

# **EFEITO DO DISTÚRBIO NAS ESTRATÉGIAS DE VIDA**

**DINÂMICAS ECOLÓGICAS E EVOLUTIVAS**

**Luísa Novara Monclar Gonçalves**

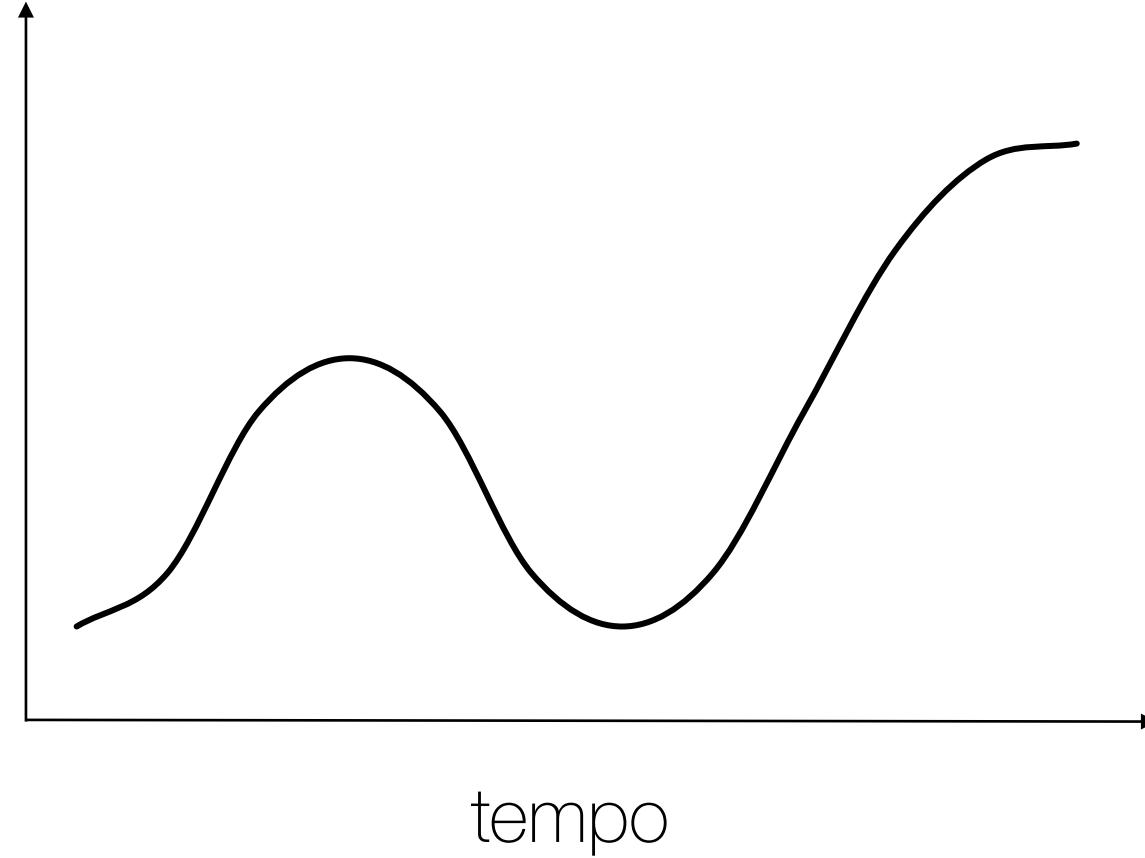
**ORIENTADOR: Prof. Dr. Alexandre Adalardo de Oliveira**

**COORIENTADOR: Prof. Dr. Paulo Inácio Prado**

# atributo

# atributo

proporção de  
indivíduos grandes



dinâmica  
evolutiva

# atributo

dinâmica  
ecológica

dinâmica  
evolutiva

## atributo

dinâmica  
ecológica

mudanças na frequência  
de um **atributo** na  
**população**  
a partir de alterações na  
**frequência relativa**  
**dos alelos**

dinâmica  
evolutiva

## atributo

mudanças na frequência  
de um **atributo** na  
**população**  
a partir de alterações na  
**frequência relativa**  
**dos alelos**

dinâmica  
ecológica

mudanças na frequência  
de um **atributo** na  
**comunidade**  
a partir de alterações na  
**frequência relativa**  
**das espécies**

## dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

## dinâmica ecológica

## dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

## dinâmica ecológica

- seleção
- deriva ecológica
- migração
- especiação

## dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

## dinâmica ecológica

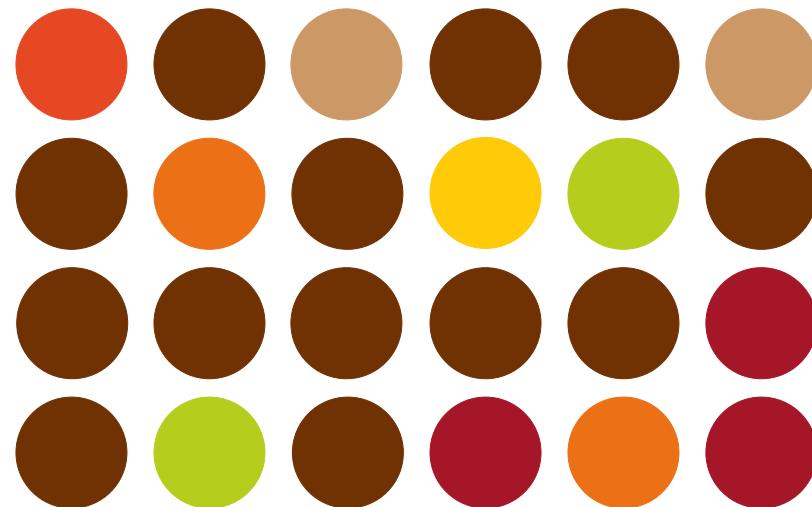
- filtragem ecológica
- deriva ecológica
- migração
- especiação

# dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

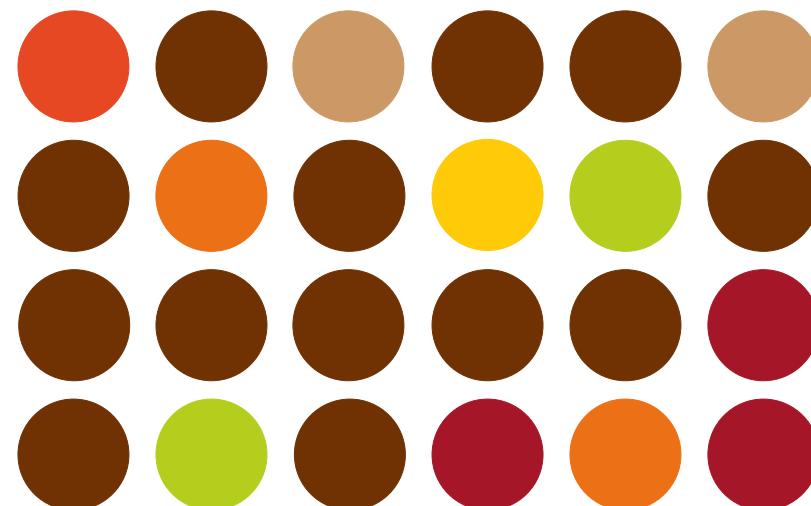
# dinâmica evolutiva

- seleção
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- fluxo gênico
- mutação



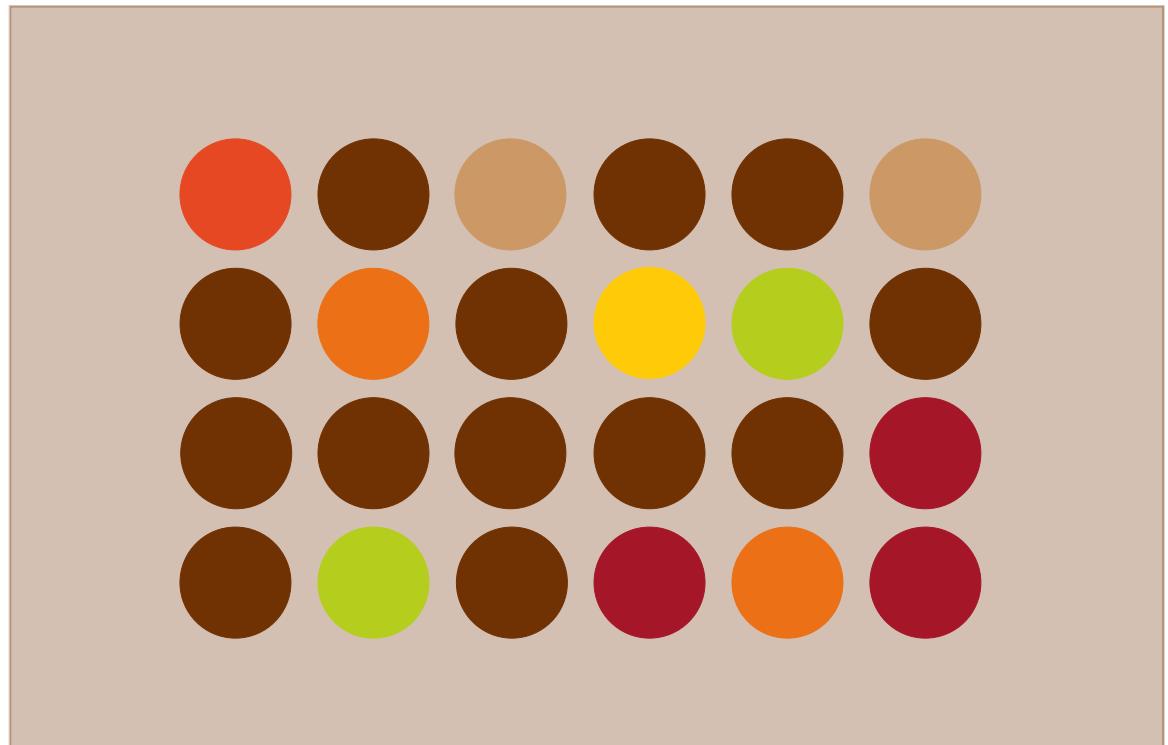
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- **seleção**
- deriva genética
- fluxo gênico
- mutação



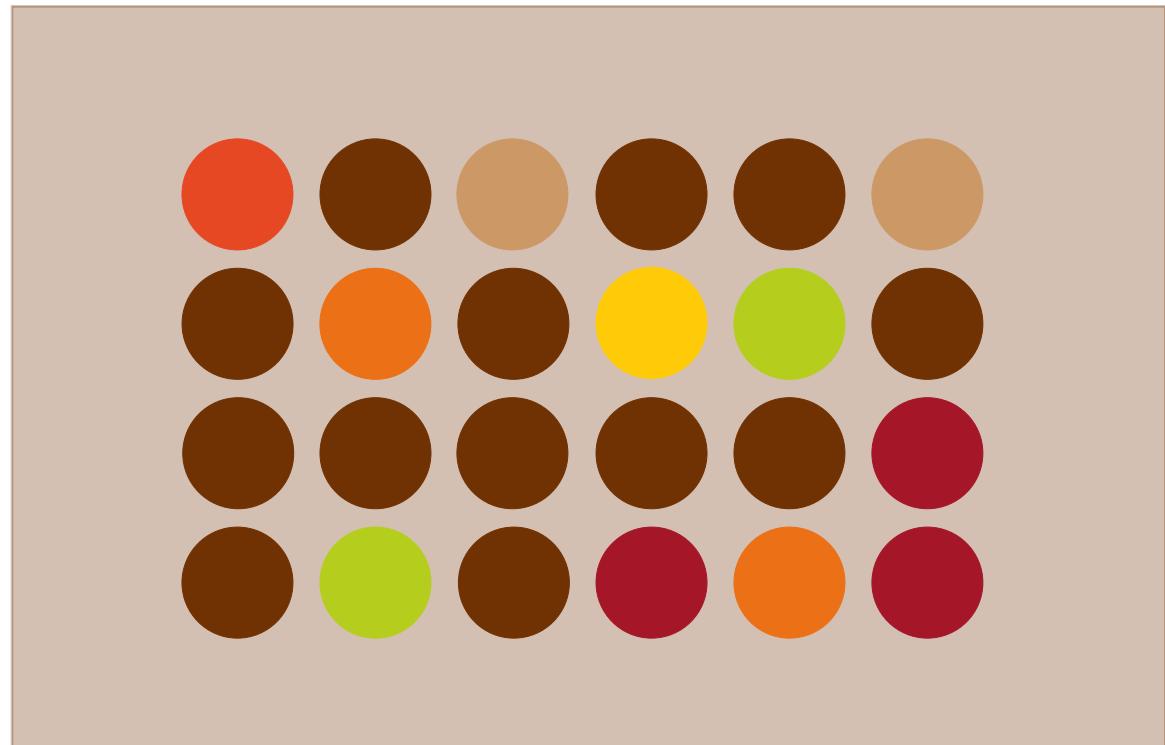
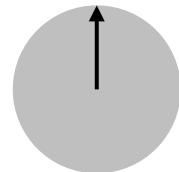
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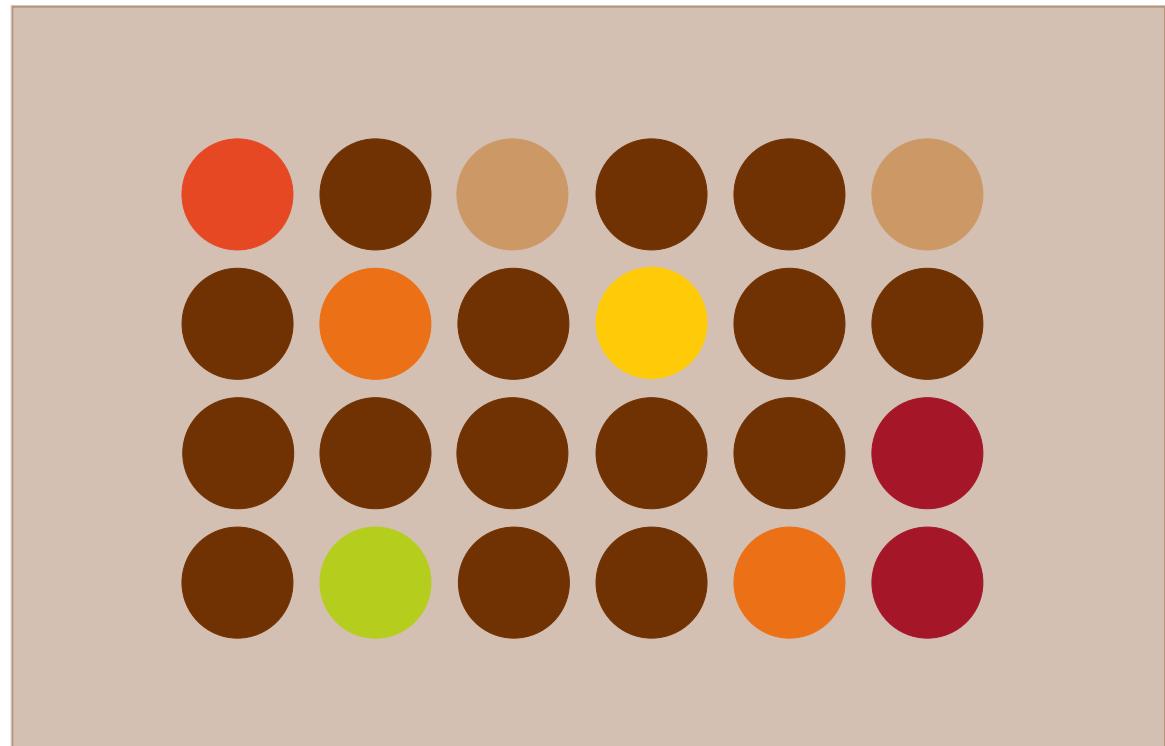
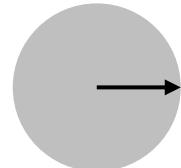
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- fluxo gênico
- mutação



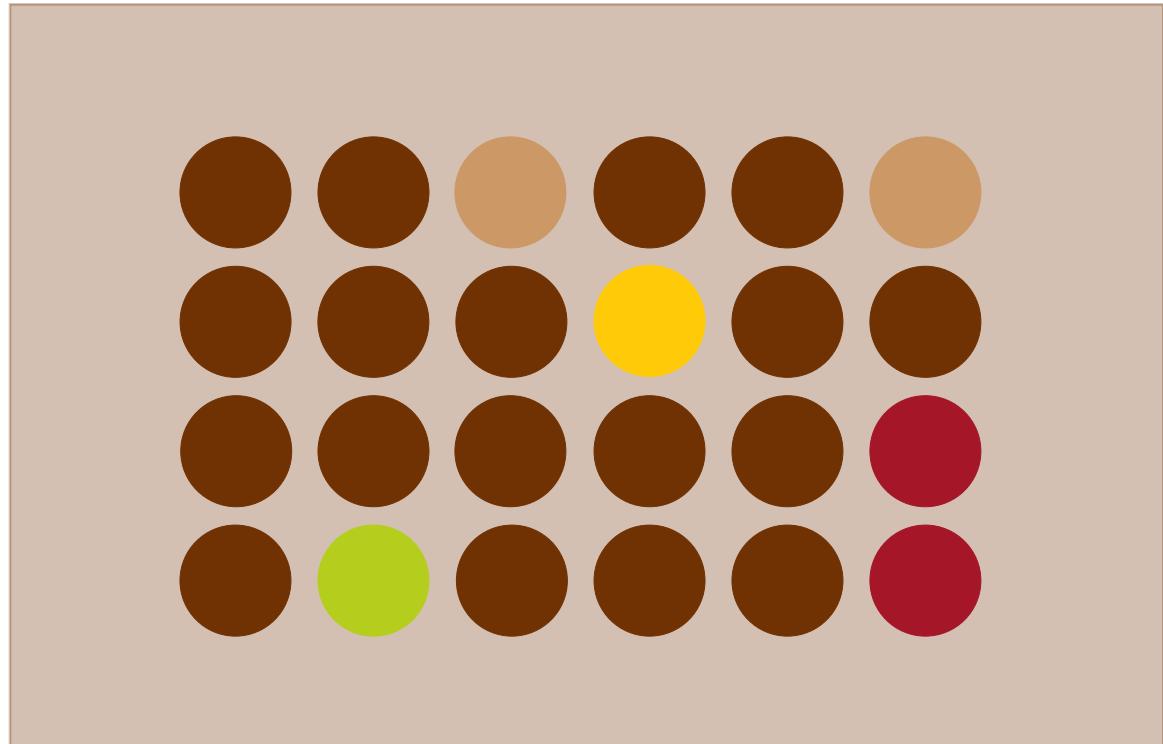
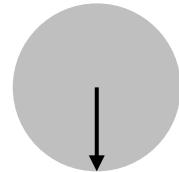
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- **seleção**
- deriva genética
- fluxo gênico
- mutação



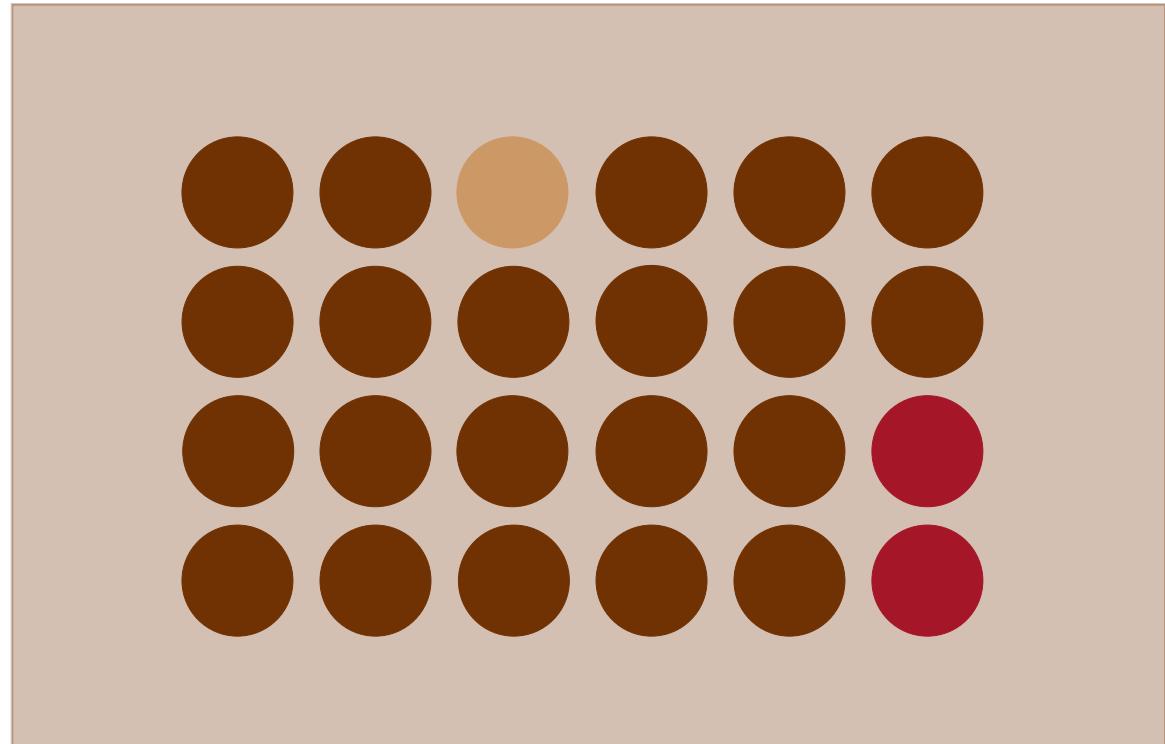
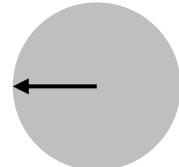
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- mutação



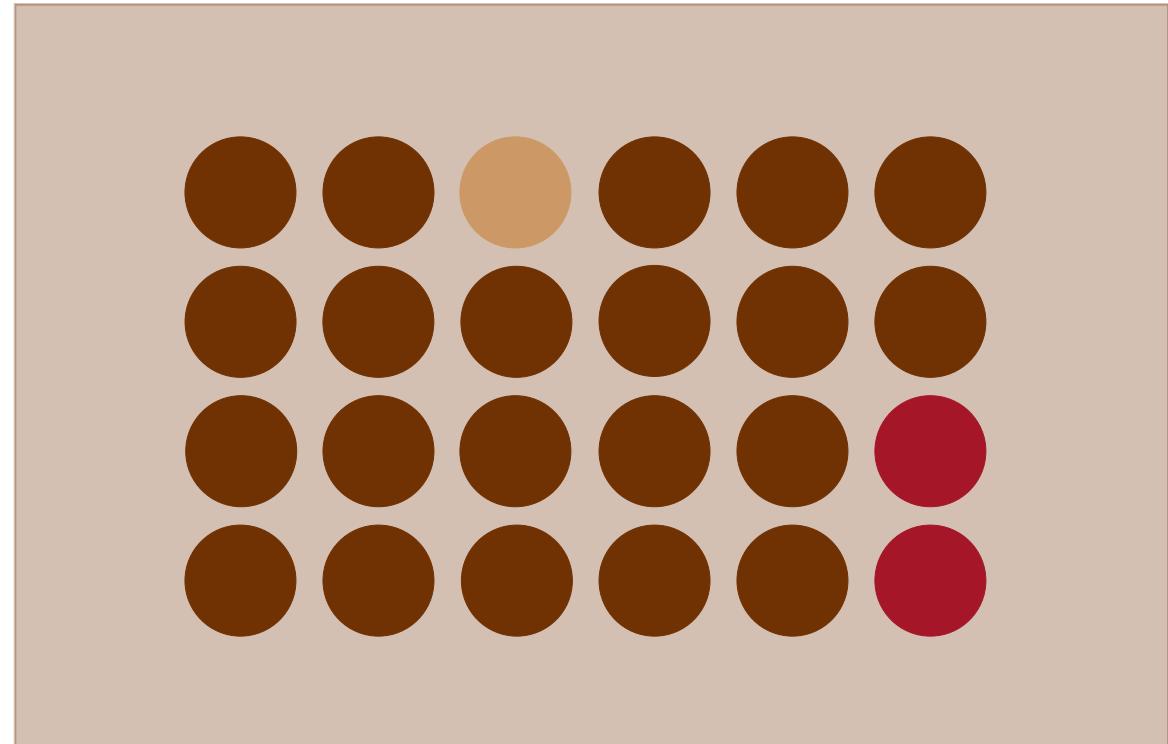
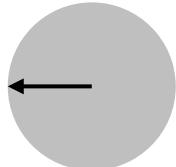
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- fluxo gênico
- mutação



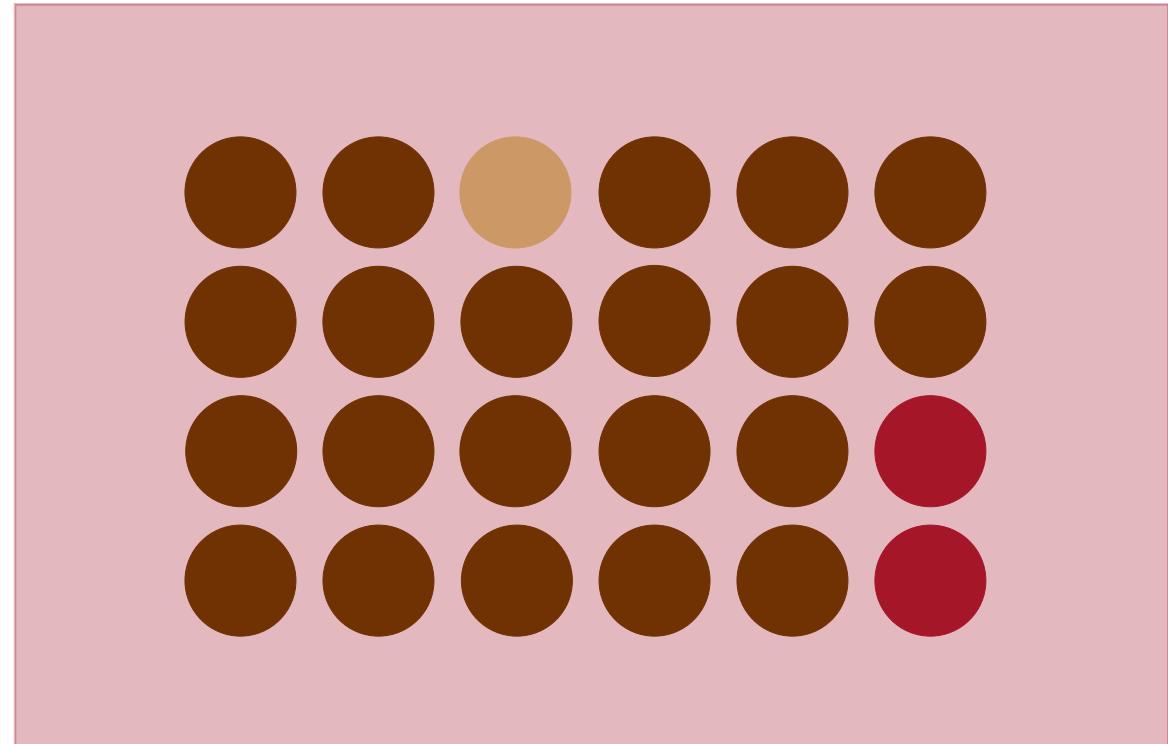
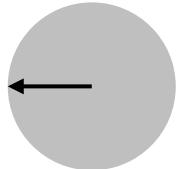
# dinâmica evolutiva

