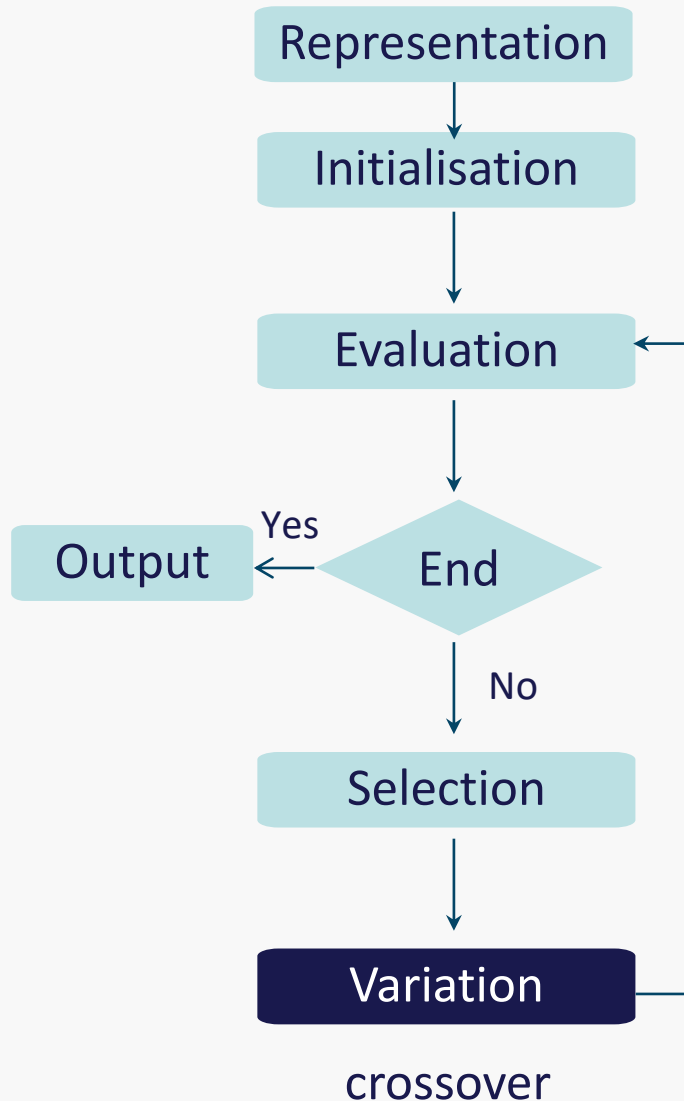
5m/h



7m/h



# Produce offspring



## Wheel Shape

0: square  
1: triangle  
2: circle

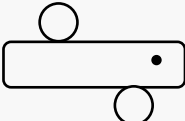
## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