- seleção
- **deriva genética**
- fluxo gênico
- mutação



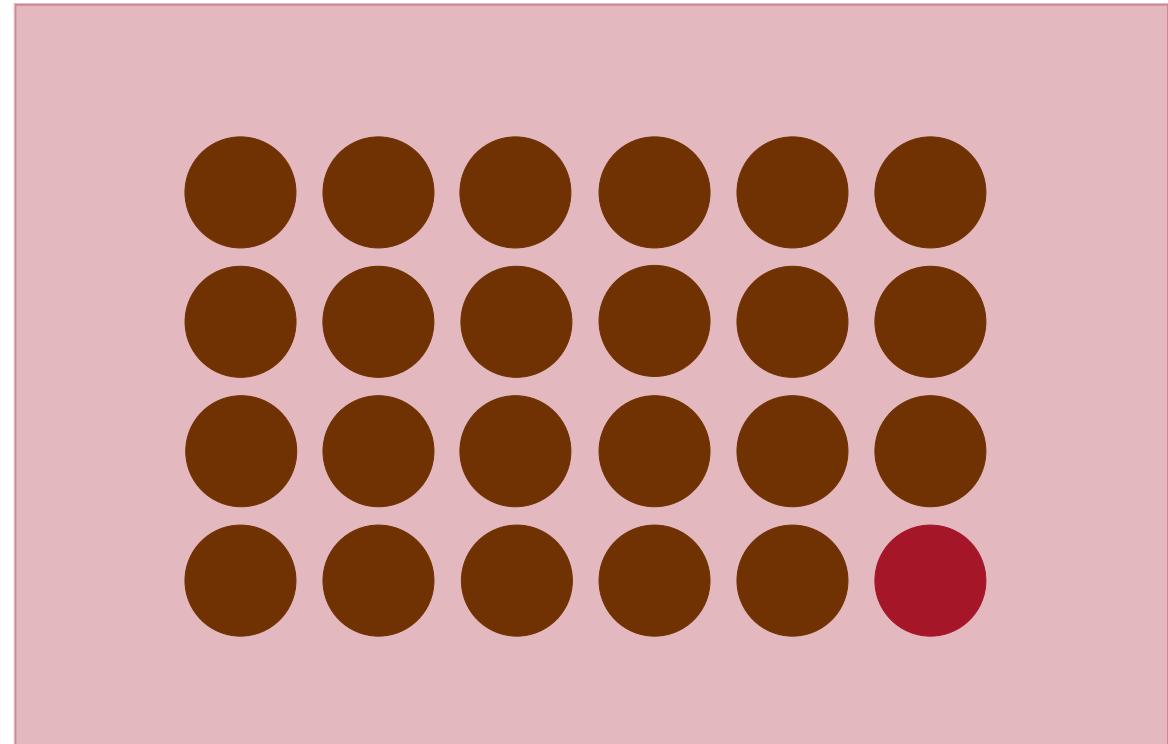
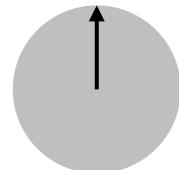
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- **deriva genética**
- fluxo gênico
- mutação



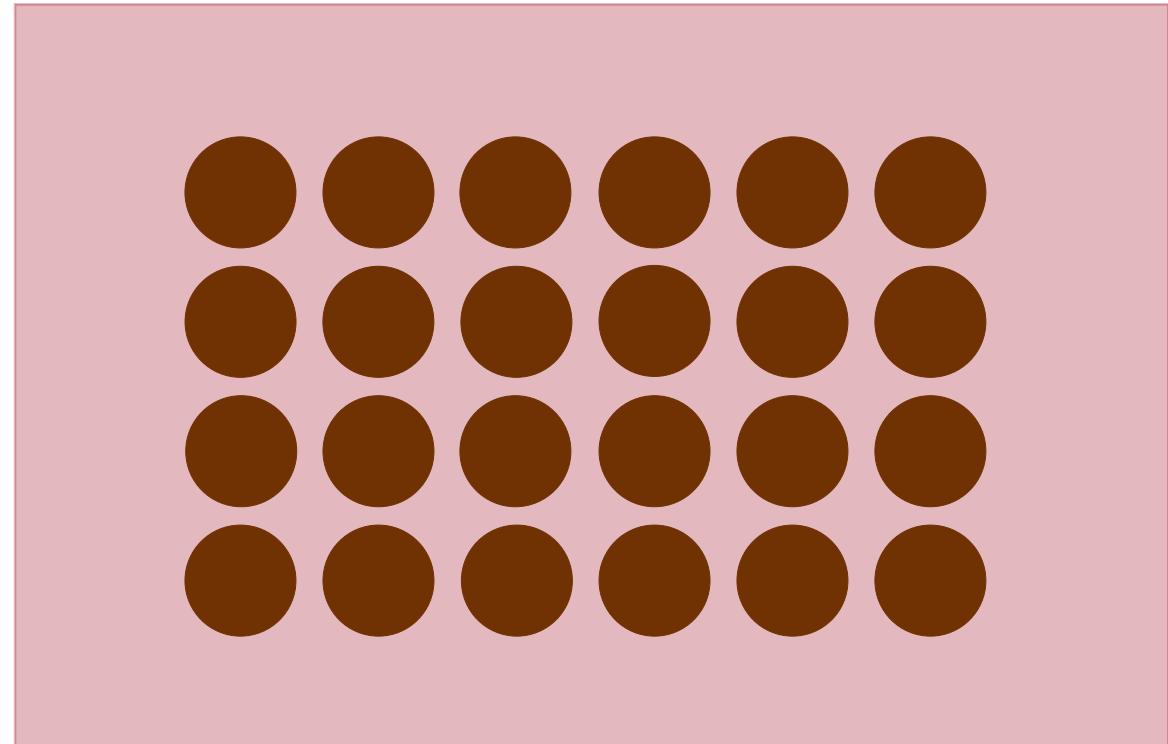
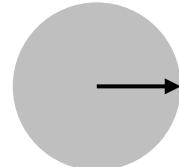
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- seleção
- **deriva genética**
- fluxo gênico
- mutação



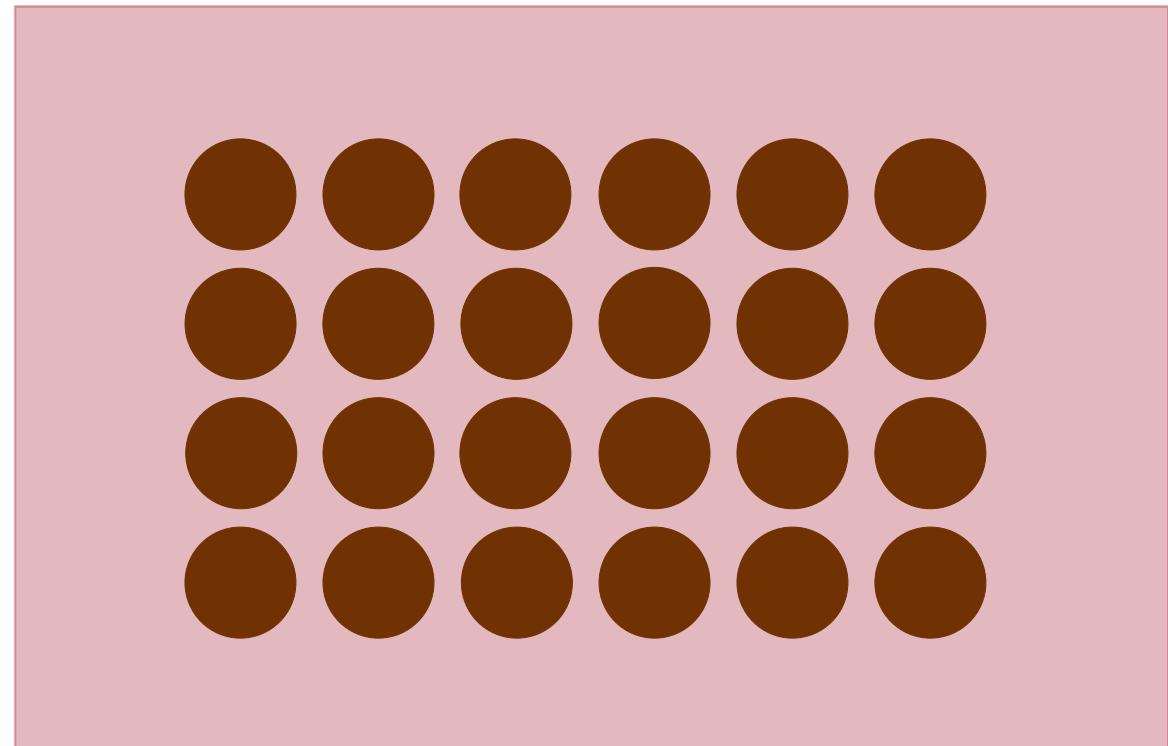
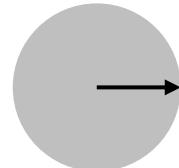
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- seleção
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- mutação



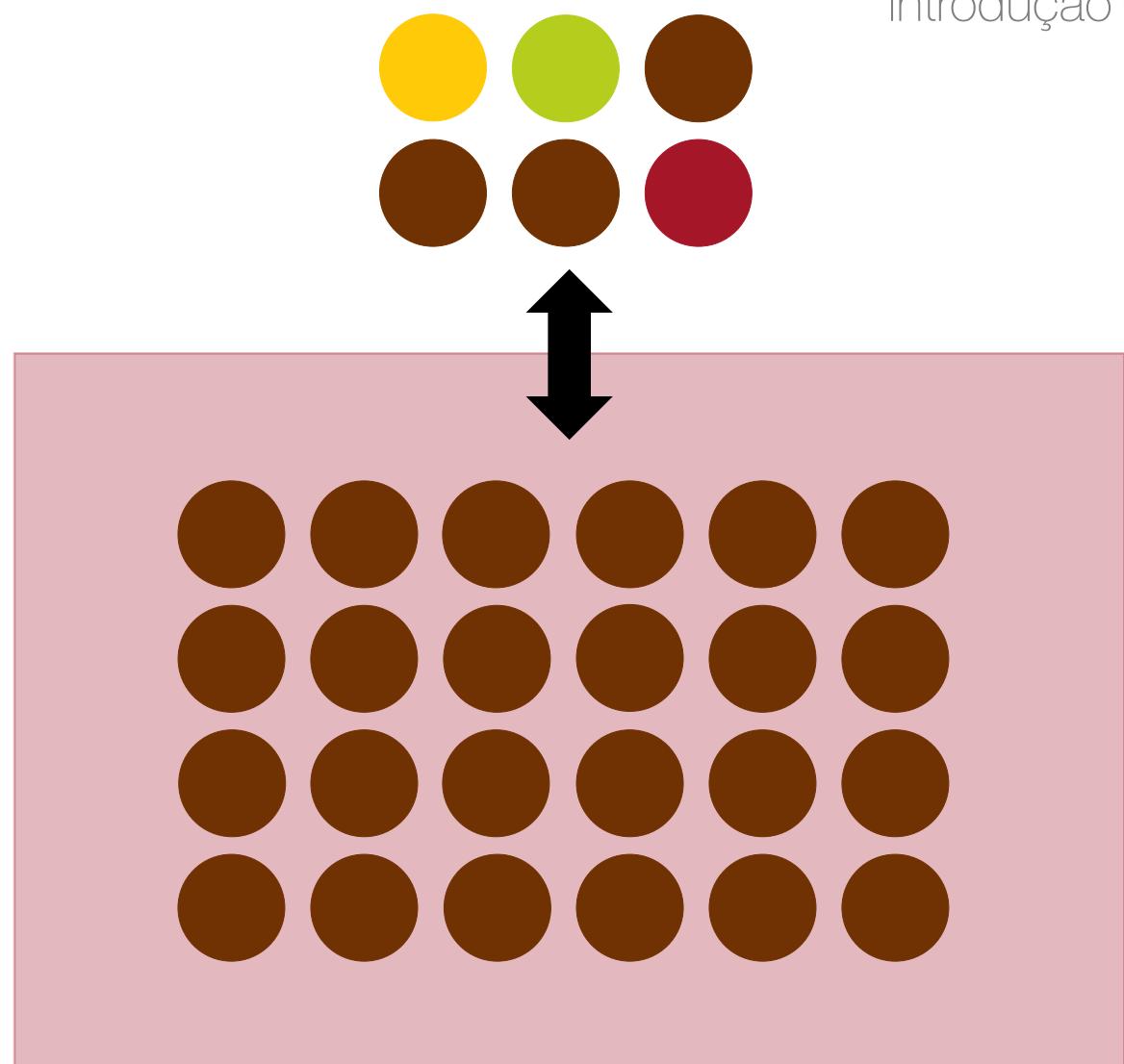
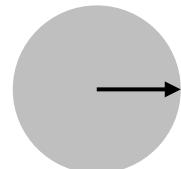
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- seleção
- deriva genética
- **fluxo gênico**
- mutação



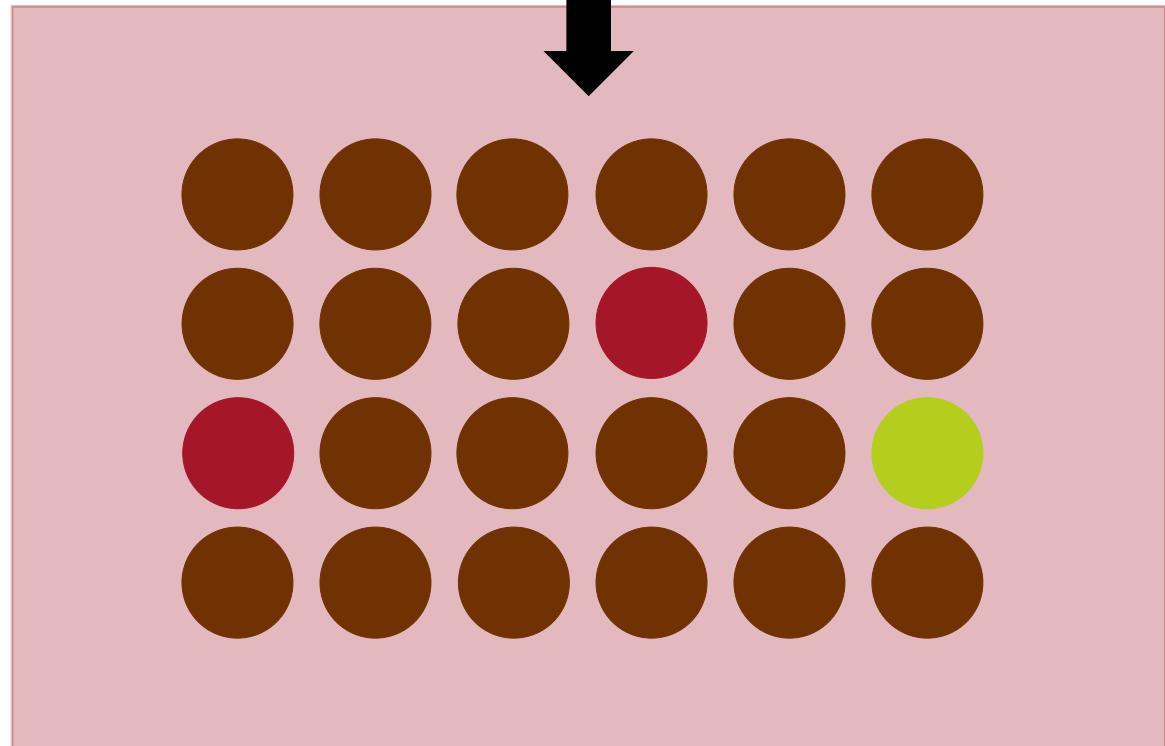
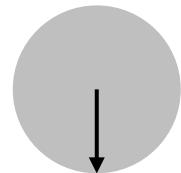
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- seleção
- deriva genética
- **fluxo gênico**
- mutação



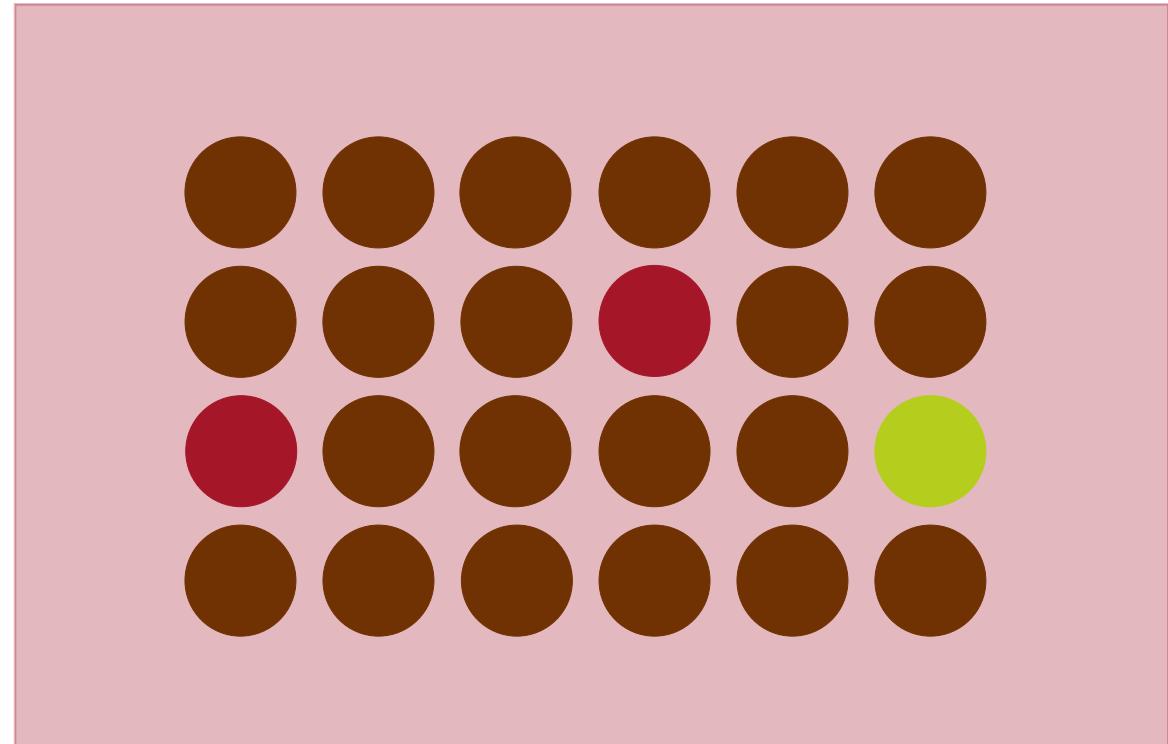
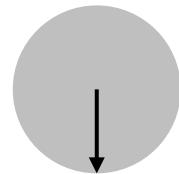
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- seleção
- deriva genética
- **fluxo gênico**
- mutação



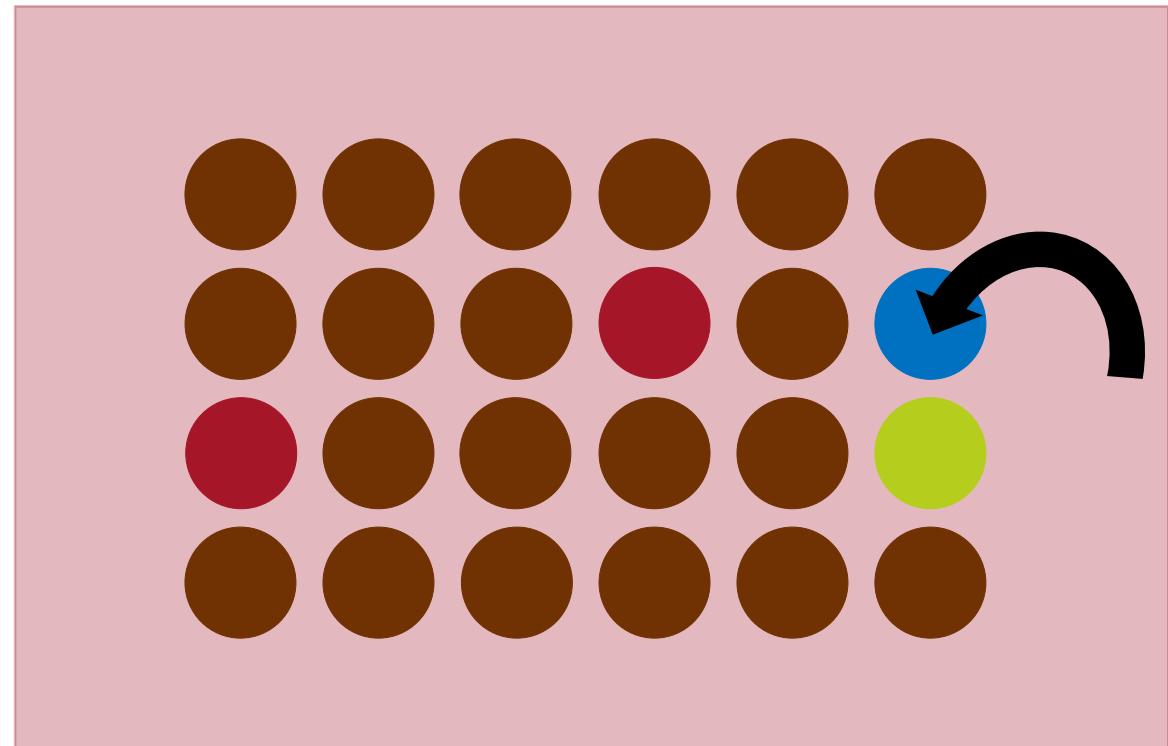
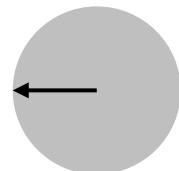
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- seleção
- deriva genética
- fluxo gênico
- **mutação**



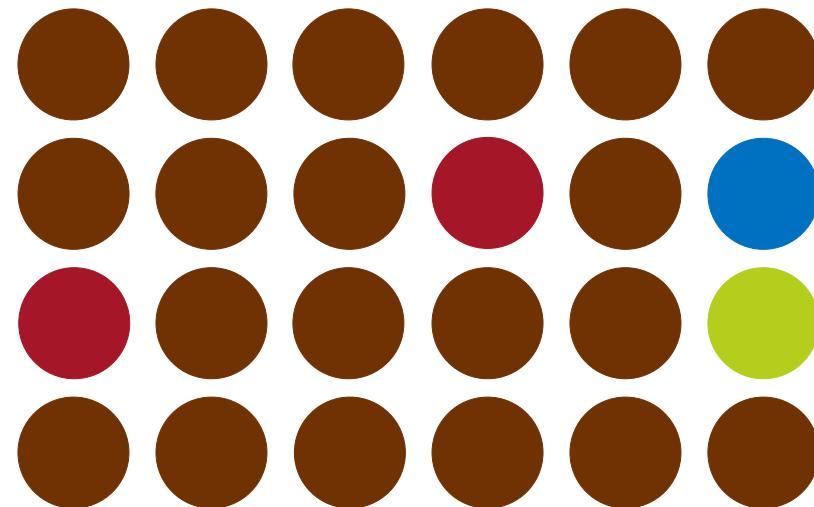
# dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- **mutação**



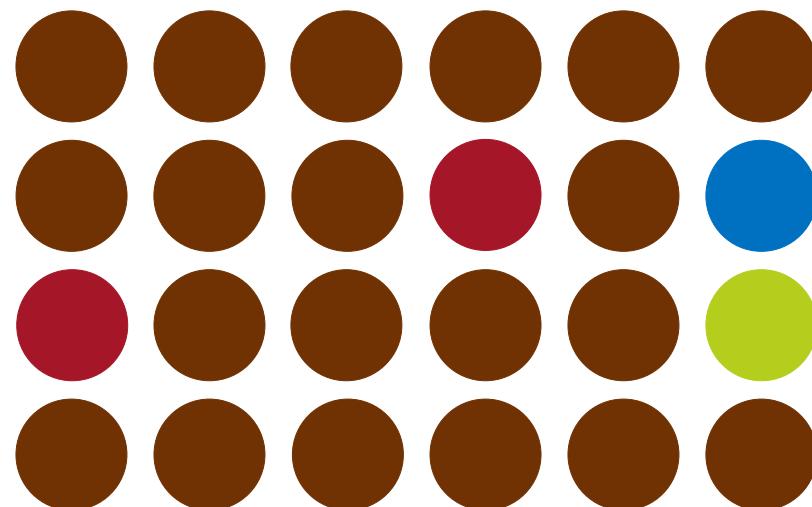
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- seleção
- deriva genética
- fluxo gênico
- mutação



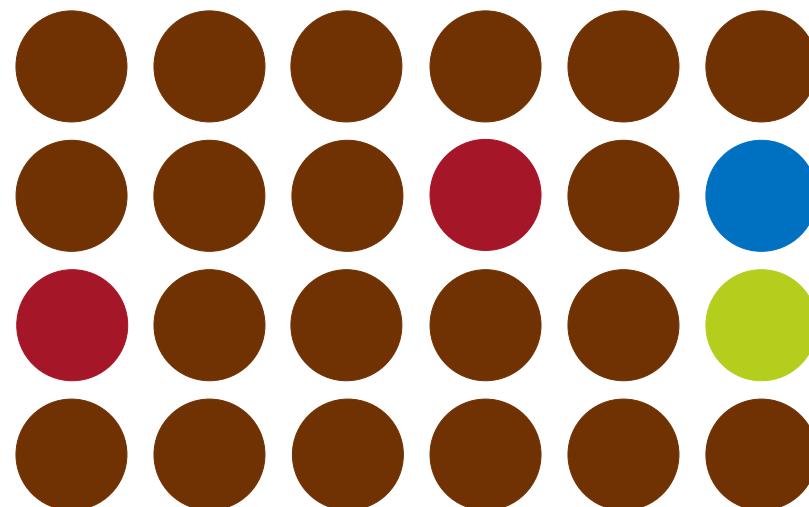
## dinâmica evolutiva

- seleção
  - deriva genética
  - fluxo gênico
  - mutação
- } diversidade
- 



# dinâmica evolutiva

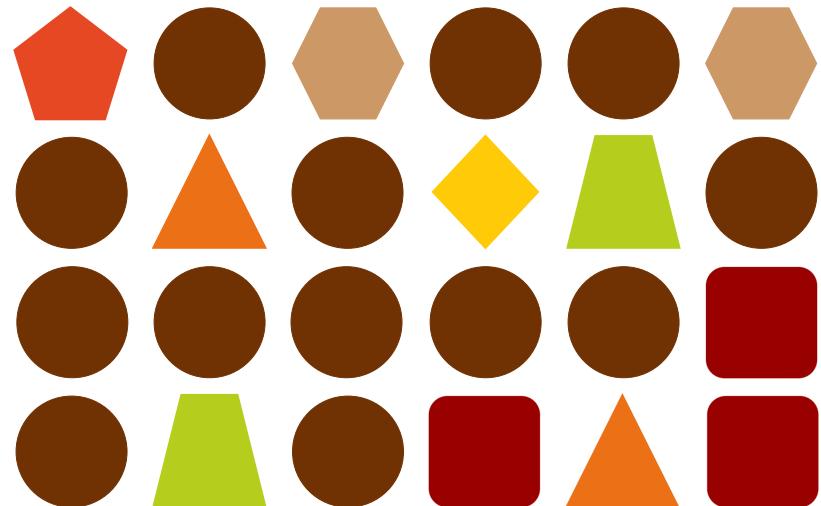
- seleção
  - deriva genética
  - fluxo gênico
  - mutação
- } diversidade
- ↑ diversidade





## dinâmica ecológica

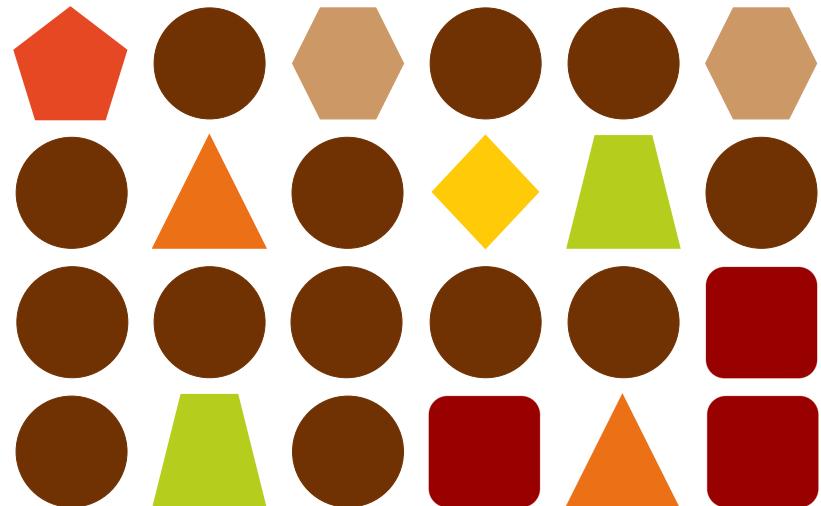
- filtragem ecológica
- deriva ecológica
- migração
- especiação



## dinâmica ecológica

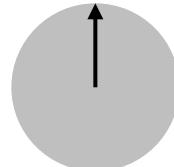
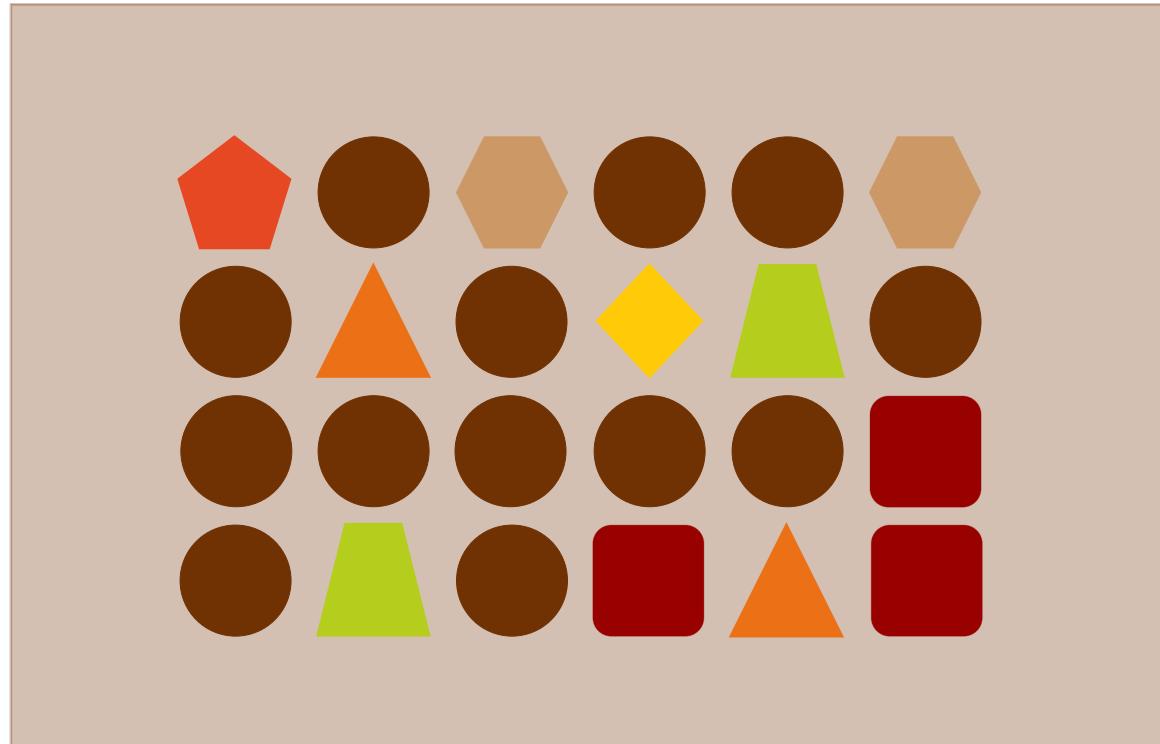
- filtragem ecológica
- deriva ecológica
- migração
- especiação

## dinâmica ecológica



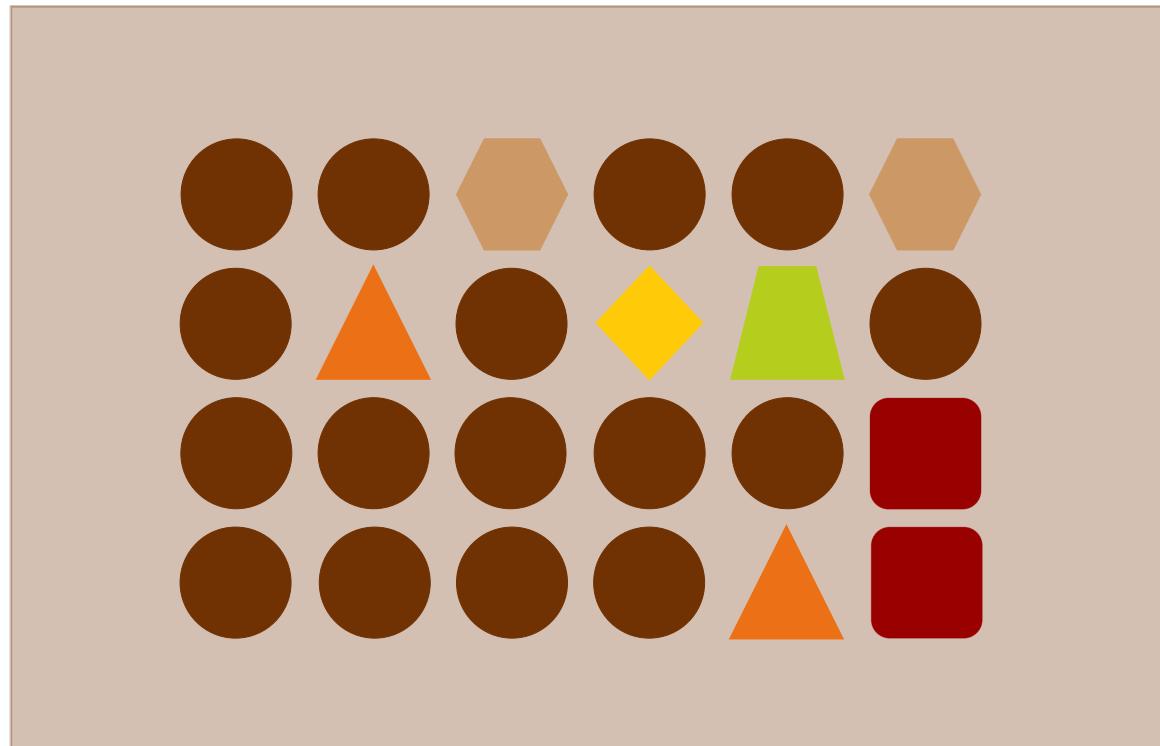
- **filtragem ecológica**
- deriva ecológica
- migração
- especiação

## dinâmica ecológica



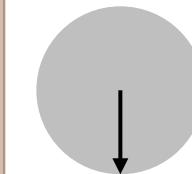
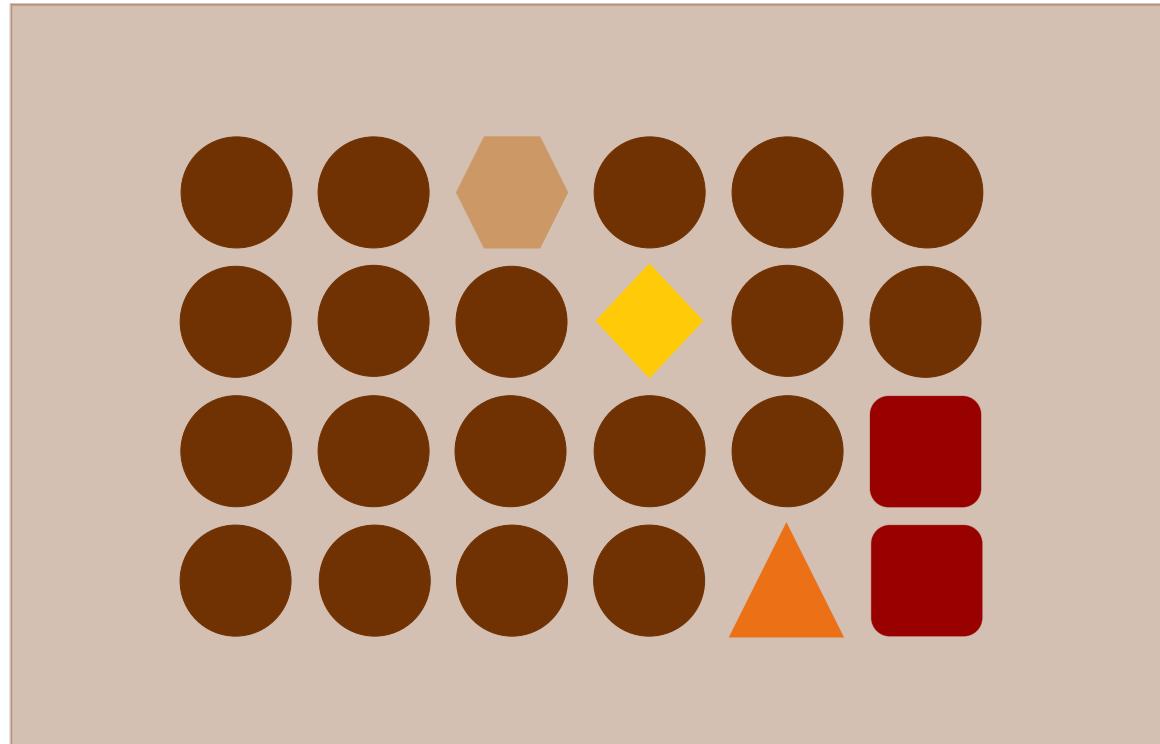
- **filtragem ecológica**
- deriva ecológica
- migração
- especiação

## dinâmica ecológica

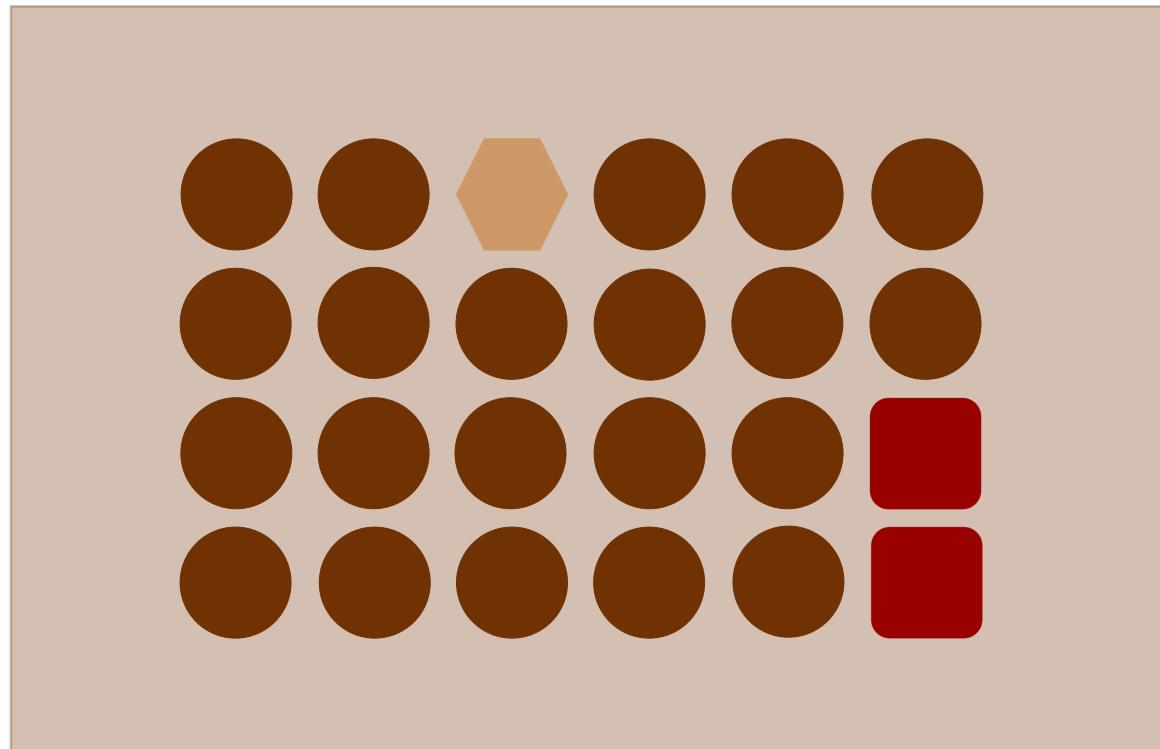


- **filtragem ecológica**
  - deriva ecológica
  - migração
  - especiação

## dinâmica ecológica

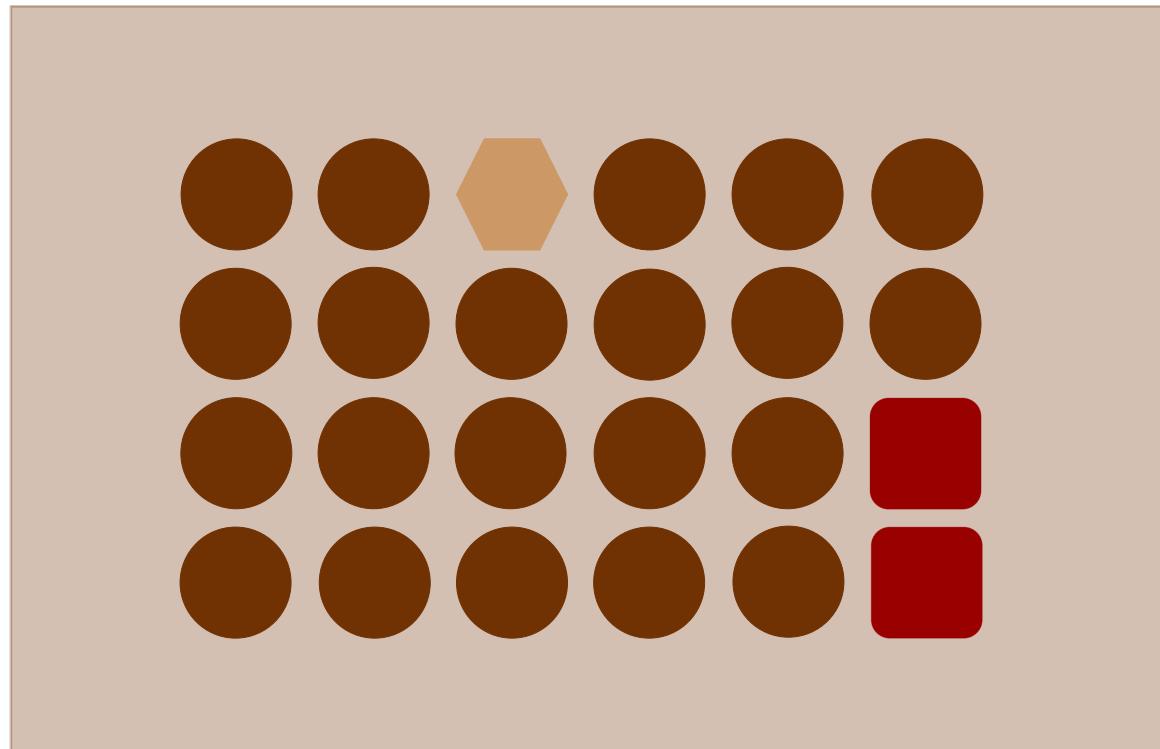


- **filtragem ecológica**
- deriva ecológica
- migração
- especiação



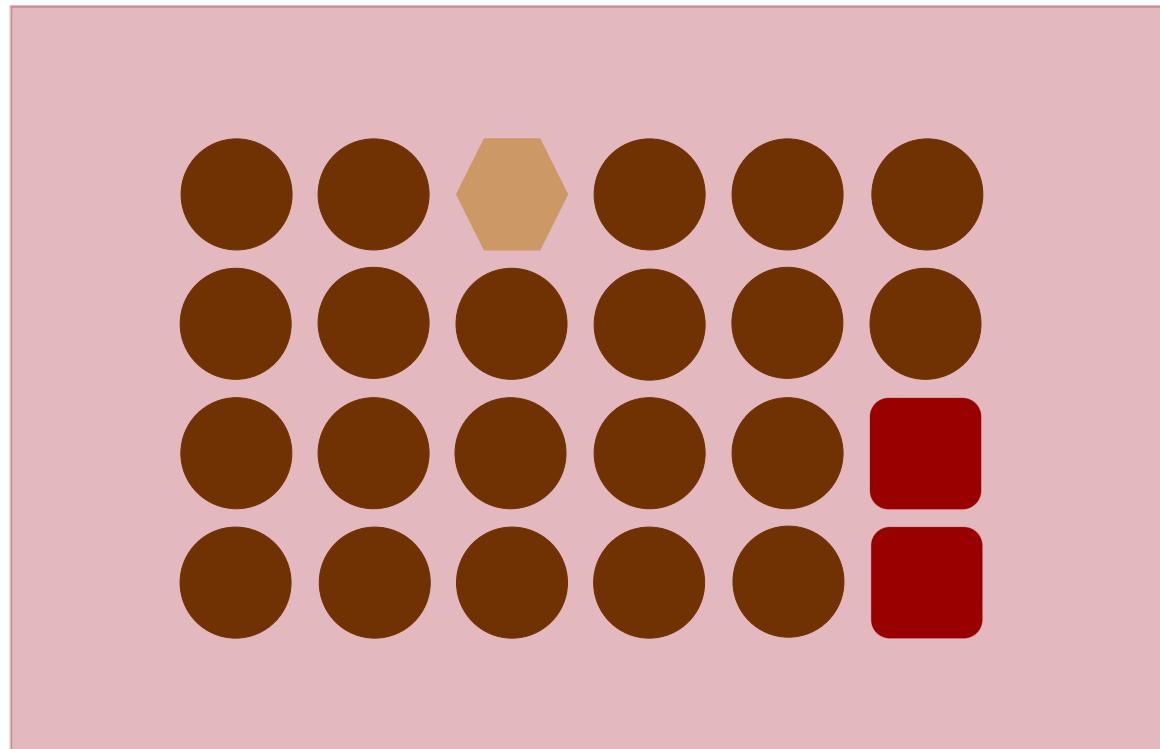
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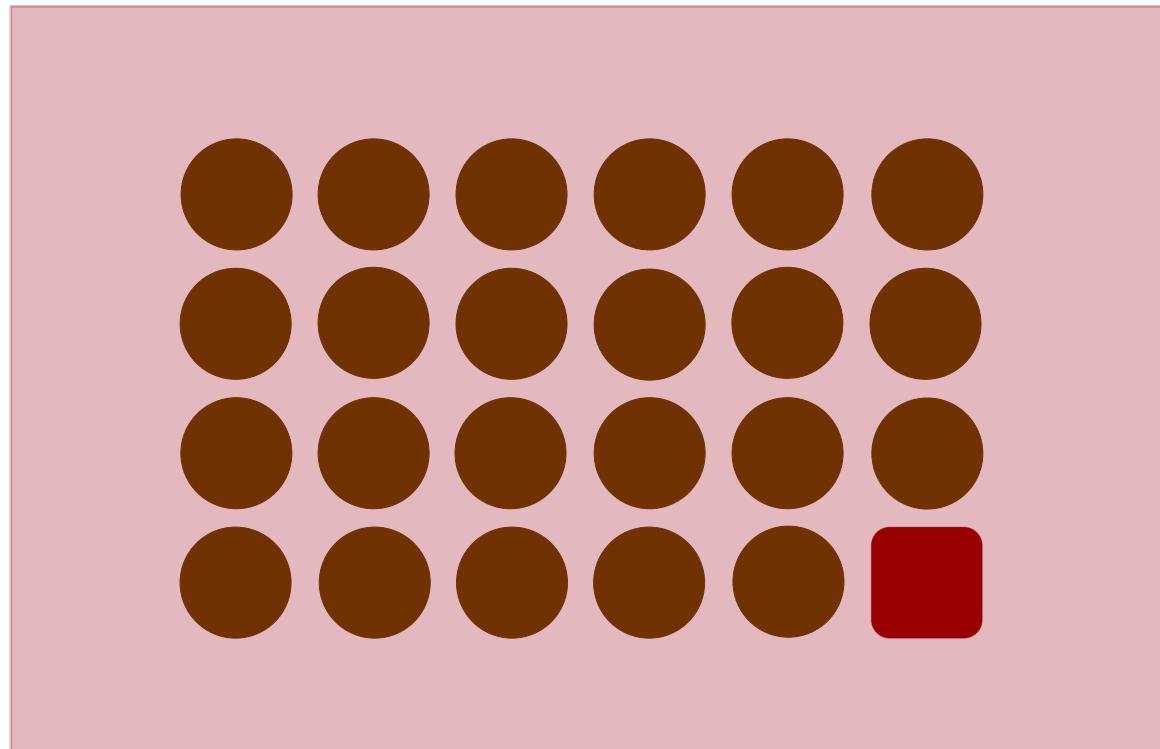
## dinâmica ecológica

- filtragem ecológica
- **deriva ecológica**
- migração
- especiação



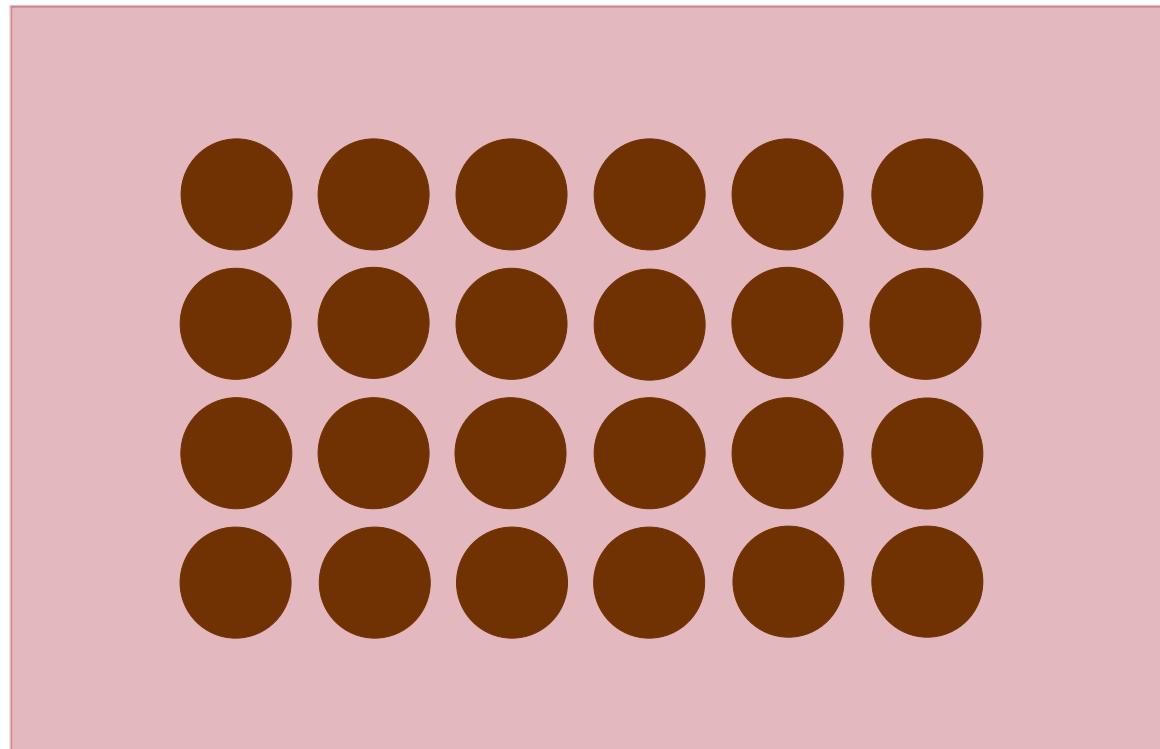
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- especiação