## Wheel Size

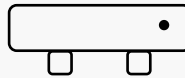
0: small  
1: big

C: 221

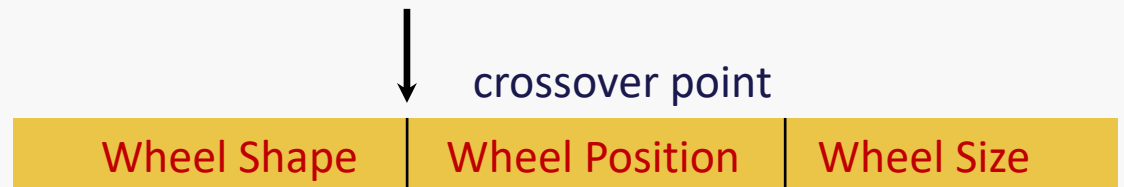


2 | 21

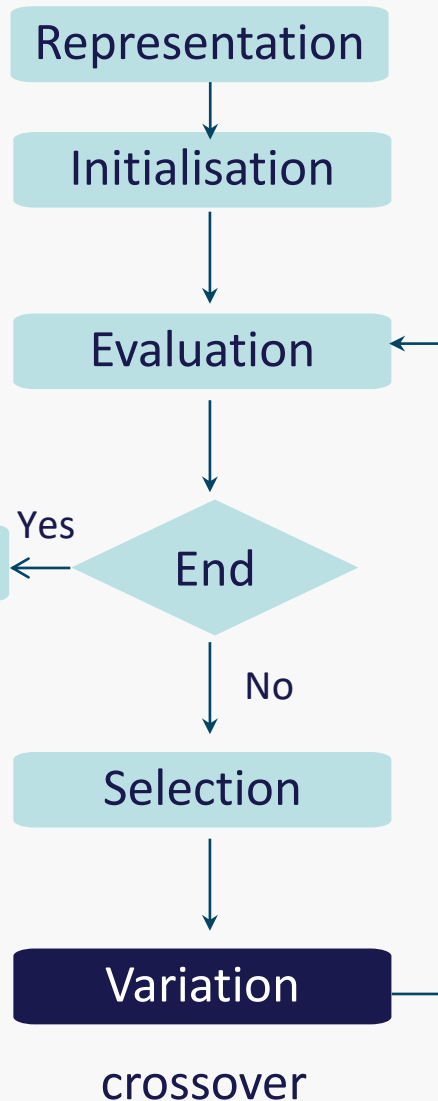
D: 030



0 | 30



# Produce offspring



## Wheel Shape

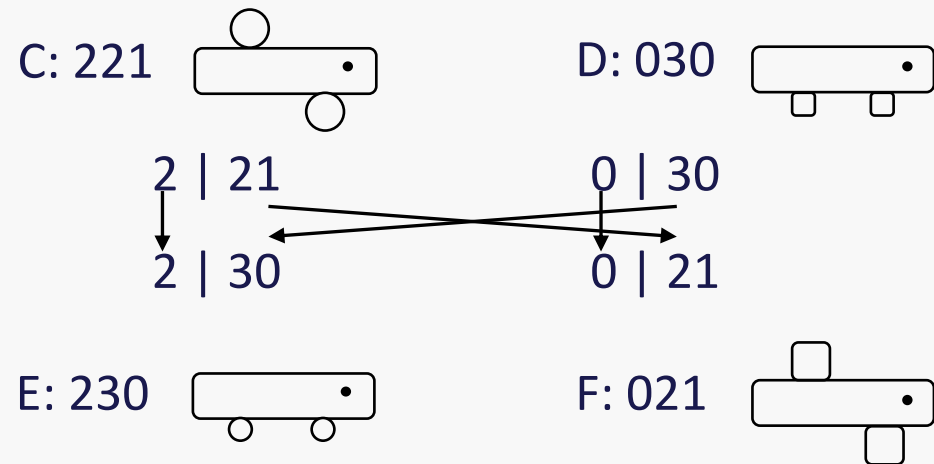
0: square  
1: triangle  
2: circle

## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

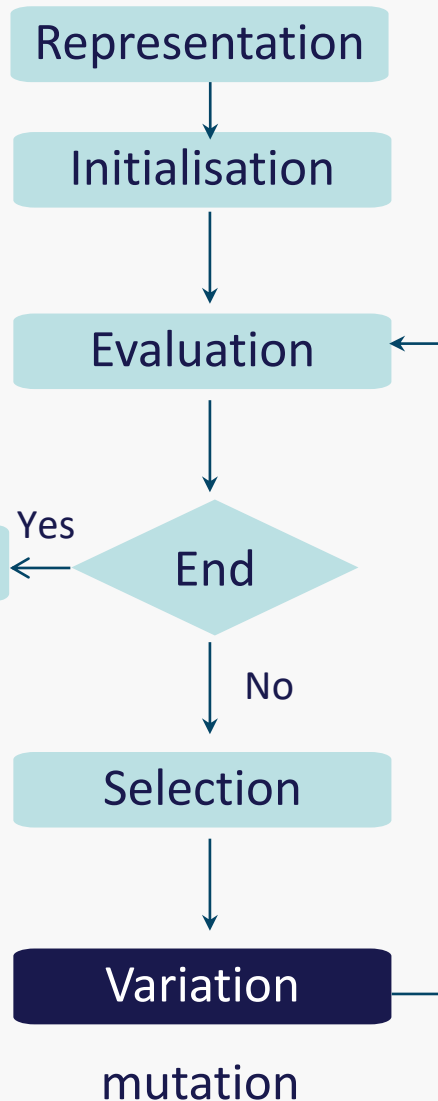
## Wheel Size

0: small  
1: big





# Produce offspring



## Wheel Shape

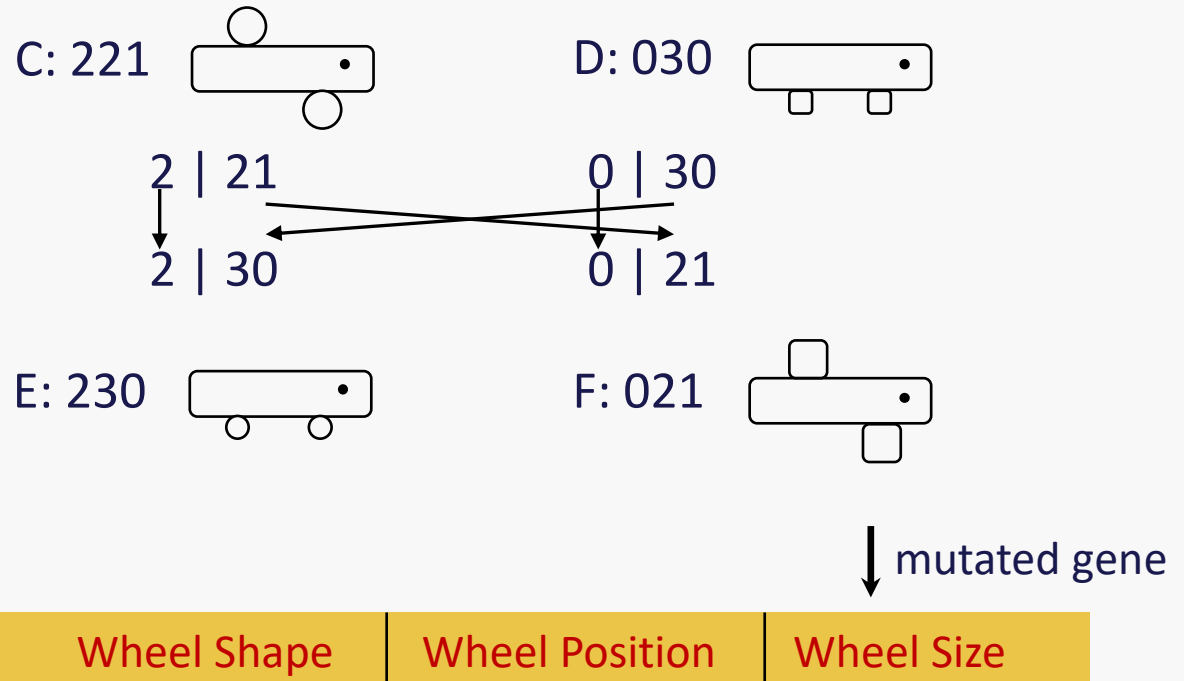
0: square  
1: triangle  
2: circle

## Wheel Position

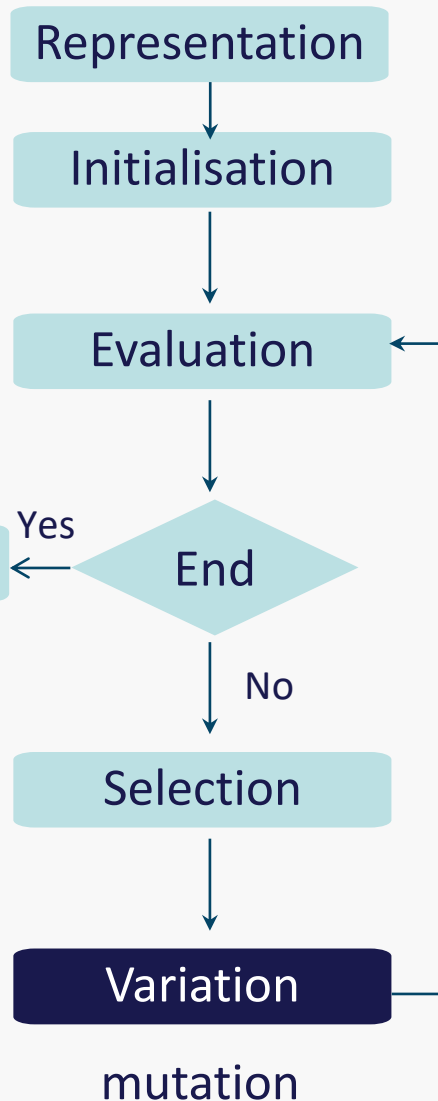
0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