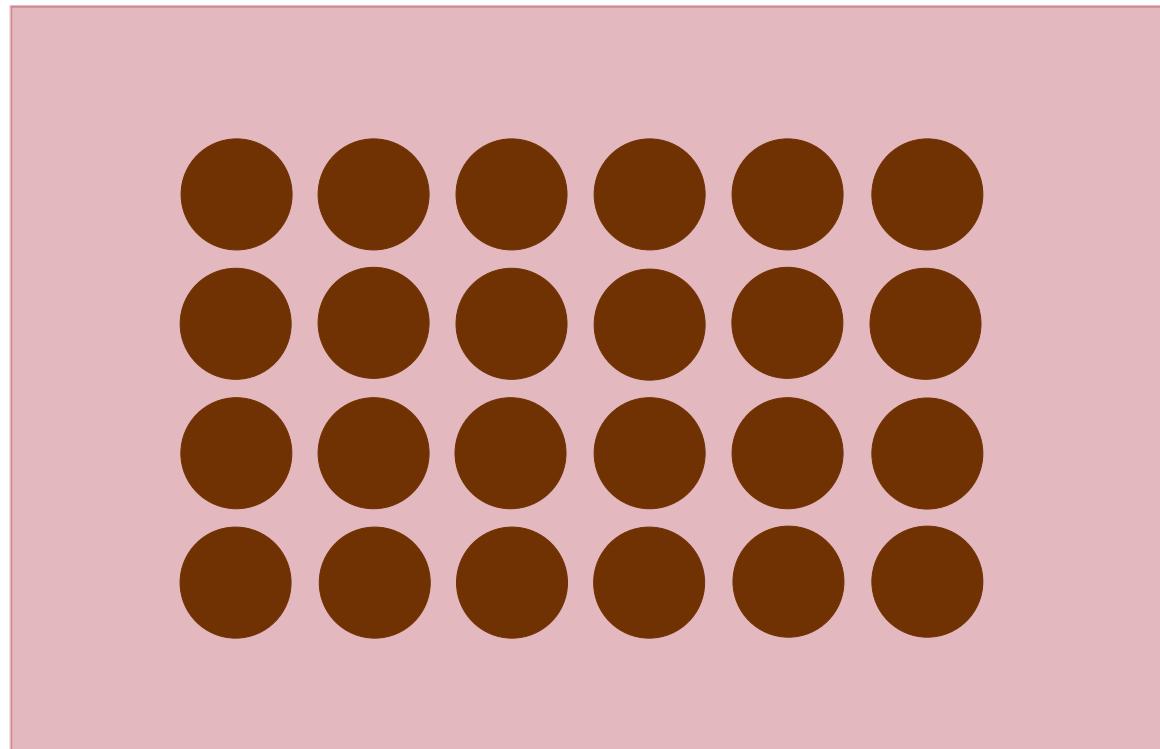
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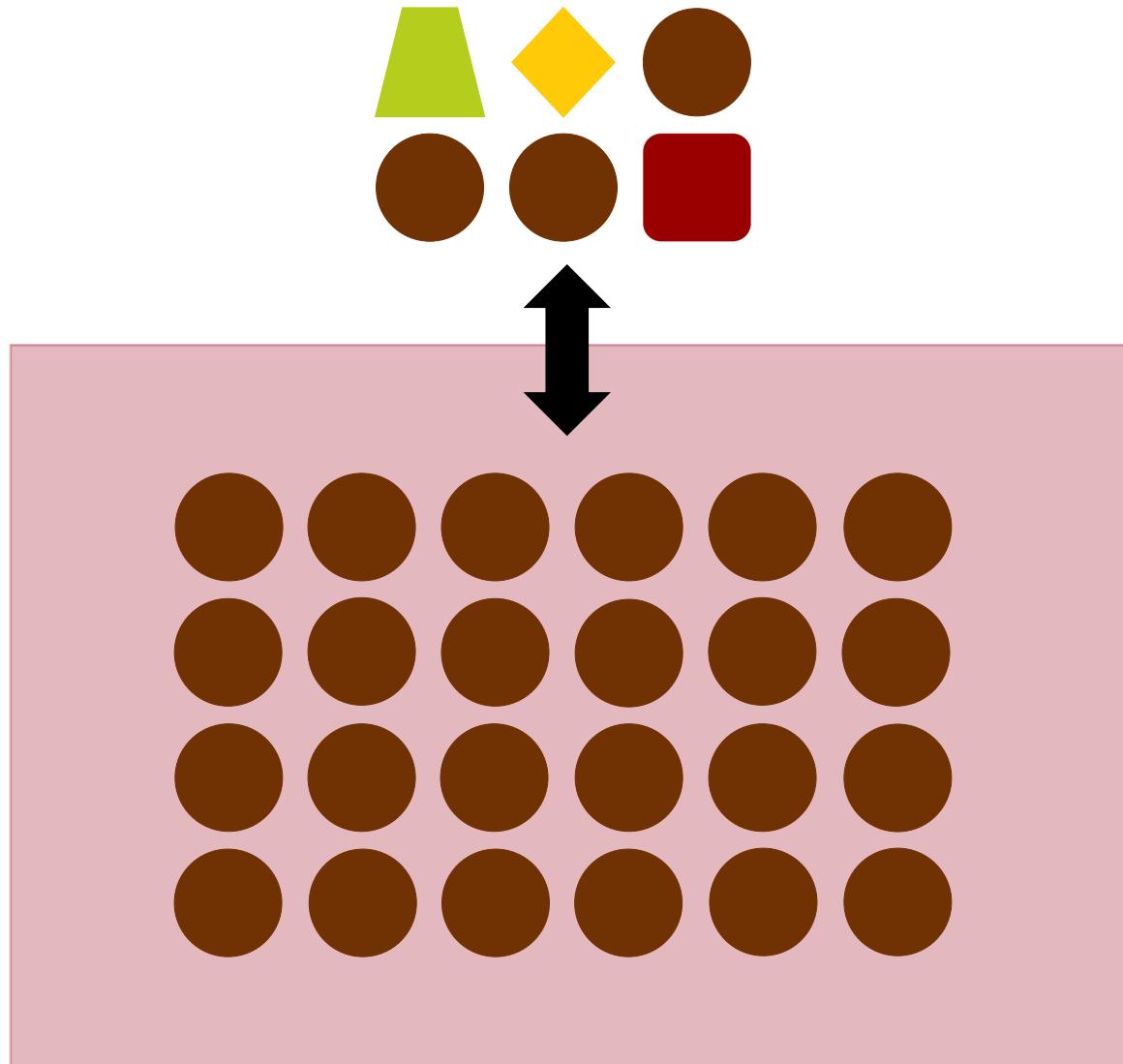
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- filtragem ecológica
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- migração
- especiação



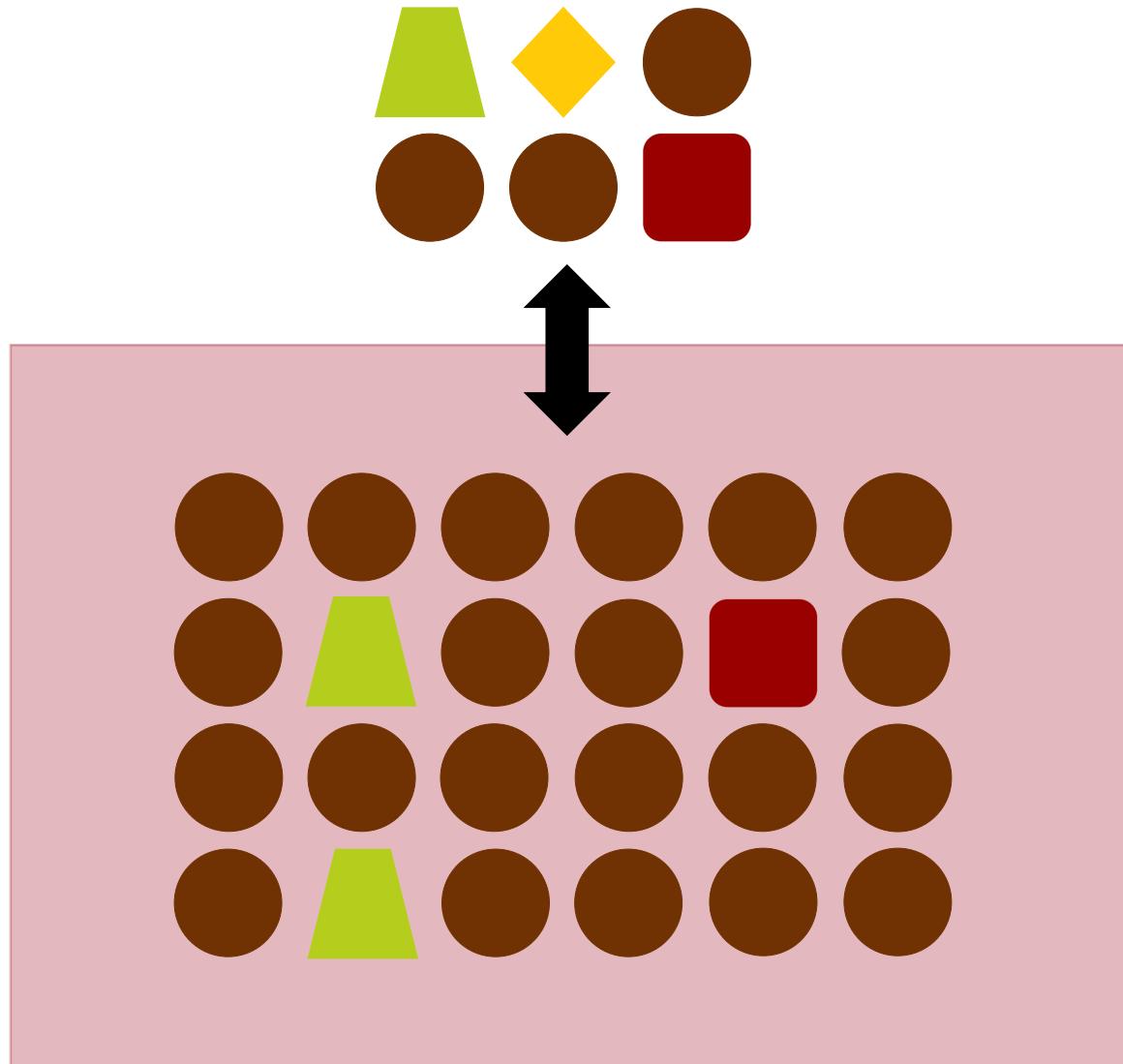
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- filtragem ecológica
- deriva ecológica
- **migração**
- especiação



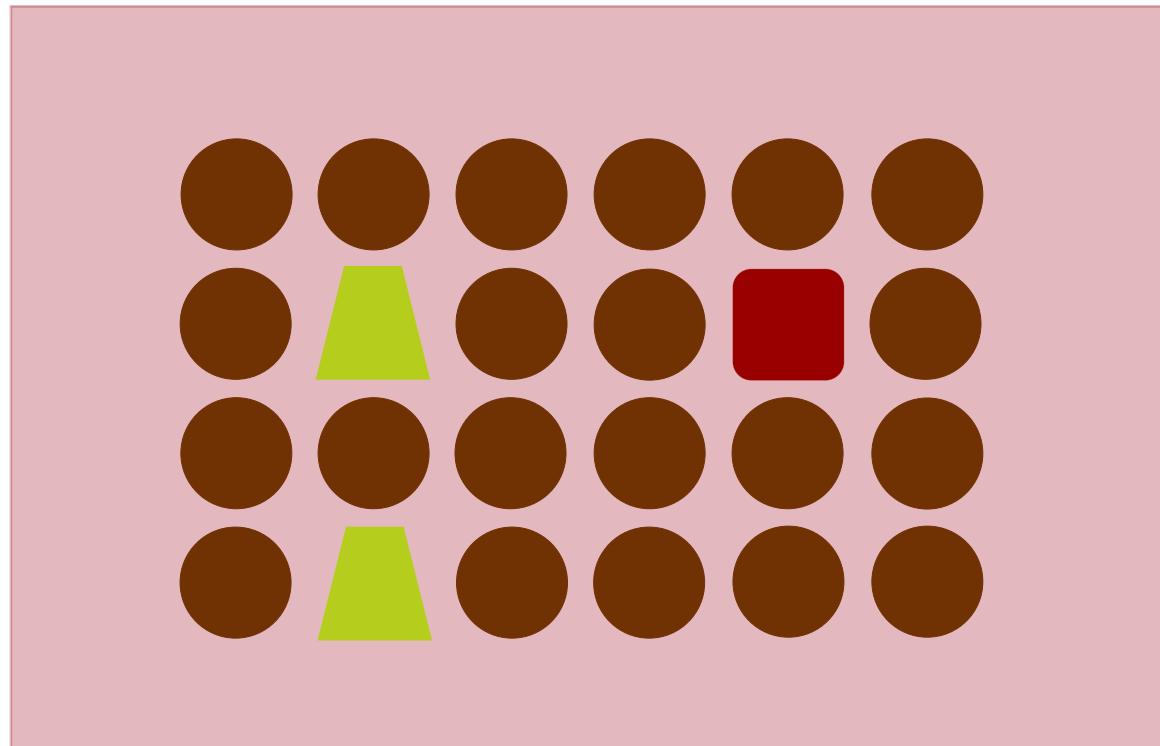
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- **migração**
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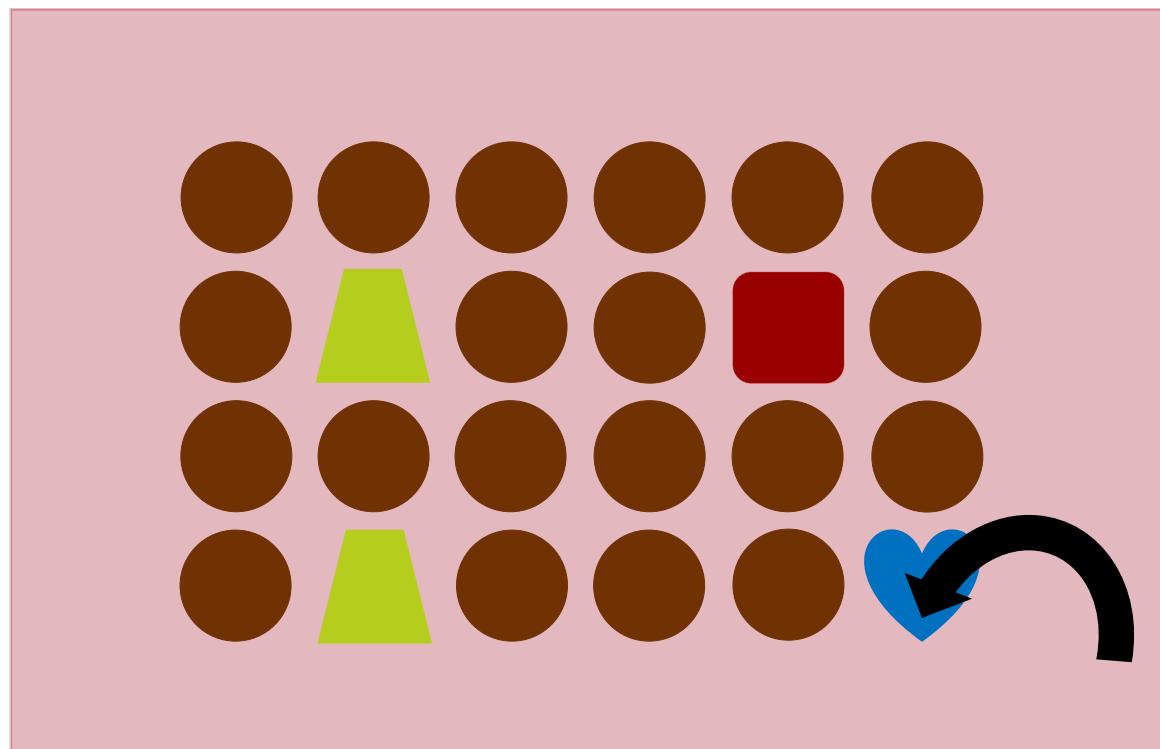
## dinâmica ecológica

- filtragem ecológica
- deriva ecológica
- **migração**
- especiação



## dinâmica ecológica

- filtragem ecológica
- deriva ecológica
- migração
- **especiação**



## dinâmica ecológica

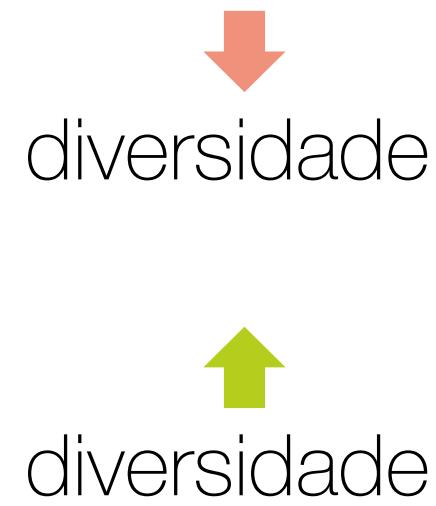
- filtragem ecológica
- deriva ecológica
- migração
- **especiação**

## dinâmica ecológica

diversidade



- filtragem ecológica
- deriva ecológica
- migração
- especiação



## dinâmica ecológica

- filtragem ecológica
- deriva ecológica
- migração
- especiação

## dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

diversidade  
↓  
diversidade  
↑

## dinâmica ecológica

- filtragem ecológica
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva



dinâmica  
ecológica

- seleção
- deriva genética
- fluxo gênico
- mutação
- filtragem ecológica
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



- seleção
- deriva genética
- fluxo gênico
- mutação
- filtragem ecológica
- deriva ecológica
- migração
- especiação



- seleção ←
- deriva genética
- fluxo gênico
- mutação
- filtragem ecológica
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



- seleção ← melhores competidores = mais aptos
- deriva genética
- fluxo gênico
- mutação
- filtragem ecológica
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



- seleção →
- deriva genética
- fluxo gênico
- mutação
- filtragem ecológica
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



mudança nos atributos =  
mudança nas interações

- seleção
- deriva genética
- fluxo gênico
- mutação
- filtragem ecológica
- deriva ecológica
- migração
- especiação



- seleção ← → • filtragem ecológica
- deriva genética
- fluxo gênico
- mutação
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



- seleção
  - deriva genética
  - fluxo gênico
  - mutação
  - filtragem ecológica
  - deriva ecológica
  - migração
  - especiação
-



- seleção
  - deriva genética
  - fluxo gênico
  - mutação
- filtragem ecológica
  - deriva ecológica
  - migração
  - especiação



- seleção
  - deriva genética
  - fluxo gênico
  - mutação
- filtragem ecológica
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  - migração
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dinâmica  
evolutiva

dinâmica  
ecológica

## **estratégia de vida**



dinâmica  
evolutiva

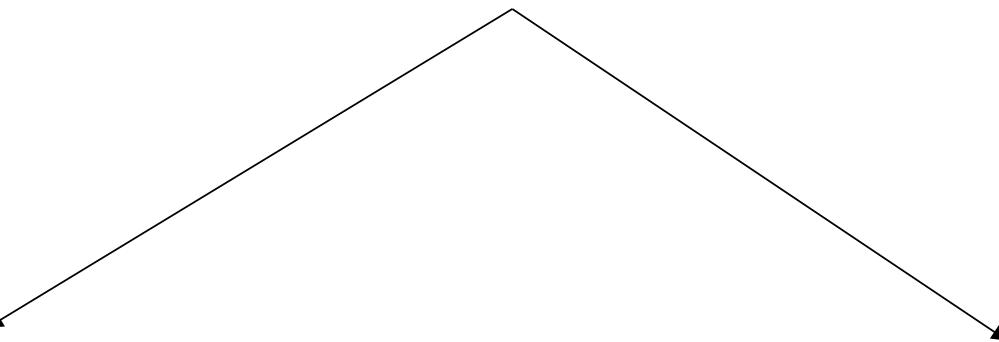
dinâmica  
eco-evolutiva

dinâmica  
ecológica

## **estratégia de vida**

aptidão

habilidade  
competitiva



## estratégia de vida

sobrevivência  reprodução

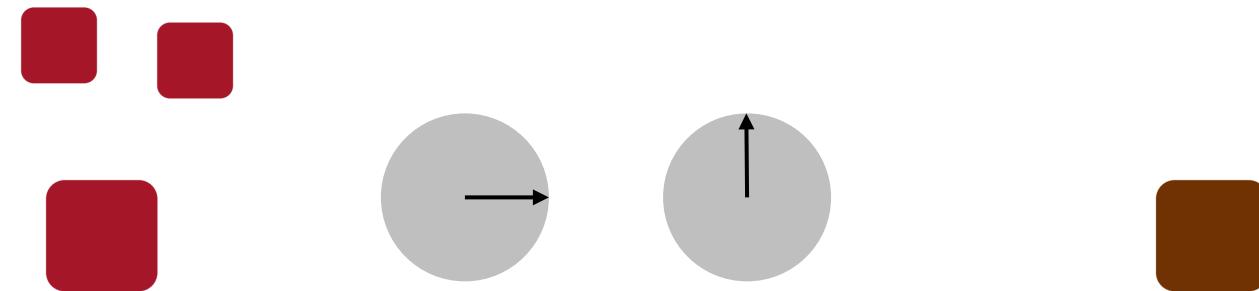
## estratégia de vida

sobrevivência ← → reprodução



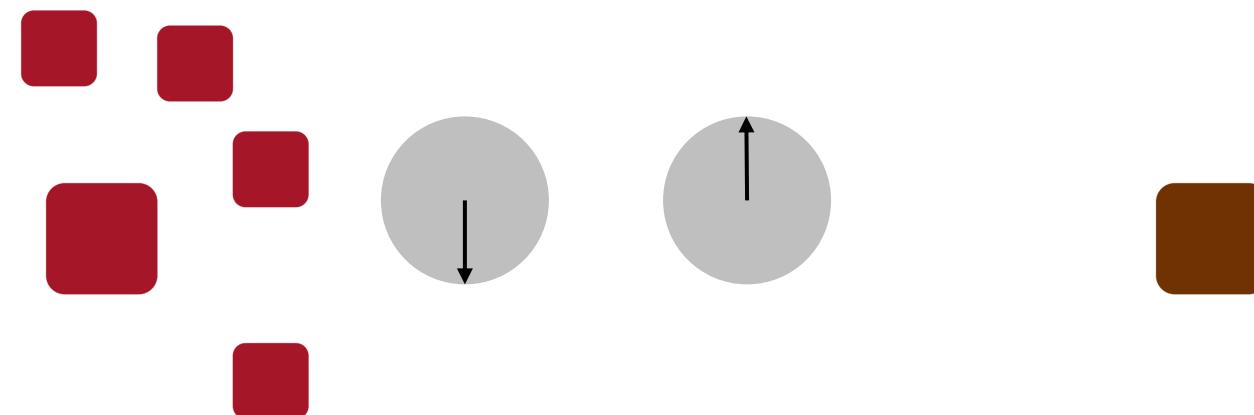
## estratégia de vida

sobrevivência ← → reprodução



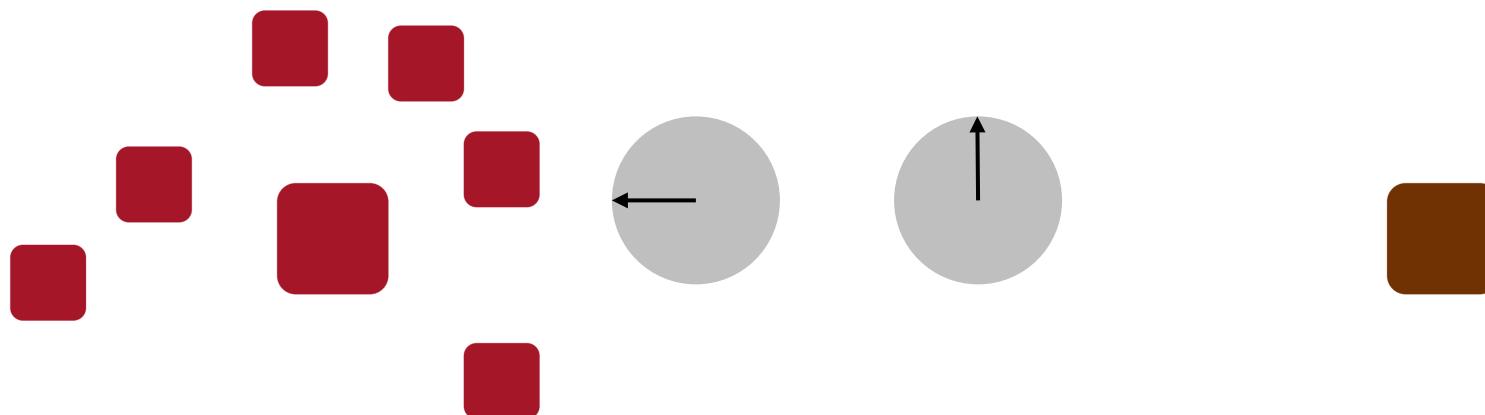
## estratégia de vida

sobrevivência ← → reprodução



## estratégia de vida

sobrevivência ← → reprodução

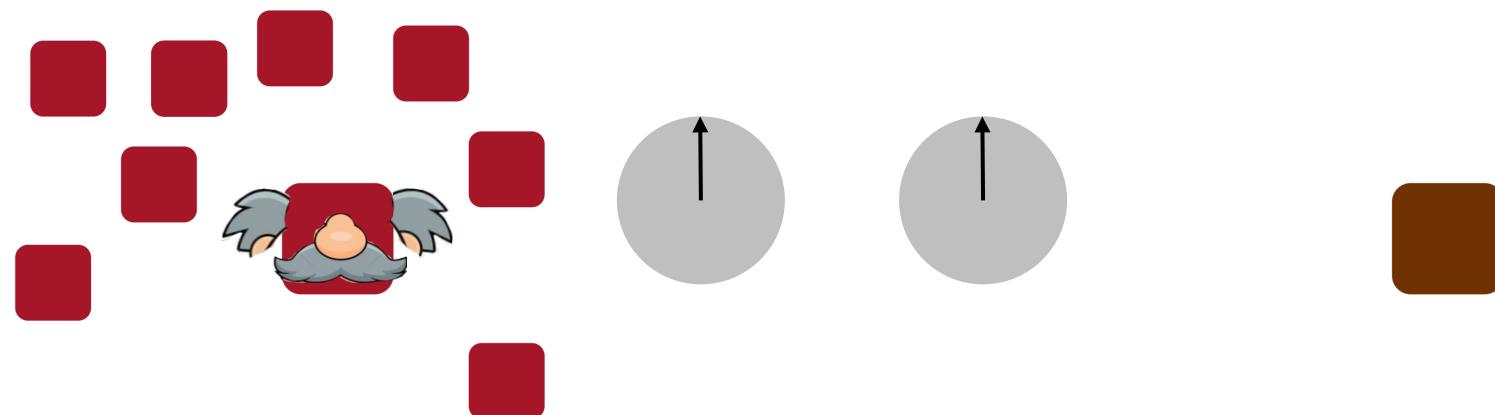


## estratégia de vida

sobrevivência



reprodução

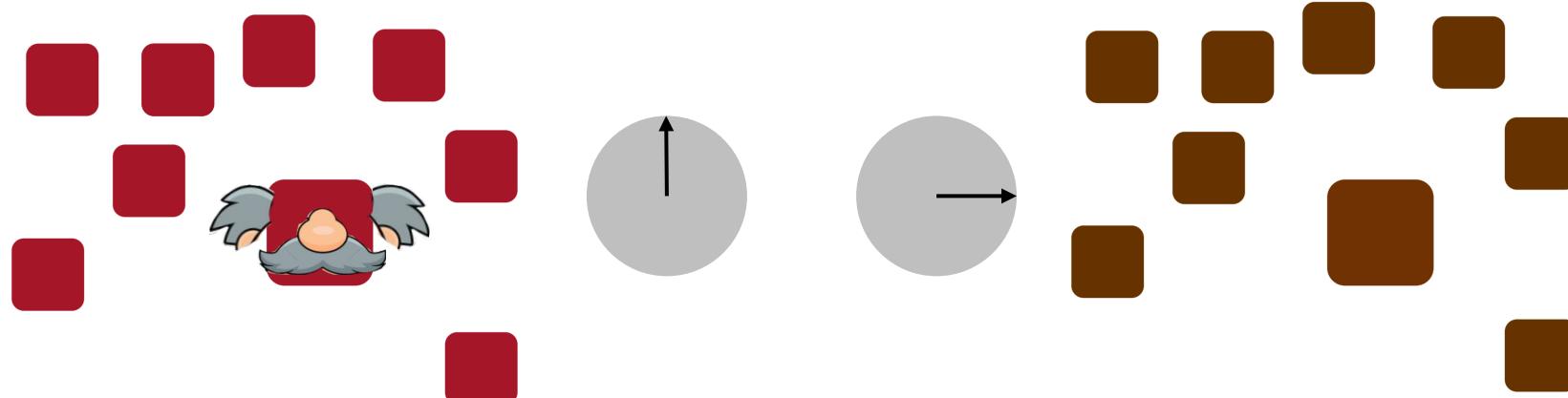


## estratégia de vida

sobrevivência



reprodução

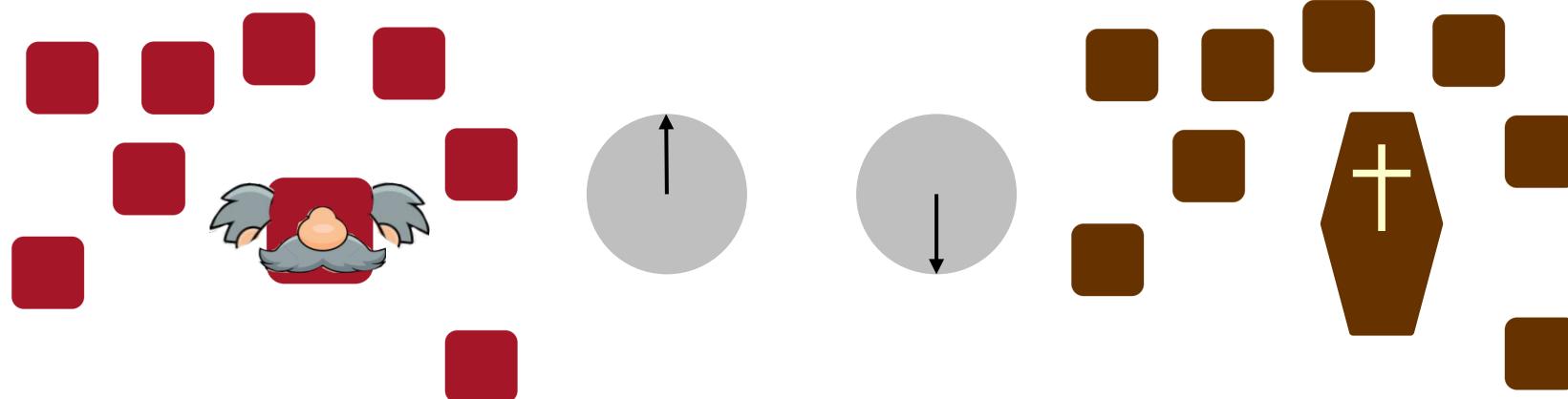


## estratégia de vida

sobrevivência



reprodução

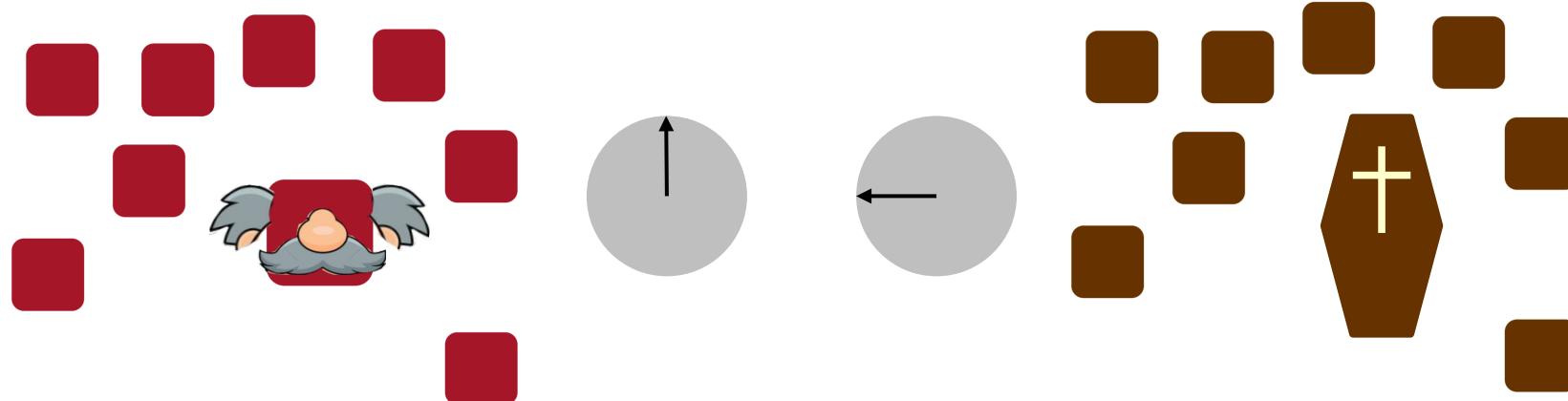


## estratégia de vida

sobrevivência



reprodução

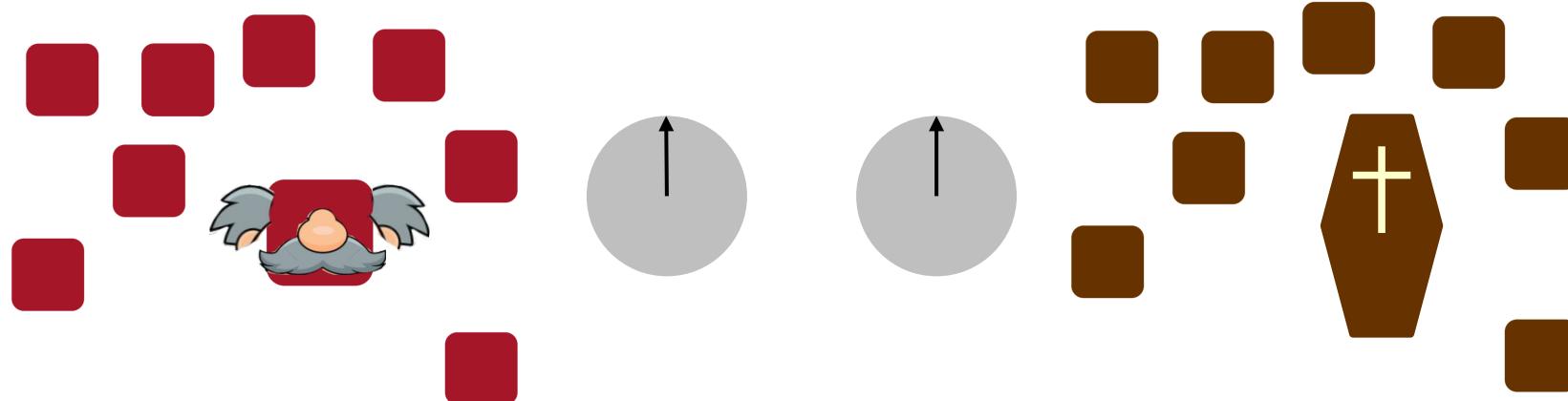


## estratégia de vida

sobrevivência



reprodução







aptidão



número de  
descendentes

## estratégia de vida



número de  
descendentes

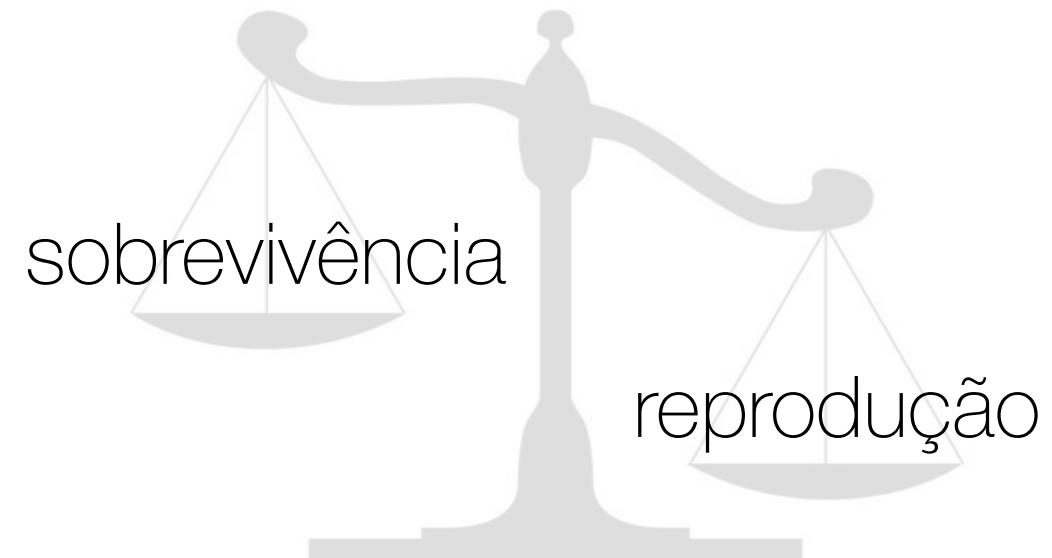
habilidade  
competitiva



número de  
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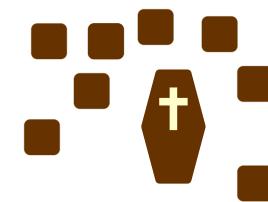
uso eficiente do  
recurso

# estratégia de vida



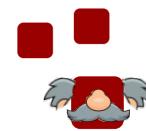
# fatores ambientais





↓ recurso

reprodução



**sobrevivência**

# distúrbio



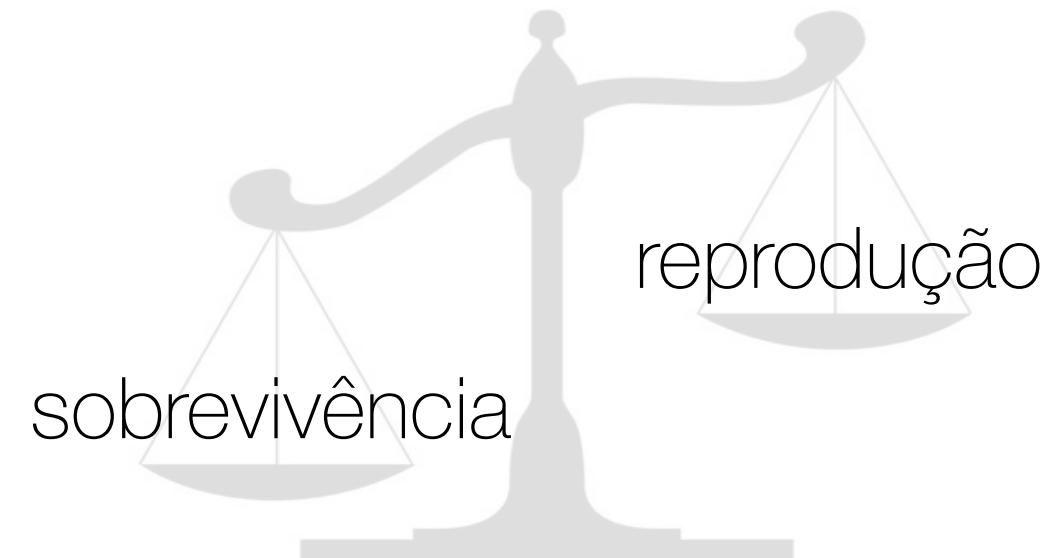
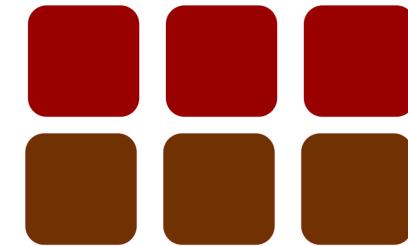
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# distúrbio



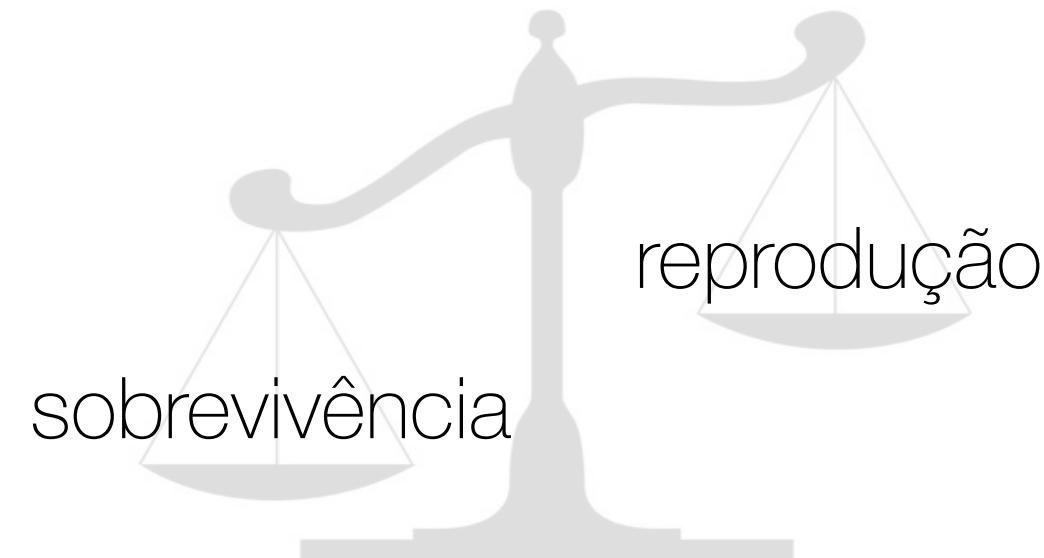
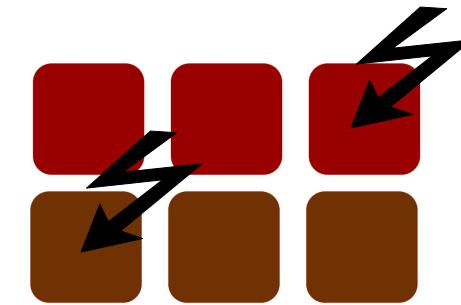
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# distúrbio



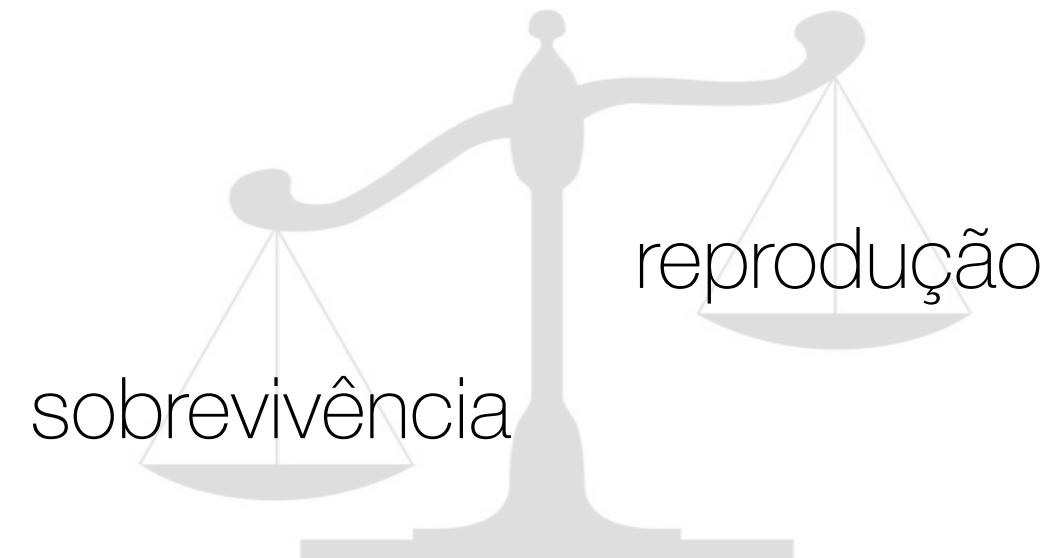
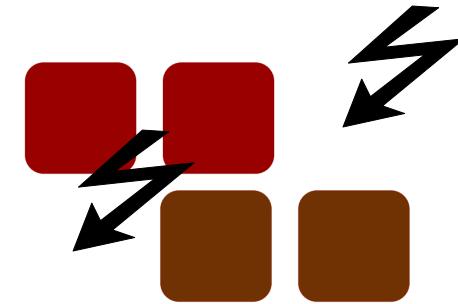
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# distúrbio



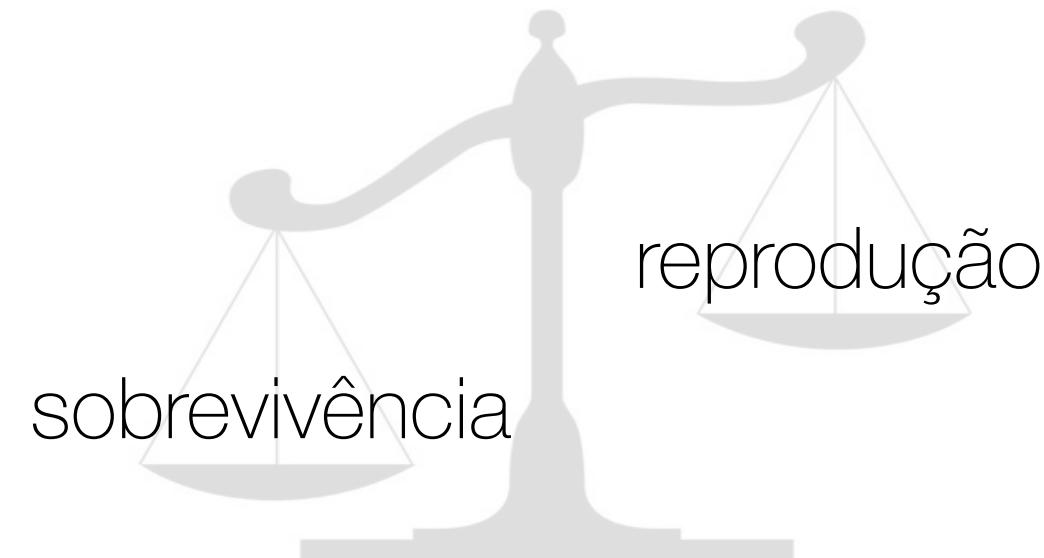
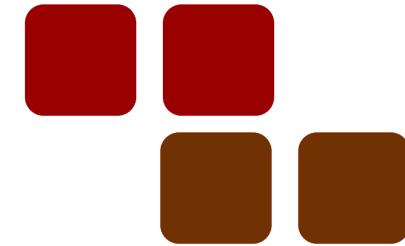
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# distúrbio



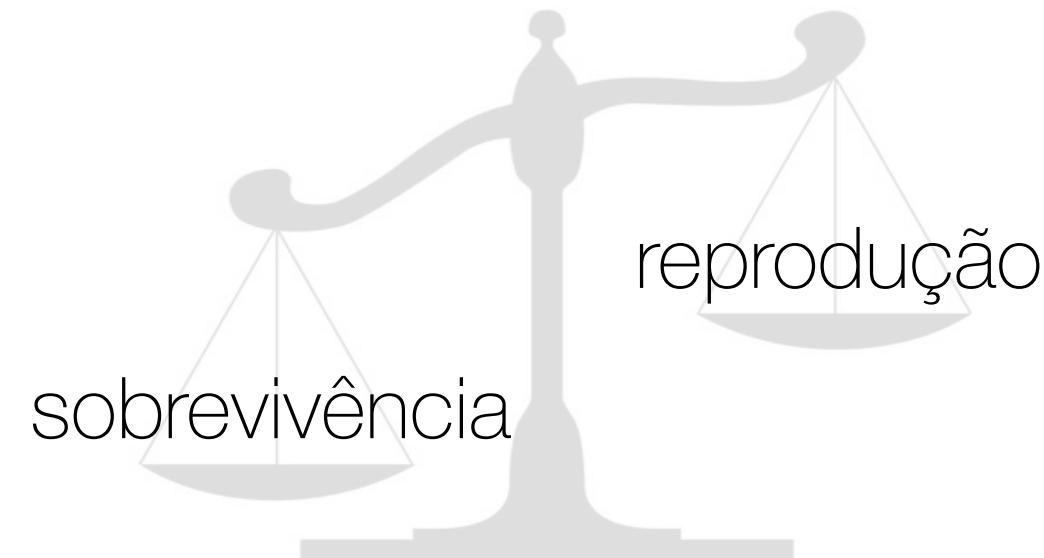
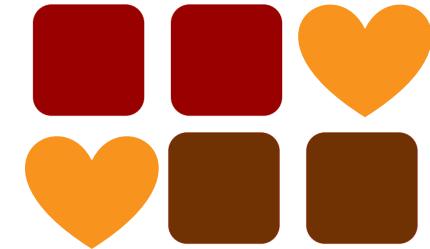
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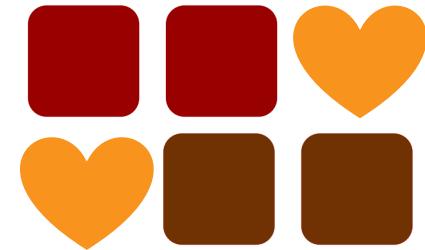
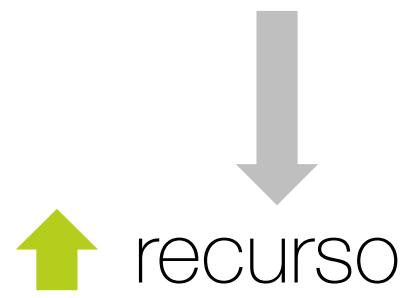
# distúrbio



recurso



# distúrbio





# **distúrbio**

- abundância
- recurso

# distúrbio

dinâmica  
evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

- abundância
- recurso

dinâmica  
ecológica

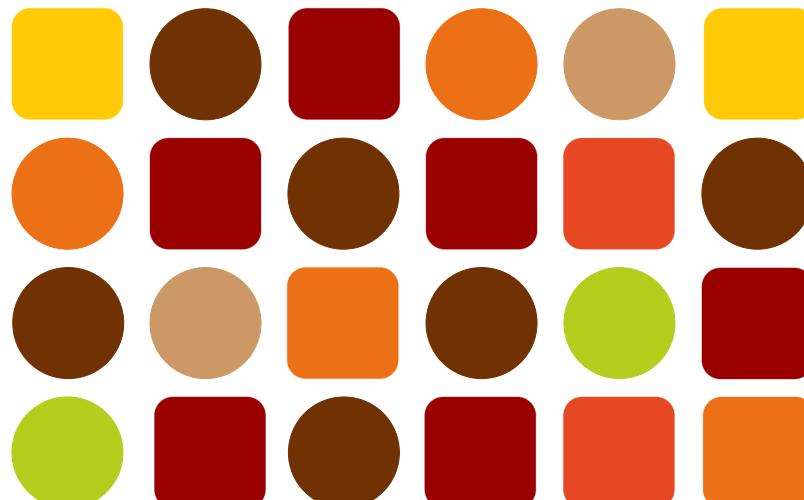
- filtragem
- deriva ecológica
- migração
- especiação