## Wheel Size

0: small  
1: big



# Produce offspring



## Wheel Shape

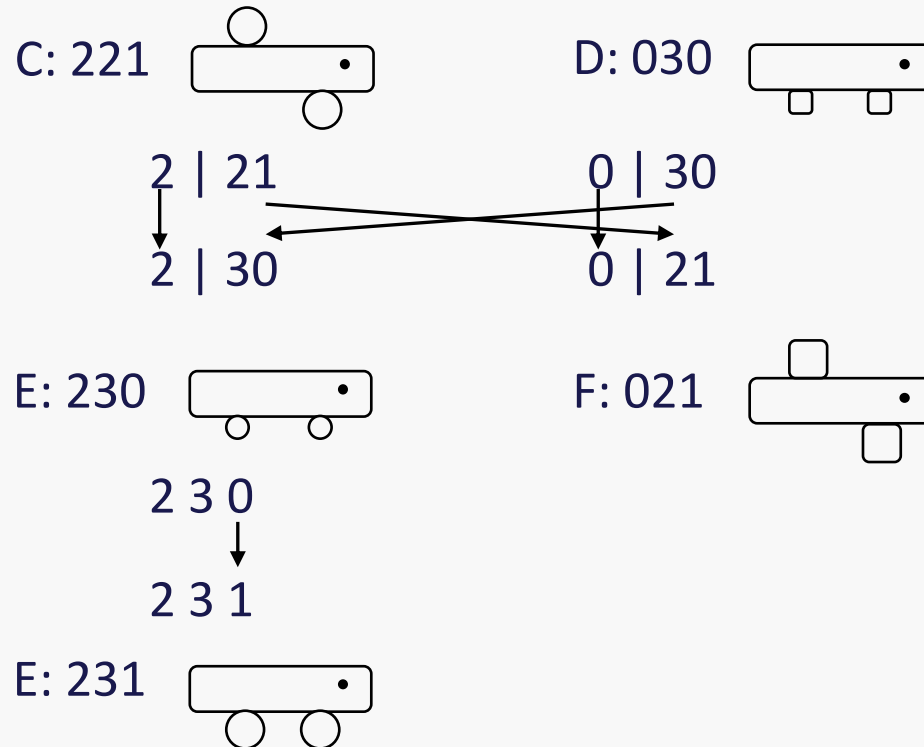
0: square  
1: triangle  
2: circle

## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

## Wheel Size

0: small  
1: big



# Evaluate the new individuals

Representation

Initialisation

Evaluation

Output

Yes

End

No

Selection

Variation

**Wheel Shape**

0: square  
1: triangle  
2: circle

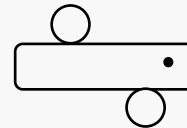
**Wheel Position**

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

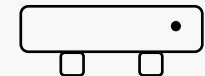
**Wheel Size**

0: small  
1: big

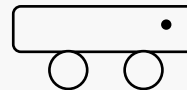
C: 221



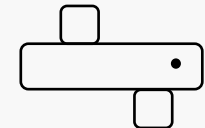
D: 030



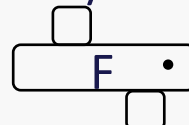
E: 231



F: 021



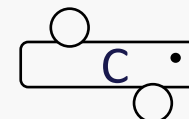
2m/h