# distúrbio

- abundância
- recurso

dinâmica  
evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

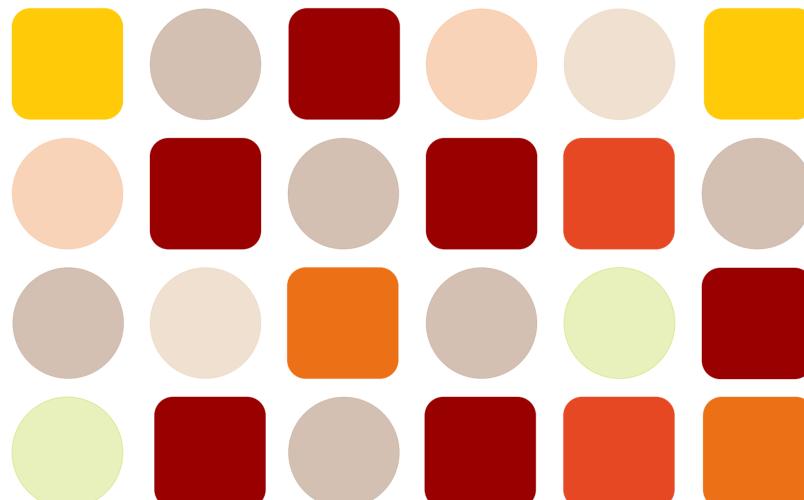


- filtragem
- deriva ecológica
- migração
- especiação

dinâmica  
ecológica

dinâmica  
evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação



## distúrbio

- abundância
- recurso

dinâmica  
ecológica

- filtragem
- deriva ecológica
- migração
- especiação

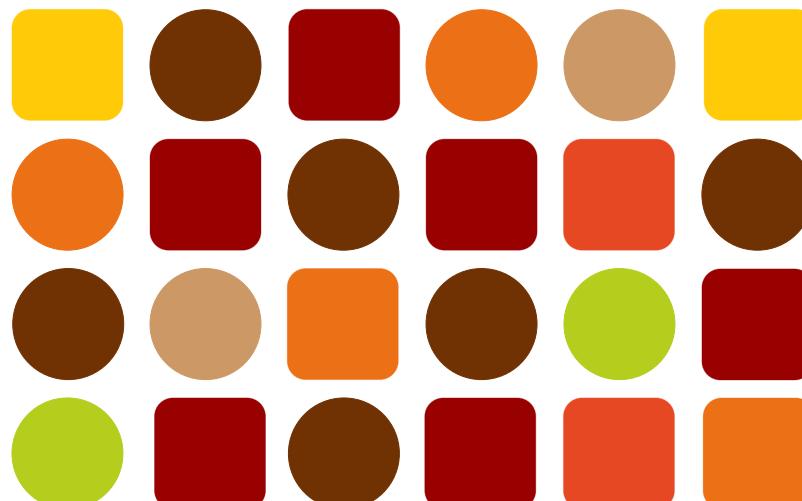
# distúrbio

dinâmica  
evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

- abundância
- recurso

dinâmica  
ecológica



- filtragem
- deriva ecológica
- migração
- especiação

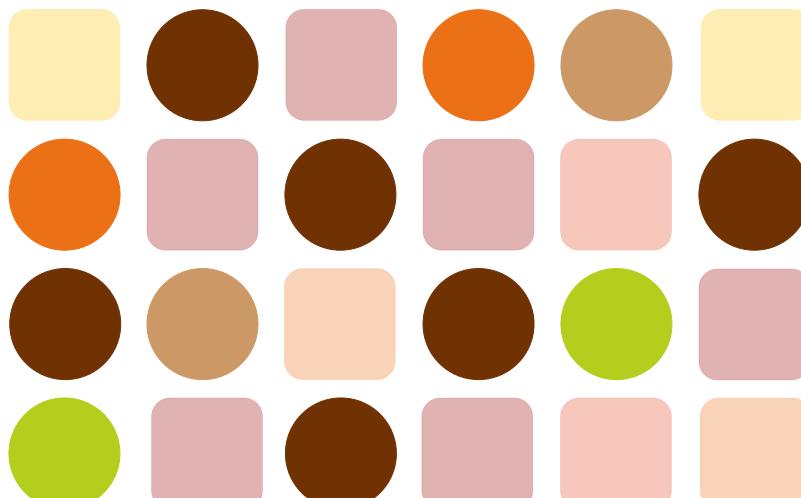
# distúrbio

dinâmica  
evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

- abundância
- recurso

dinâmica  
ecológica



- filtragem
- deriva ecológica
- migração
- especiação

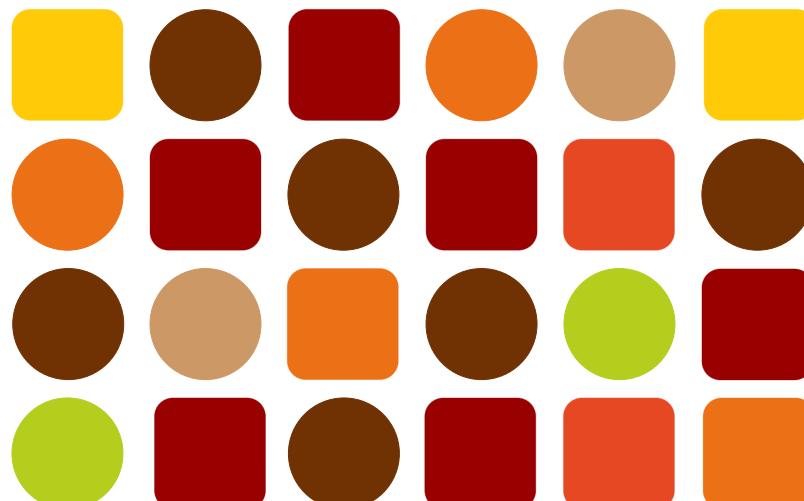
# distúrbio

dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

- abundância
- recurso

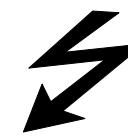
dinâmica ecológica



- filtragem
- deriva ecológica
- migração
- especiação

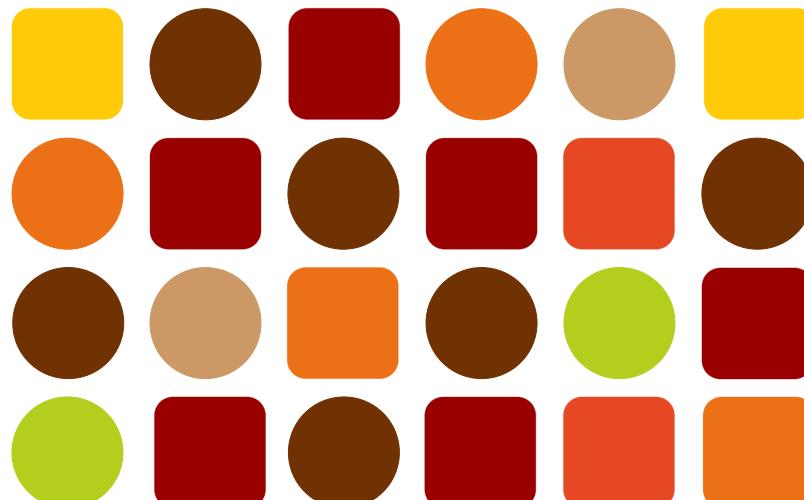
# distúrbio

- abundância
- recurso



dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação



dinâmica ecológica

- filtragem
- deriva ecológica
- migração
- especiação

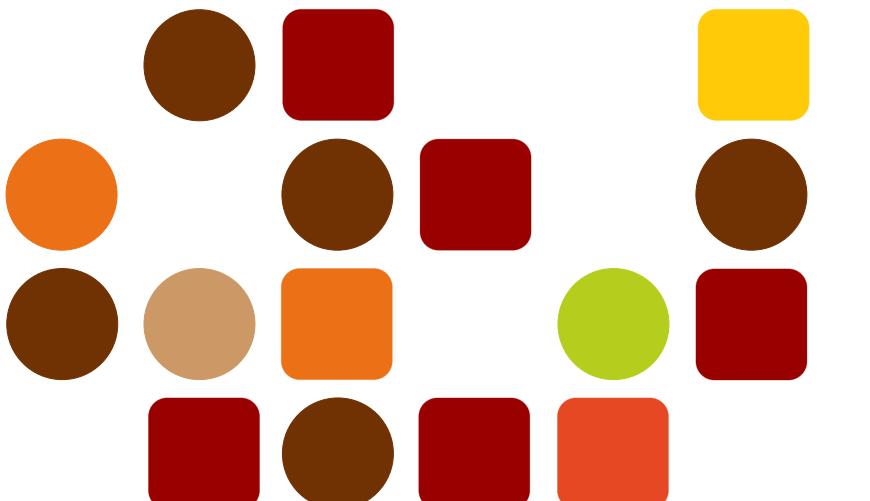
# distúrbio

dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

- abundância
- recurso

dinâmica ecológica



- filtragem
- deriva ecológica
- migração
- especiação

# distúrbio

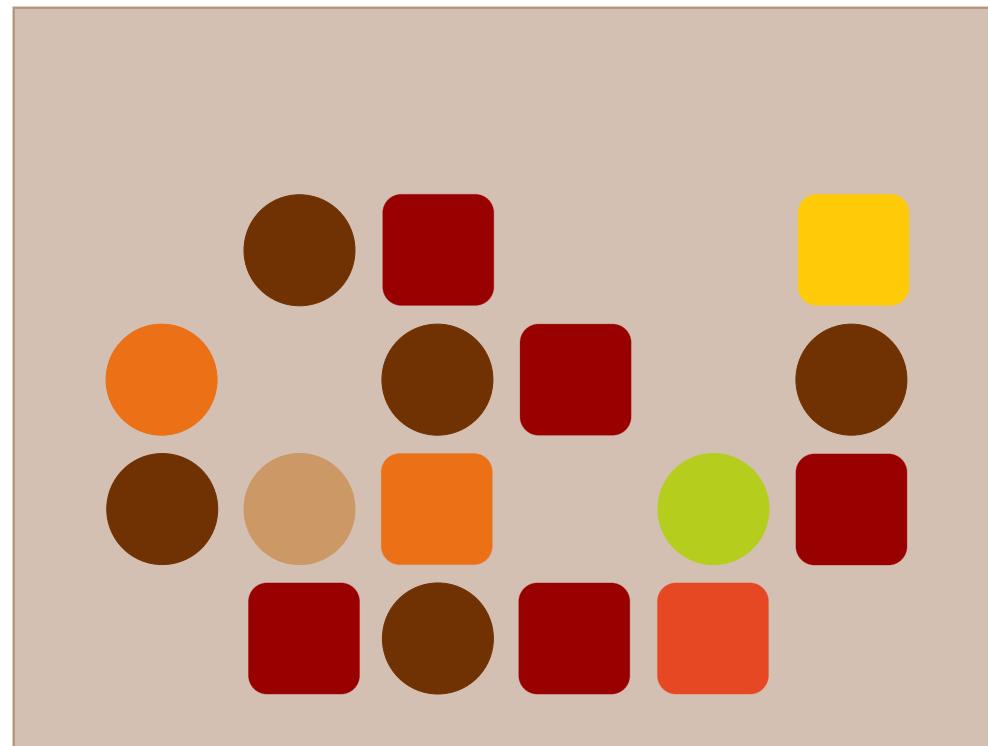
- abundância
- recurso

dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

dinâmica ecológica

- filtragem
- deriva ecológica
- migração
- especiação



# distúrbio

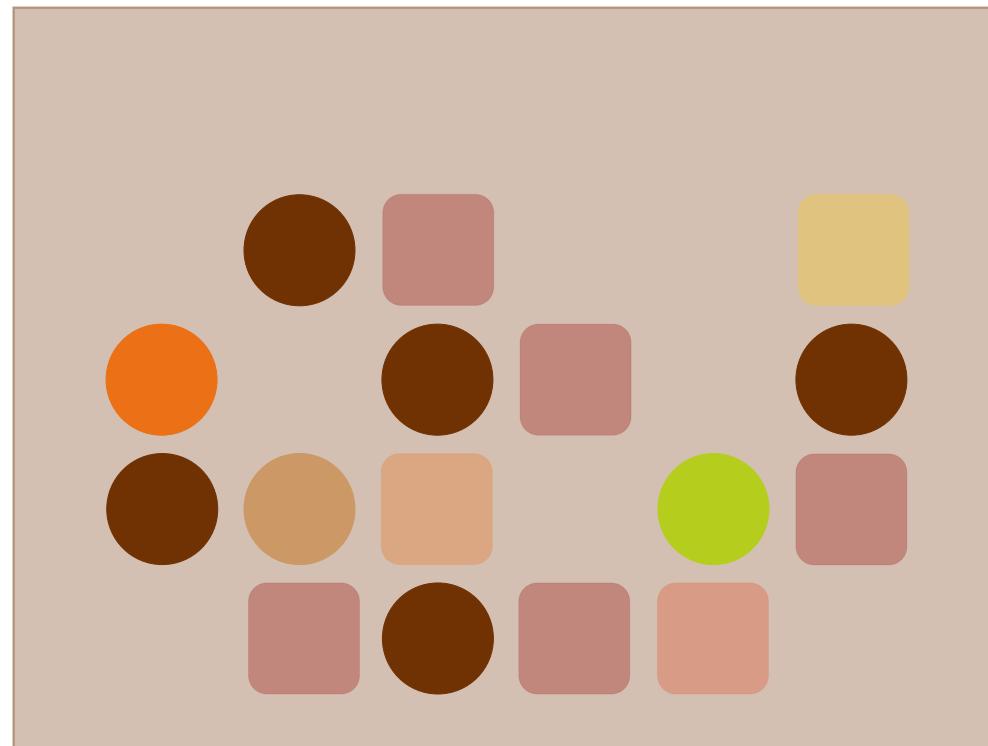
- abundância
- recurso

dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

dinâmica ecológica

- filtragem
- deriva ecológica
- migração
- especiação



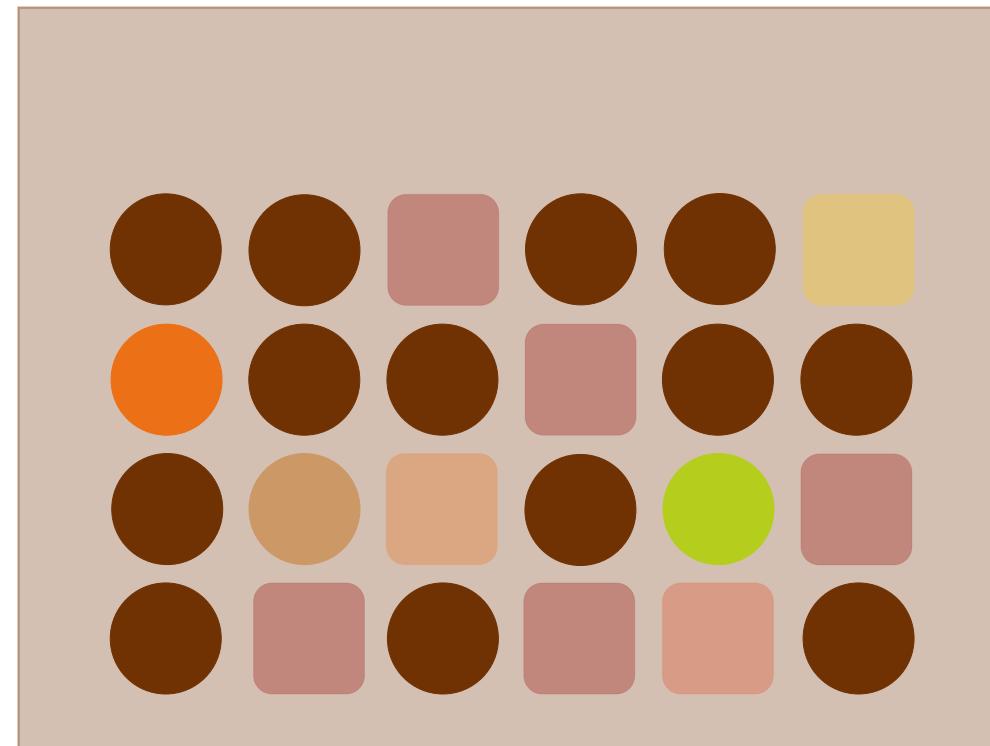
# distúrbio

- abundância
- recurso

dinâmica evolutiva

- **seleção**
- deriva genética
- fluxo gênico
- mutação

dinâmica ecológica



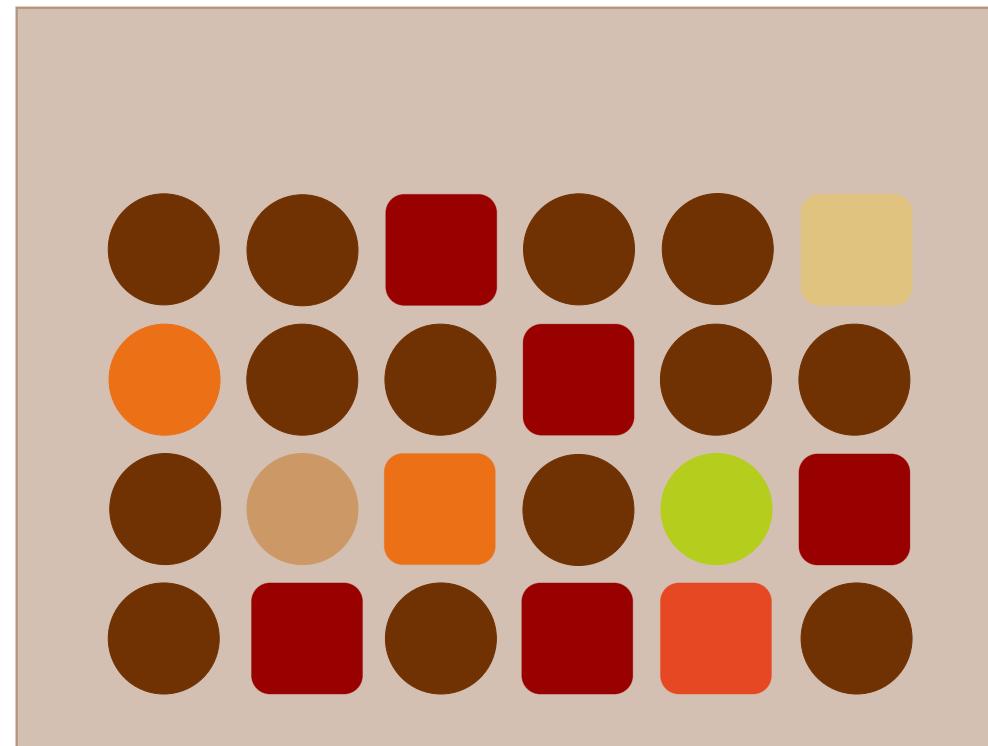
- filtragem
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- deriva genética
- fluxo gênico
- mutação

## distúrbio

- abundância
- recurso



dinâmica  
ecológica

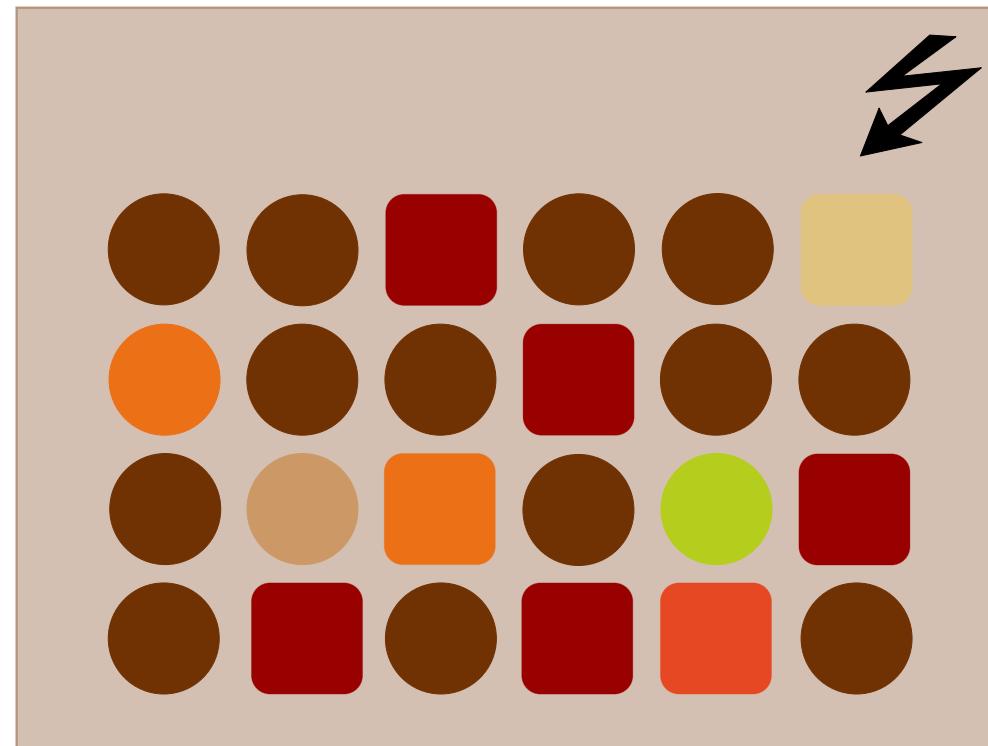
- filtragem
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- deriva genética
- fluxo gênico
- mutação

# distúrbio

- abundância
- recurso



dinâmica  
ecológica

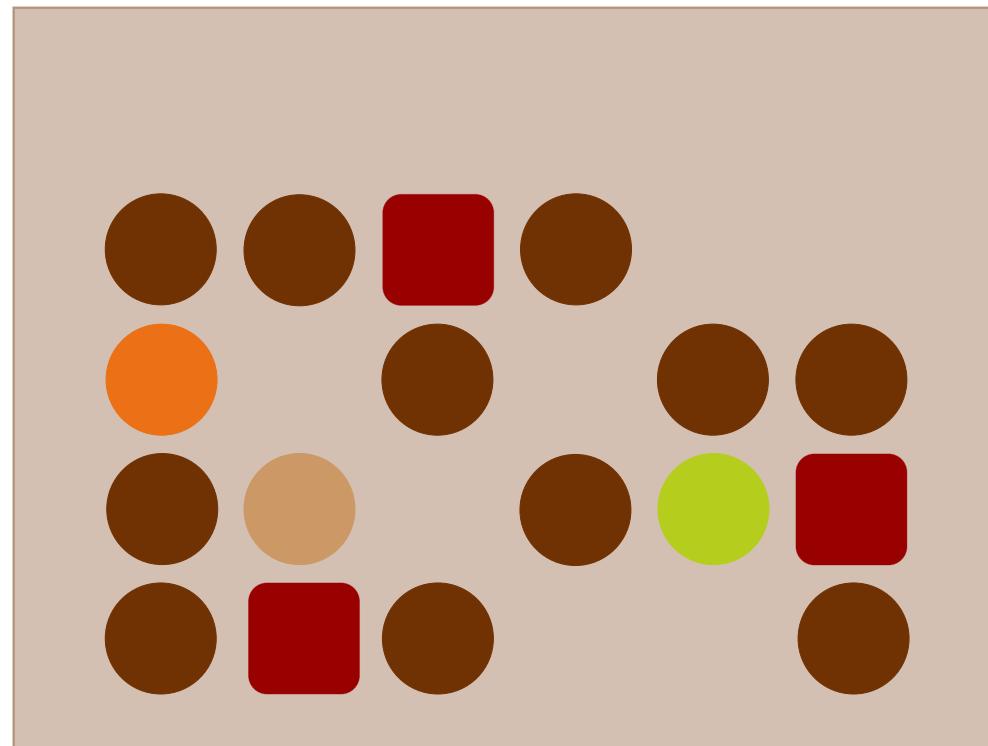
- filtragem
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- deriva genética
- fluxo gênico
- mutação

# distúrbio

- abundância
- recurso



dinâmica  
ecológica

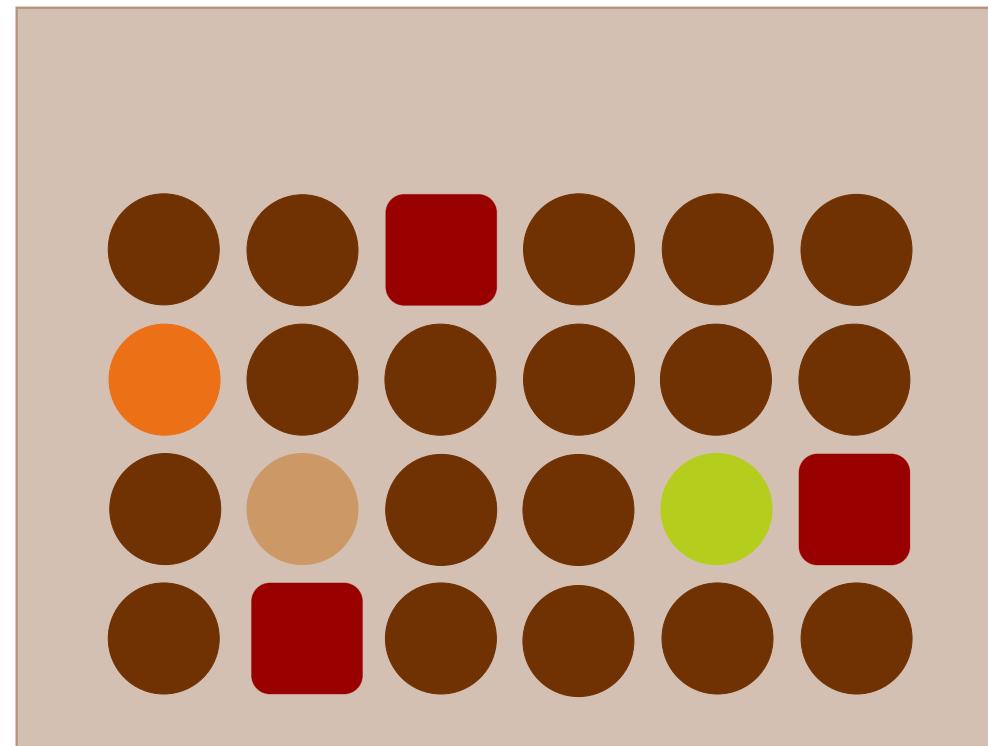
- filtragem
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- deriva genética
- fluxo gênico
- mutação

## distúrbio

- abundância
- recurso



dinâmica  
ecológica

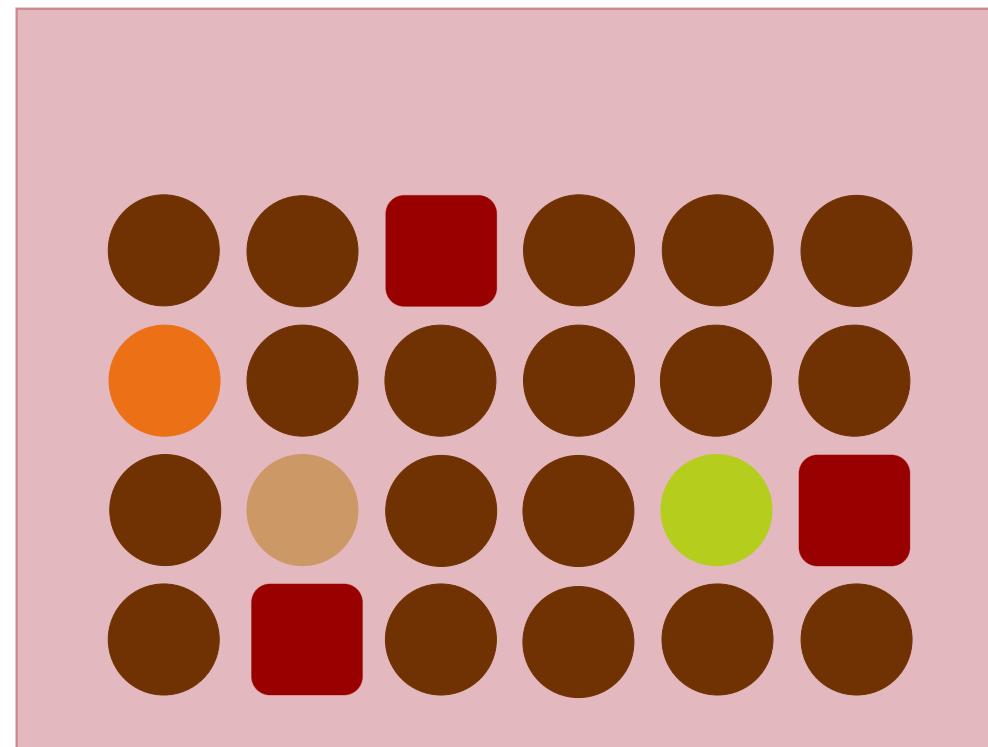
- **filtragem**
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- deriva genética
- fluxo gênico
- mutação

# distúrbio

- abundância
- recurso



dinâmica  
ecológica

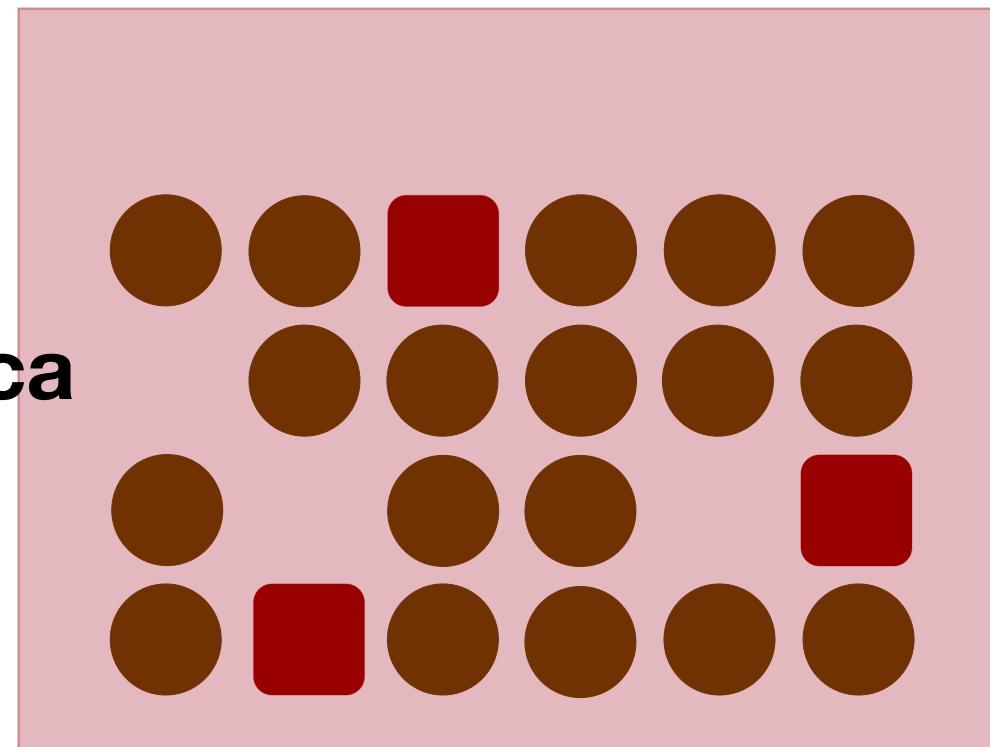
- **filtragem**
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- **deriva genética**
- fluxo gênico
- mutação

## distúrbio

- abundância
- recurso



dinâmica  
ecológica

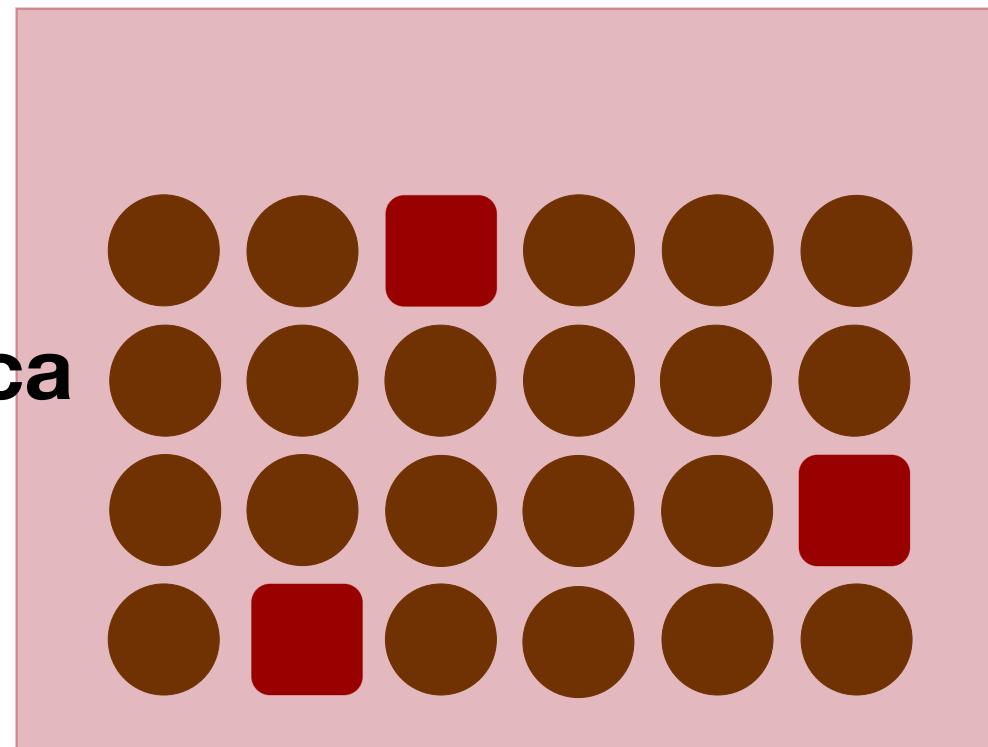
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- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- **deriva genética**
- fluxo gênico
- mutação

## distúrbio

- abundância
- recurso



dinâmica  
ecológica

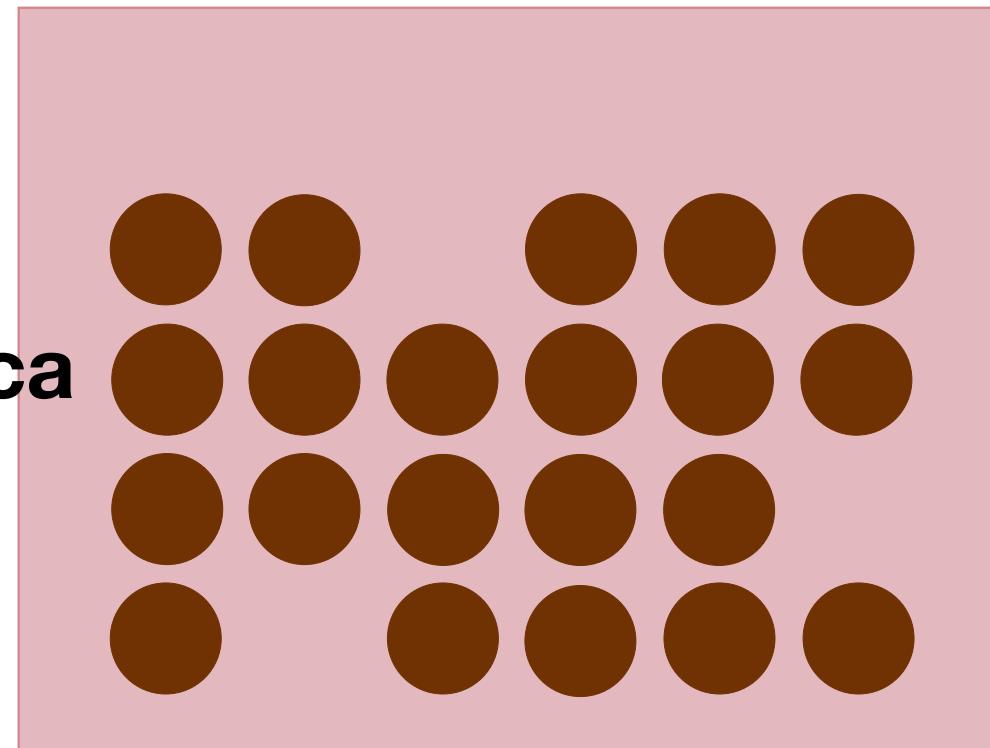
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- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- **deriva genética**
- fluxo gênico
- mutação

## distúrbio

- abundância
- recurso



dinâmica  
ecológica

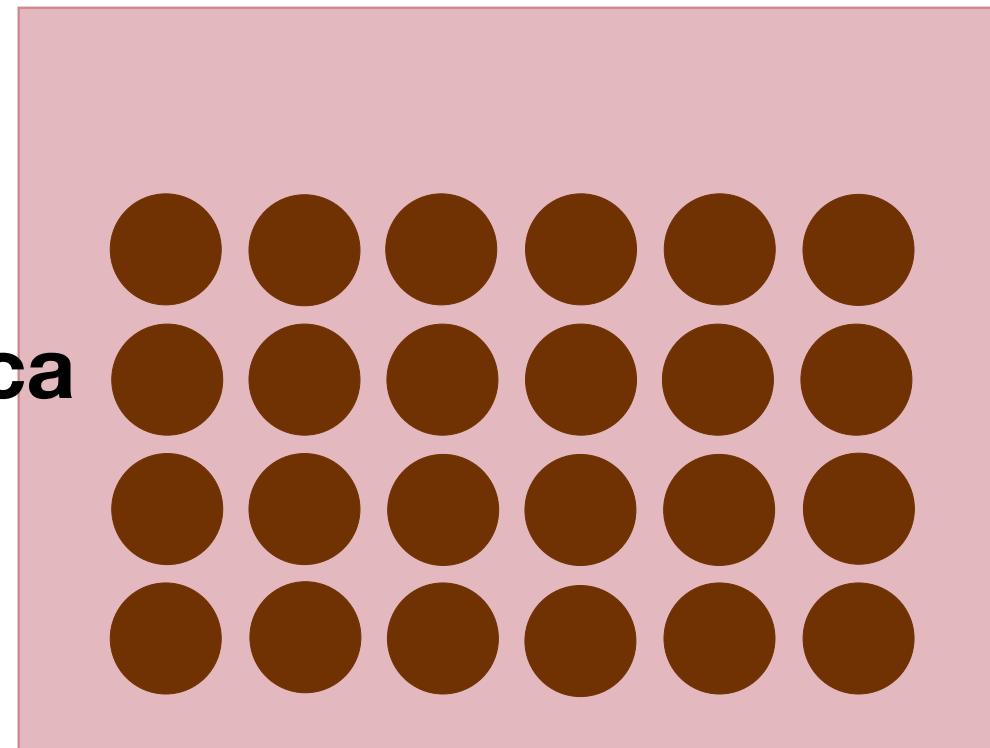
- **filtragem**
- **deriva ecológica**
- migração
- especiação

dinâmica  
evolutiva

- **seleção**
- **deriva genética**
- fluxo gênico
- mutação

## distúrbio

- abundância
- recurso



dinâmica  
ecológica

- **filtragem**
- **deriva ecológica**
- migração
- especiação

# distúrbio

Biologia  
Evolutiva

- população
- adaptação

Ecologia de  
Comunidades

- comunidade
- exclusão competitiva  
de populações

porém...

dinâmica  
evolutiva



dinâmica  
ecológica

porém...

dinâmica  
evolutiva



dinâmica  
eco-evolutiva

dinâmica  
ecológica

porém...

dinâmica  
evolutiva



dinâmica  
ecológica

- contextos multiespecíficos
- espécies sob evolução

logo...

dinâmica  
evolutiva



dinâmica  
eco-evolutiva

dinâmica  
ecológica

logo...

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



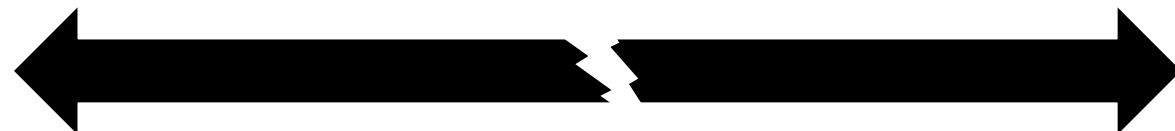
 **distúrbio**

logo...

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

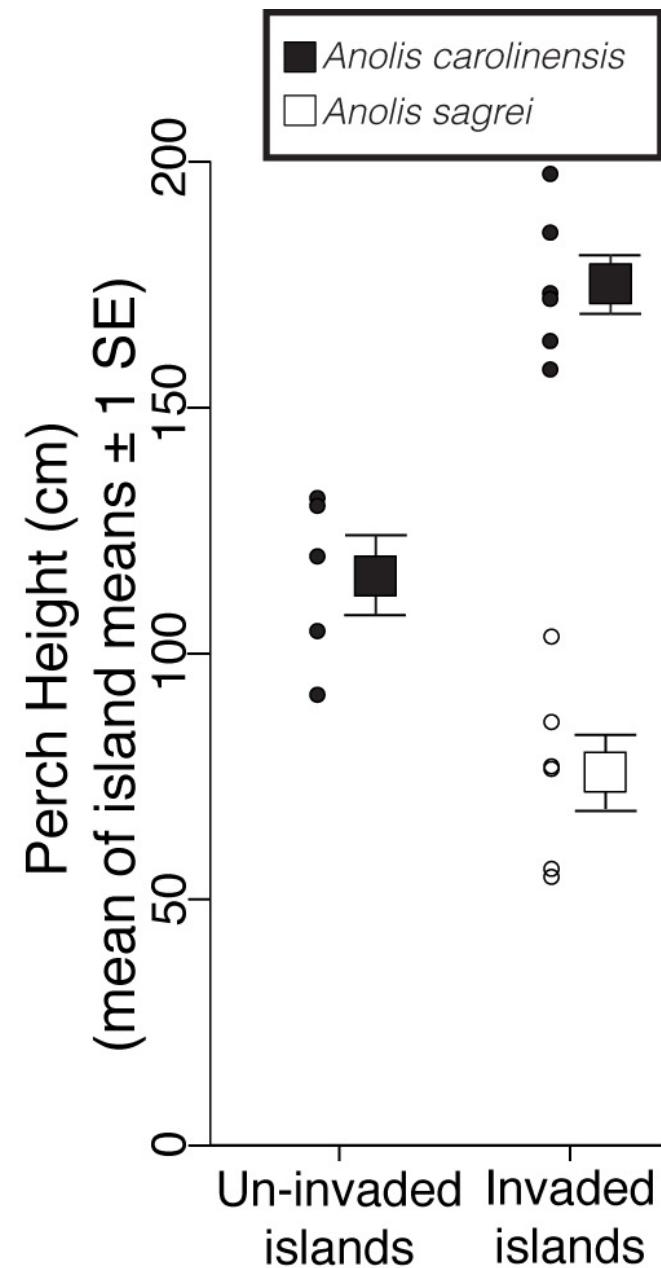
dinâmica  
ecológica



 **distúrbio**

predições  
distintas e imprecisas

logo...



# Como o **distúrbio** determina

Como o **distúrbio**  determina  
as **estratégias de vida** presentes  
  
em populações e comunidades sob **dinâmicas**

Como o **distúrbio** ⚡ determina  
as **estratégias de vida** presentes  
  
em populações e comunidades sob **dinâmicas**  
**evolutivas, ecológicas** e **eco-evolutivas?**