5m/h



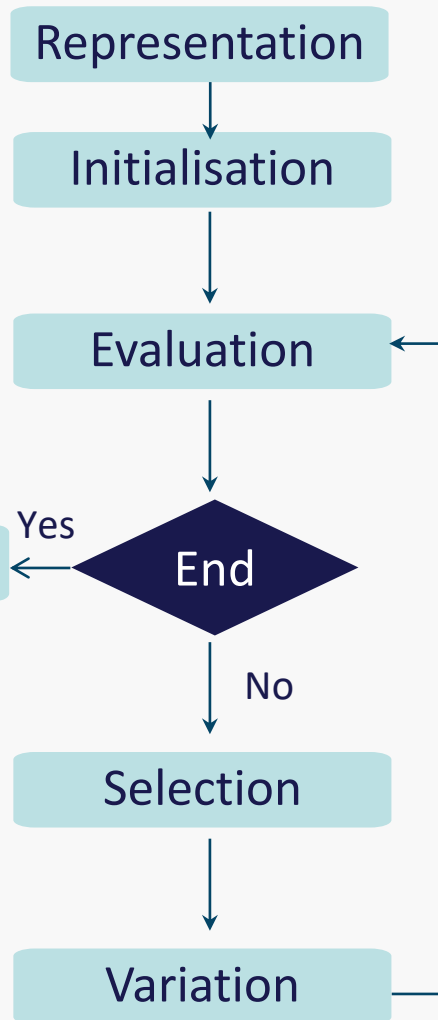
7m/h



10m/h



# Check if the evolution ends



## Wheel Shape

0: square  
1: triangle  
2: circle

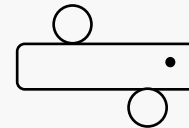
## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

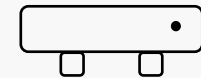
## Wheel Size

0: small  
1: big

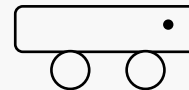
C: 221



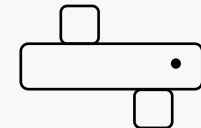
D: 030



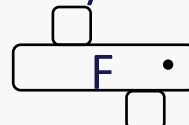
E: 231



F: 021



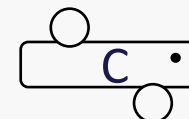
2m/h



5m/h



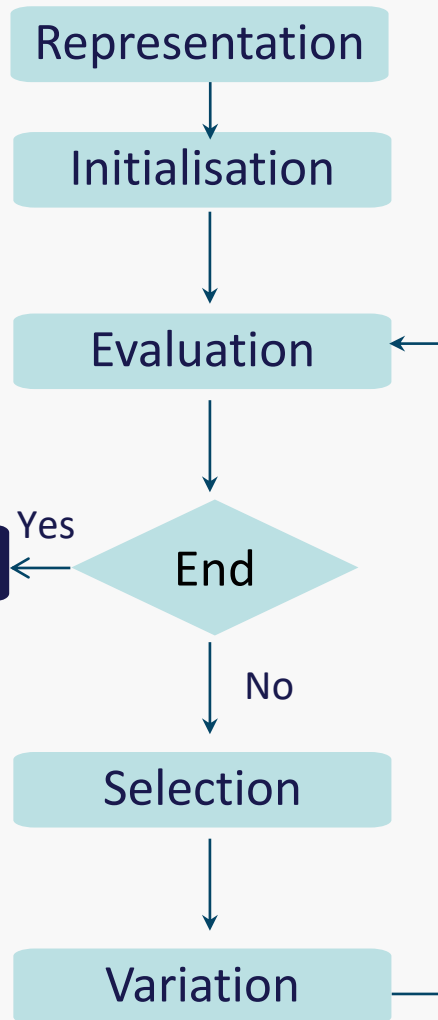
7m/h



10m/h



# Return the best solution



## Wheel Shape

0: square  
1: triangle  
2: circle

## Wheel Position

0: both top  
1: front top, back bottom  
2: back top, front bottom  
3: both bottom

## Wheel Size

0: small  
1: big