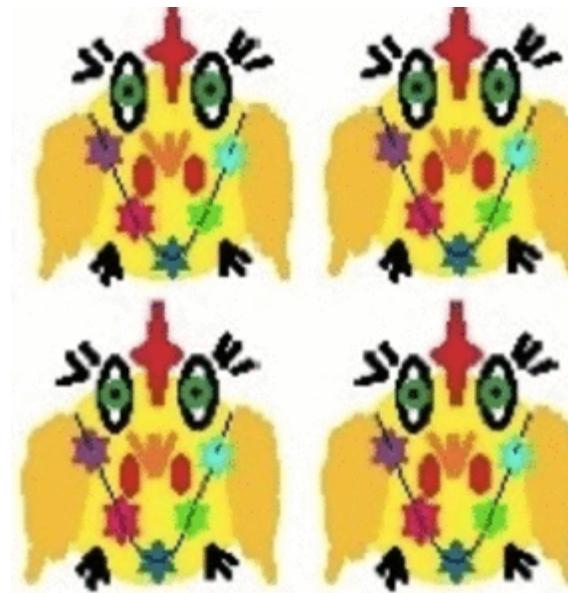


# modelo baseado em indivíduo

# modelo baseado em indivíduo



# modelo baseado em indivíduo



# modelo baseado em indivíduo

***parâmetros***

# modelo baseado em indivíduo



***parâmetros***

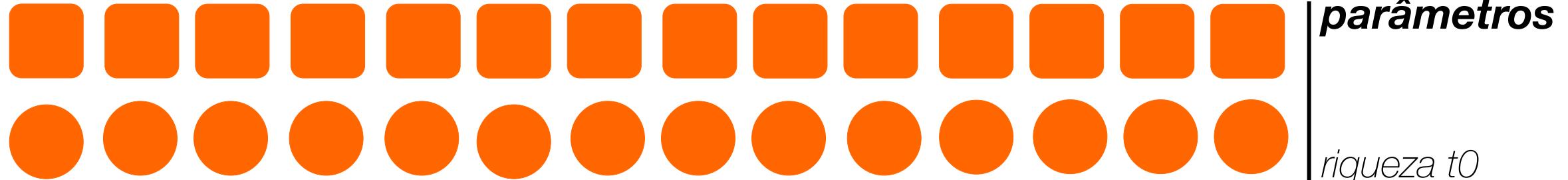
# modelo baseado em indivíduo



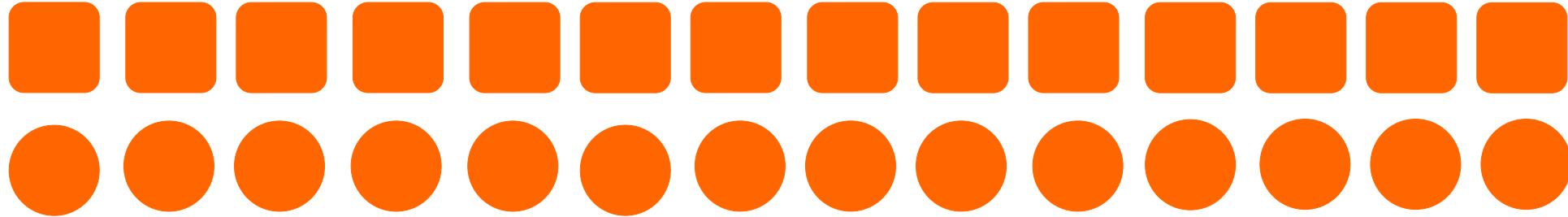
**parâmetros**

*riqueza  $t_0$*

# modelo baseado em indivíduo



# modelo baseado em indivíduo

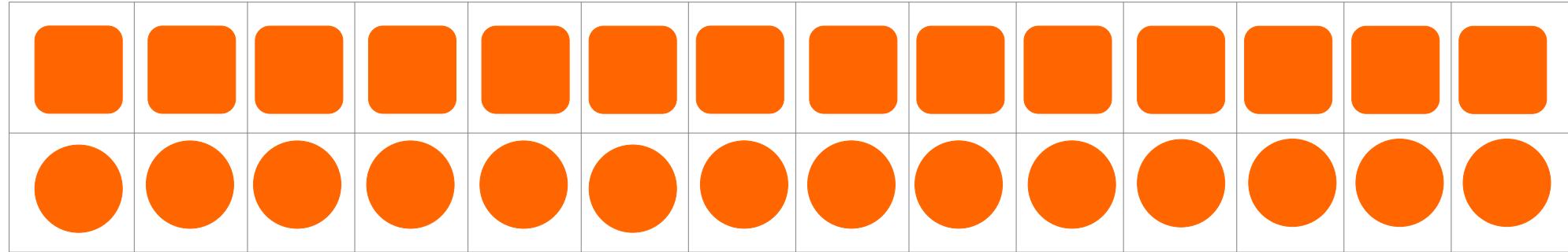


**parâmetros**

riqueza  $t_0$

abundância  $t_0$

# modelo baseado em indivíduo

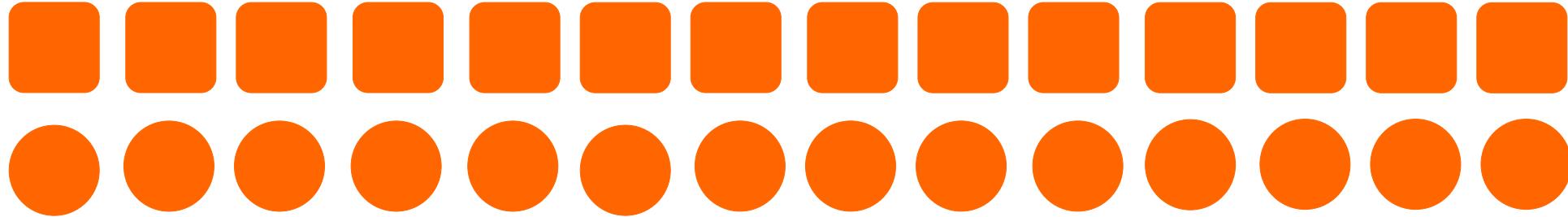


**parâmetros**

riqueza  $t_0$

abundância  $t_0$

# modelo baseado em indivíduo

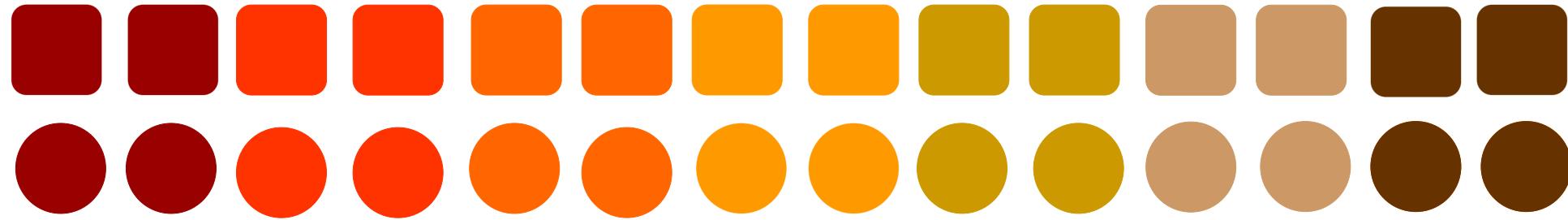


**parâmetros**

riqueza  $t_0$

abundância  $t_0$

# modelo baseado em indivíduo



**parâmetros**

riqueza  $t_0$

abundância  $t_0$

# modelo baseado em indivíduo



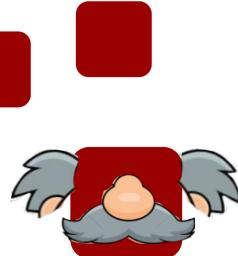
# modelo baseado em indivíduo



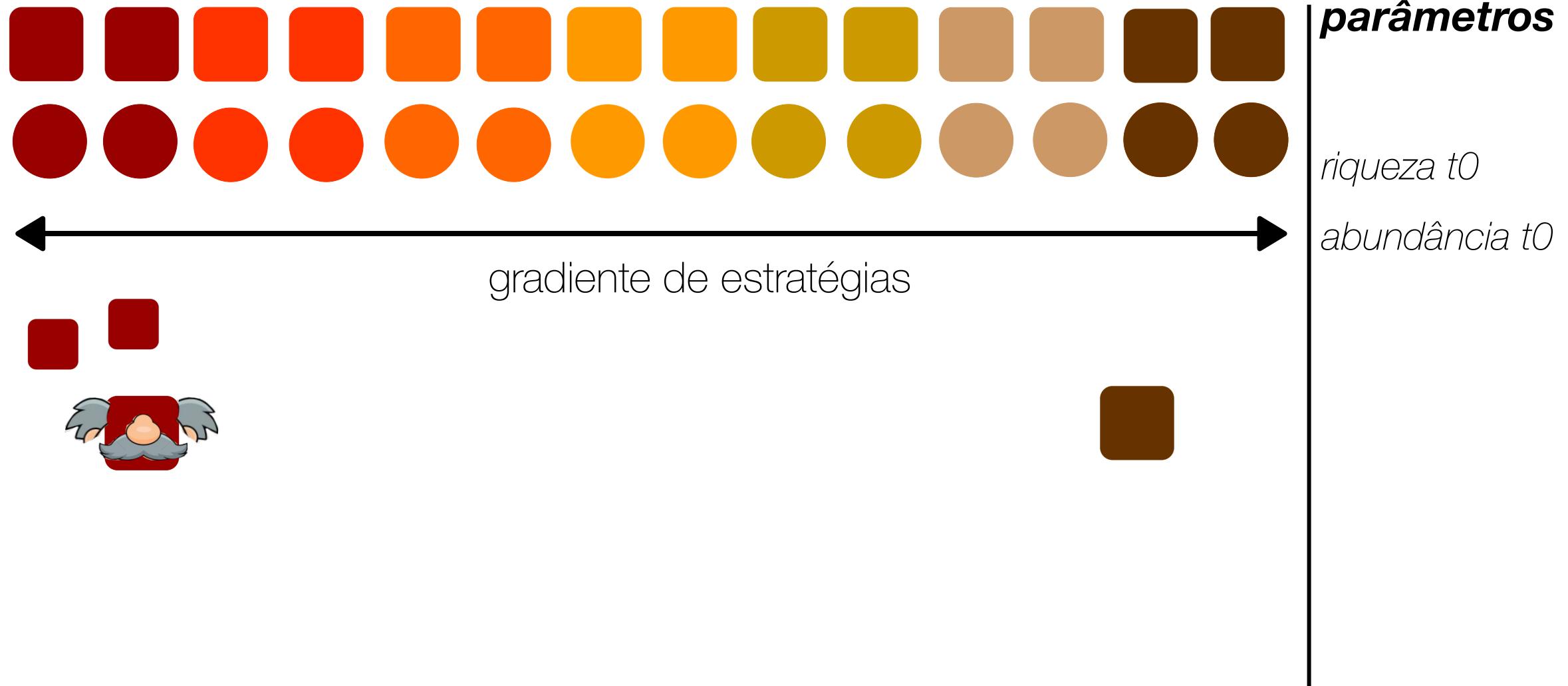
# modelo baseado em indivíduo



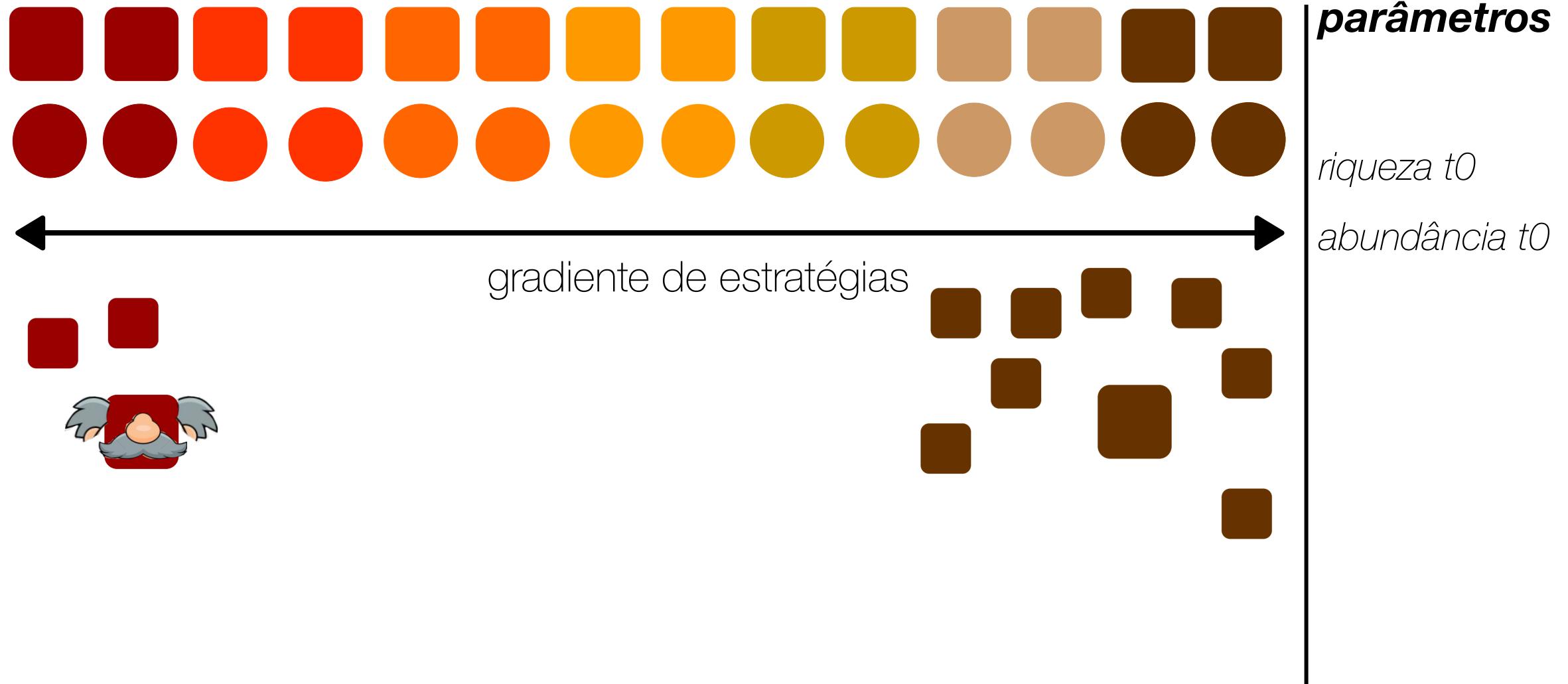
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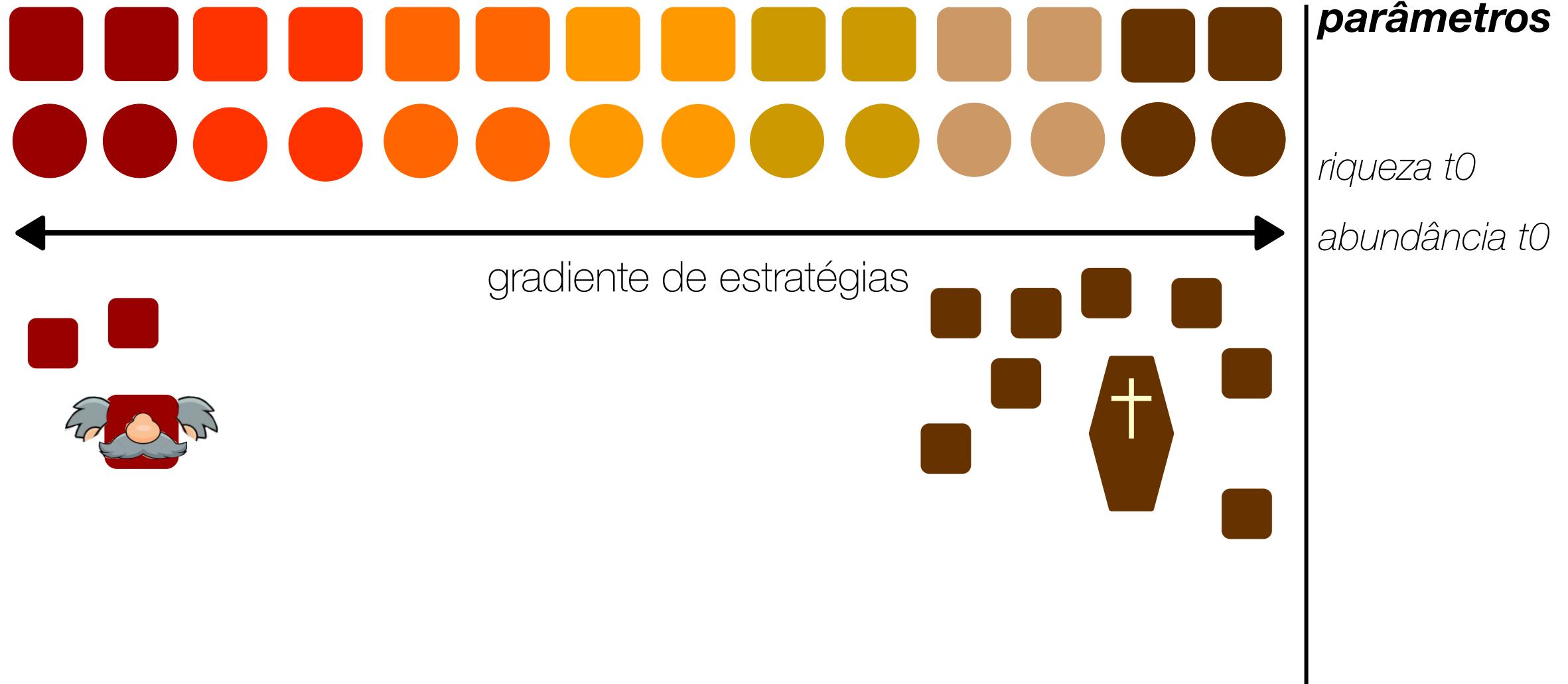
# modelo baseado em indivíduo



# modelo baseado em indivíduo



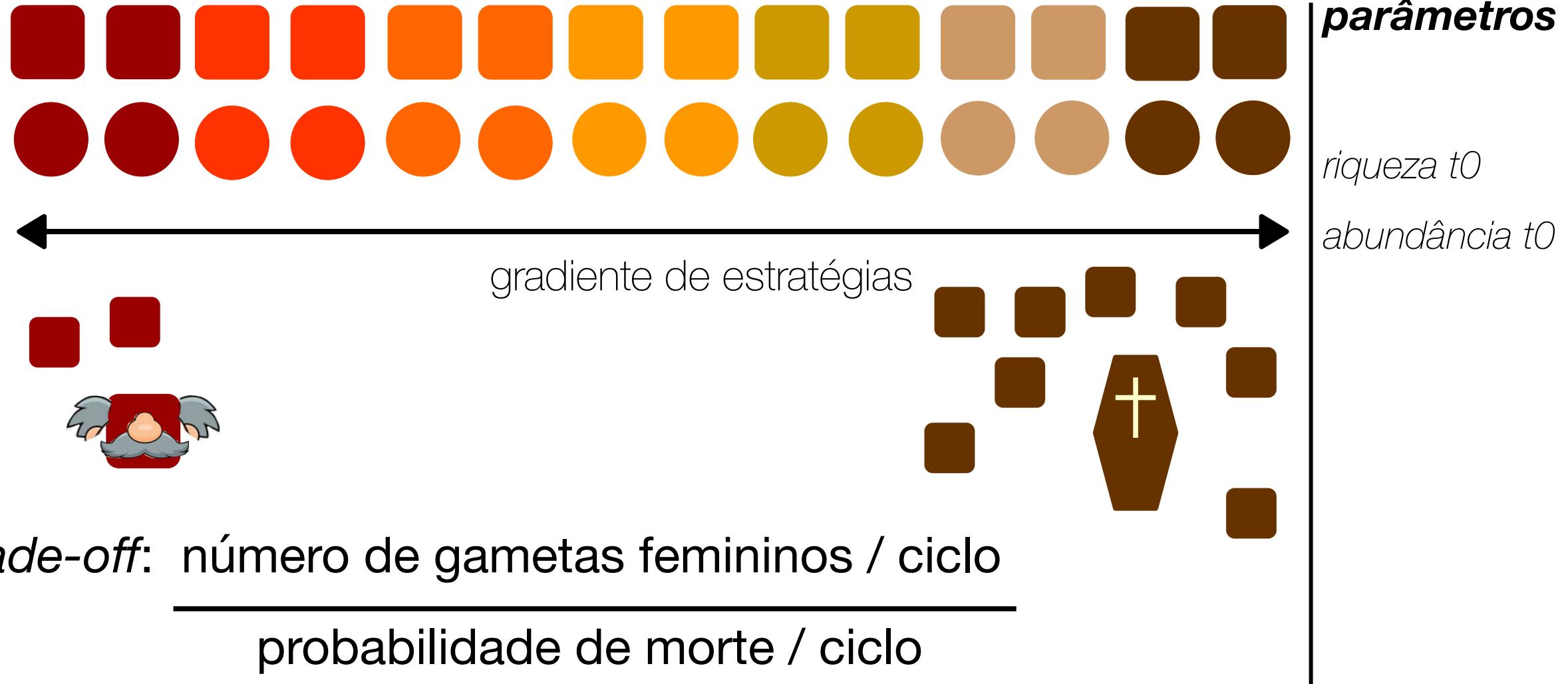
# modelo baseado em indivíduo



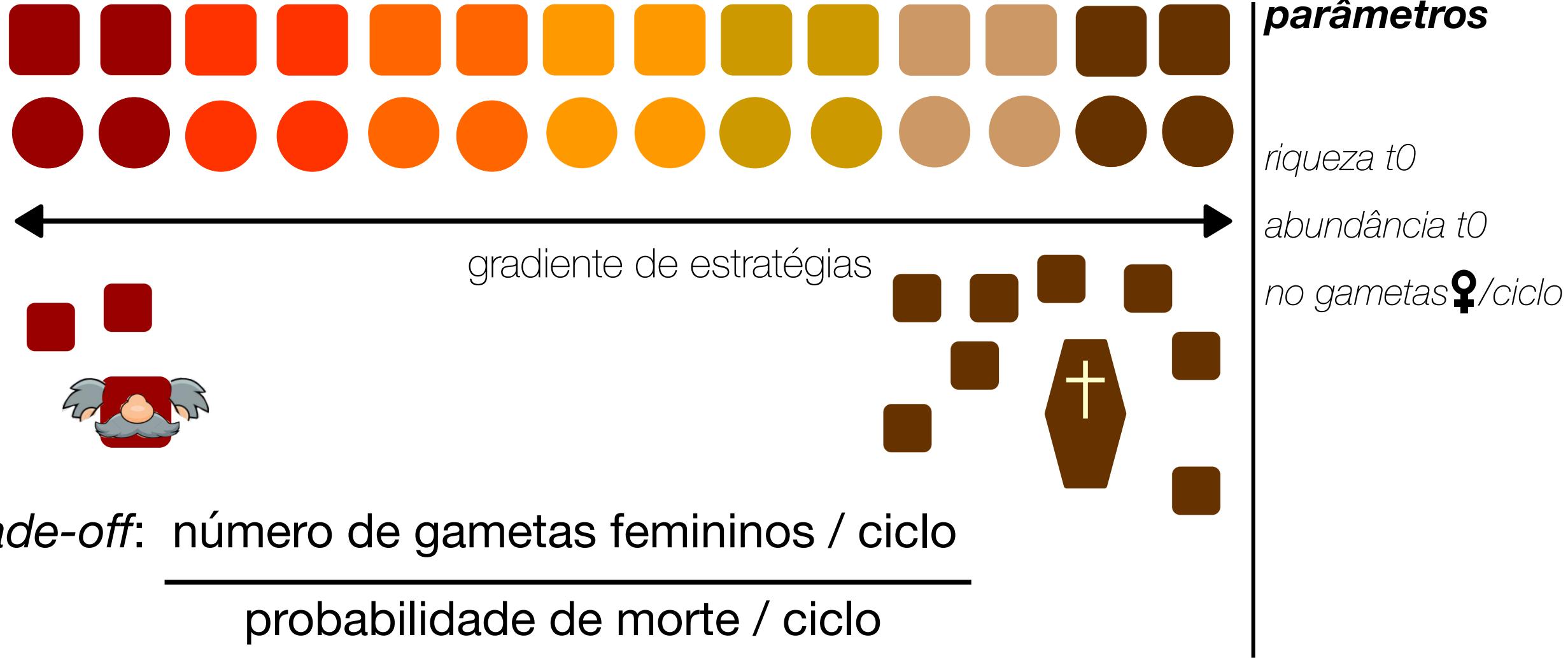
# modelo baseado em indivíduo



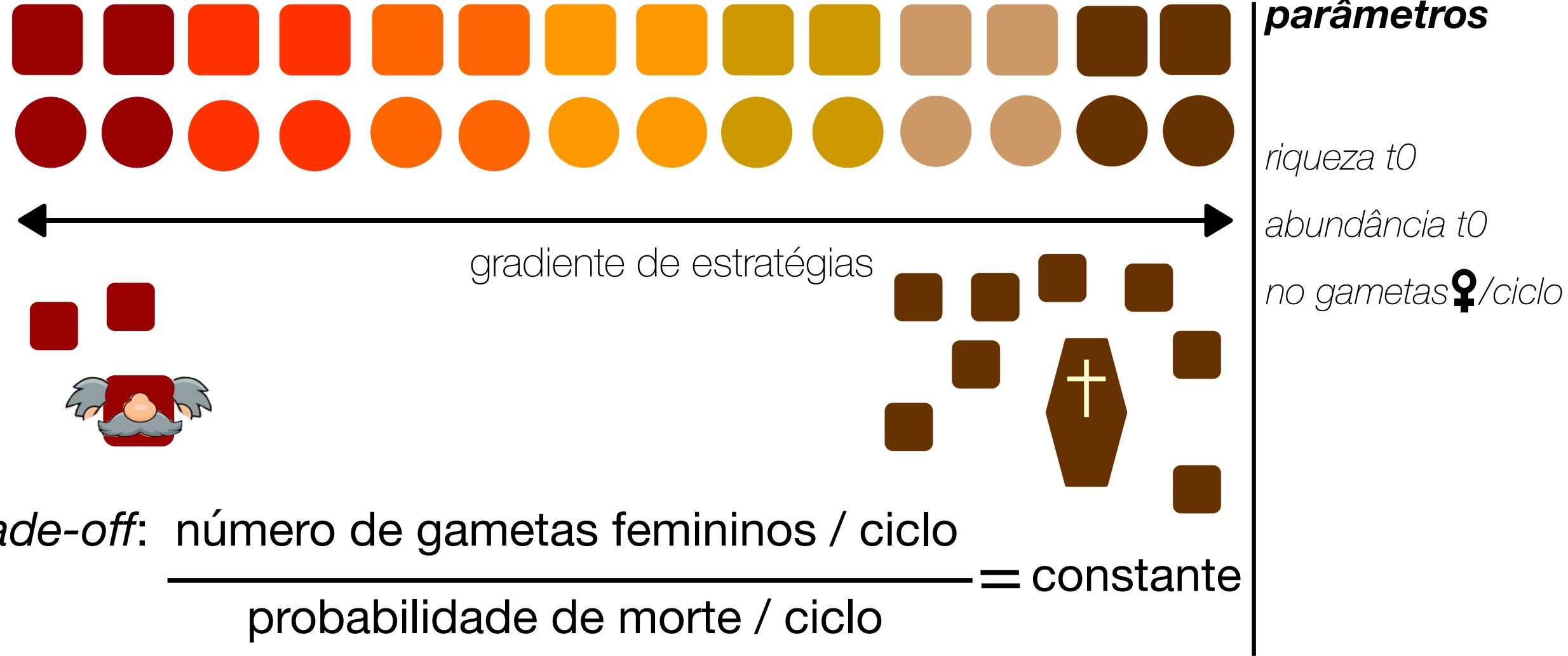
# modelo baseado em indivíduo



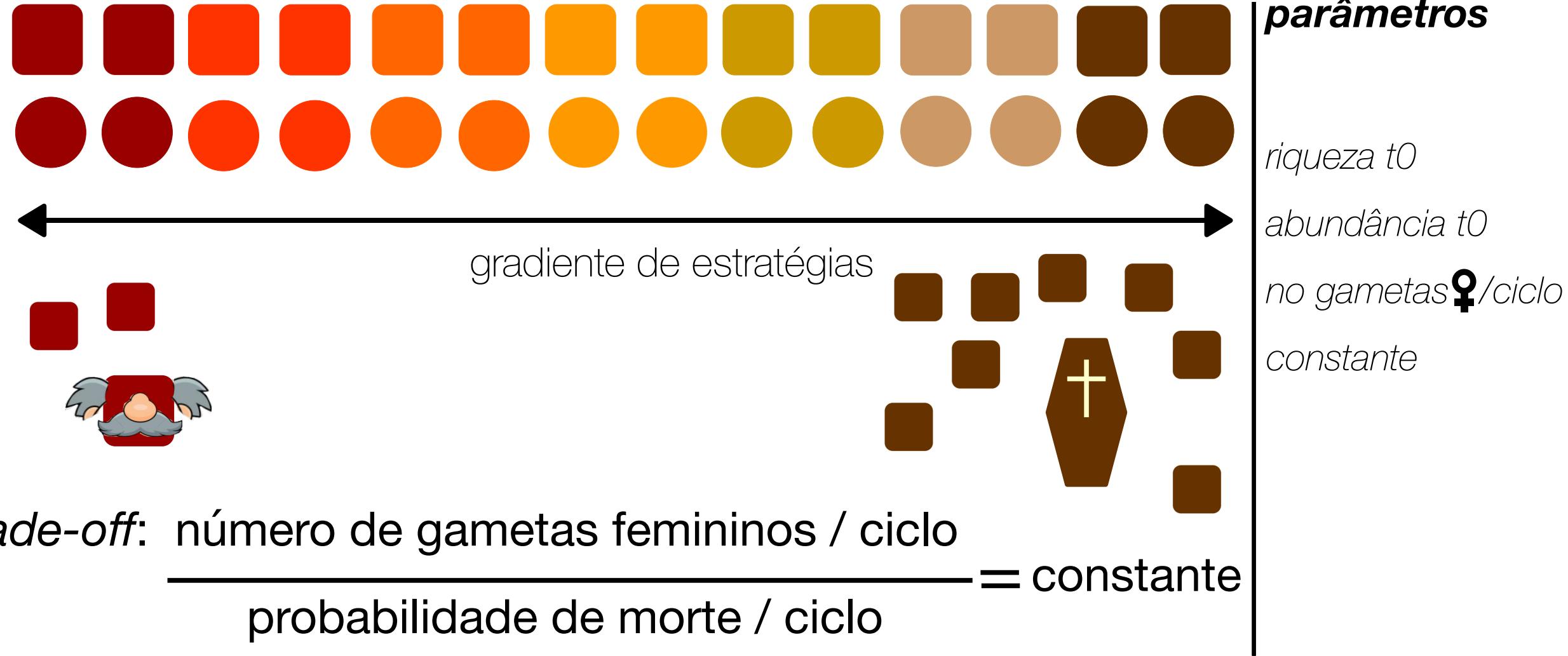
# modelo baseado em indivíduo

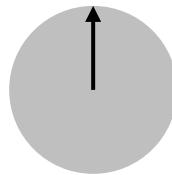


# modelo baseado em indivíduo

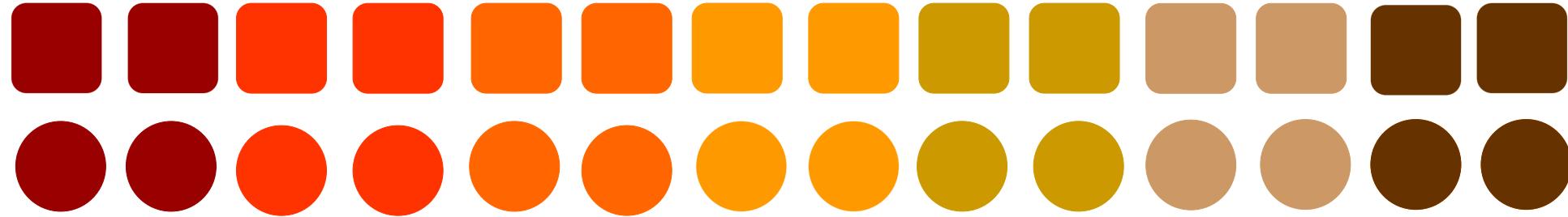


# modelo baseado em indivíduo





# modelo baseado em indivíduo



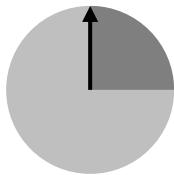
## **parâmetros**

*riqueza  $t_0$*

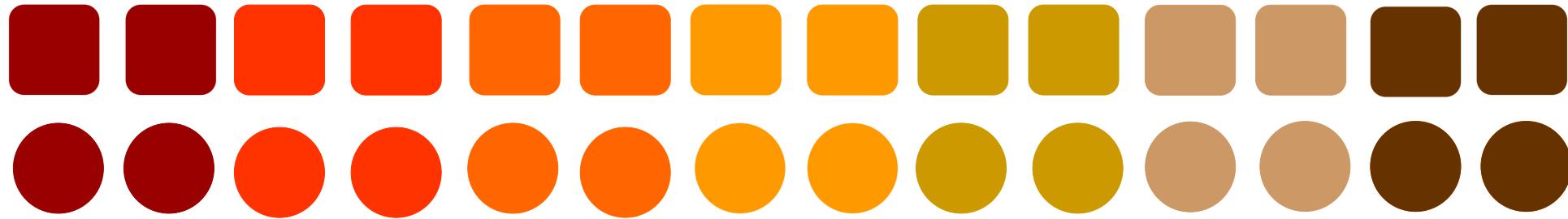
*abundância  $t_0$*

*no gametas ♀/ciclo*

*constante*



# modelo baseado em indivíduo



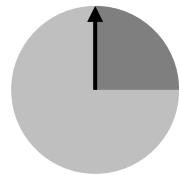
## **parâmetros**

*riqueza  $t_0$*

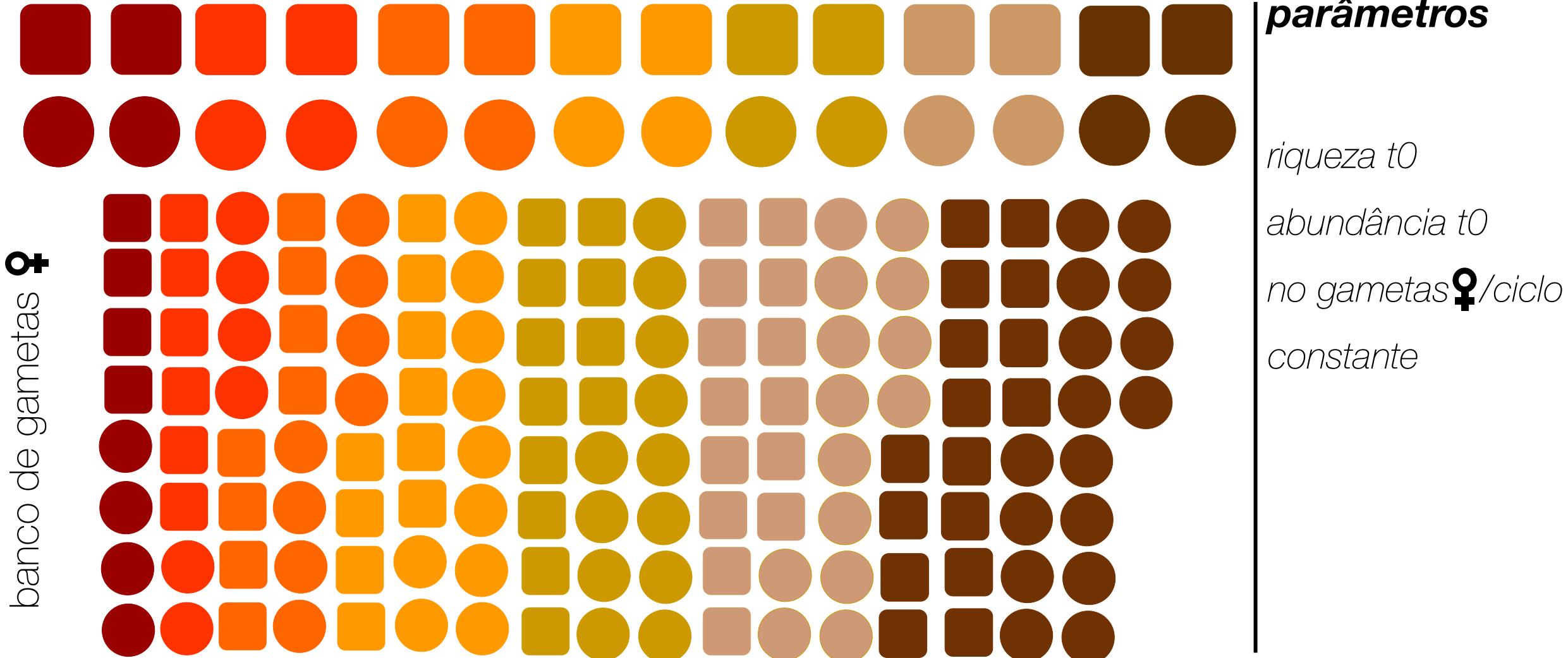
*abundância  $t_0$*

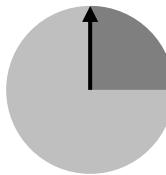
*no gametas ♀/ciclo*

*constante*

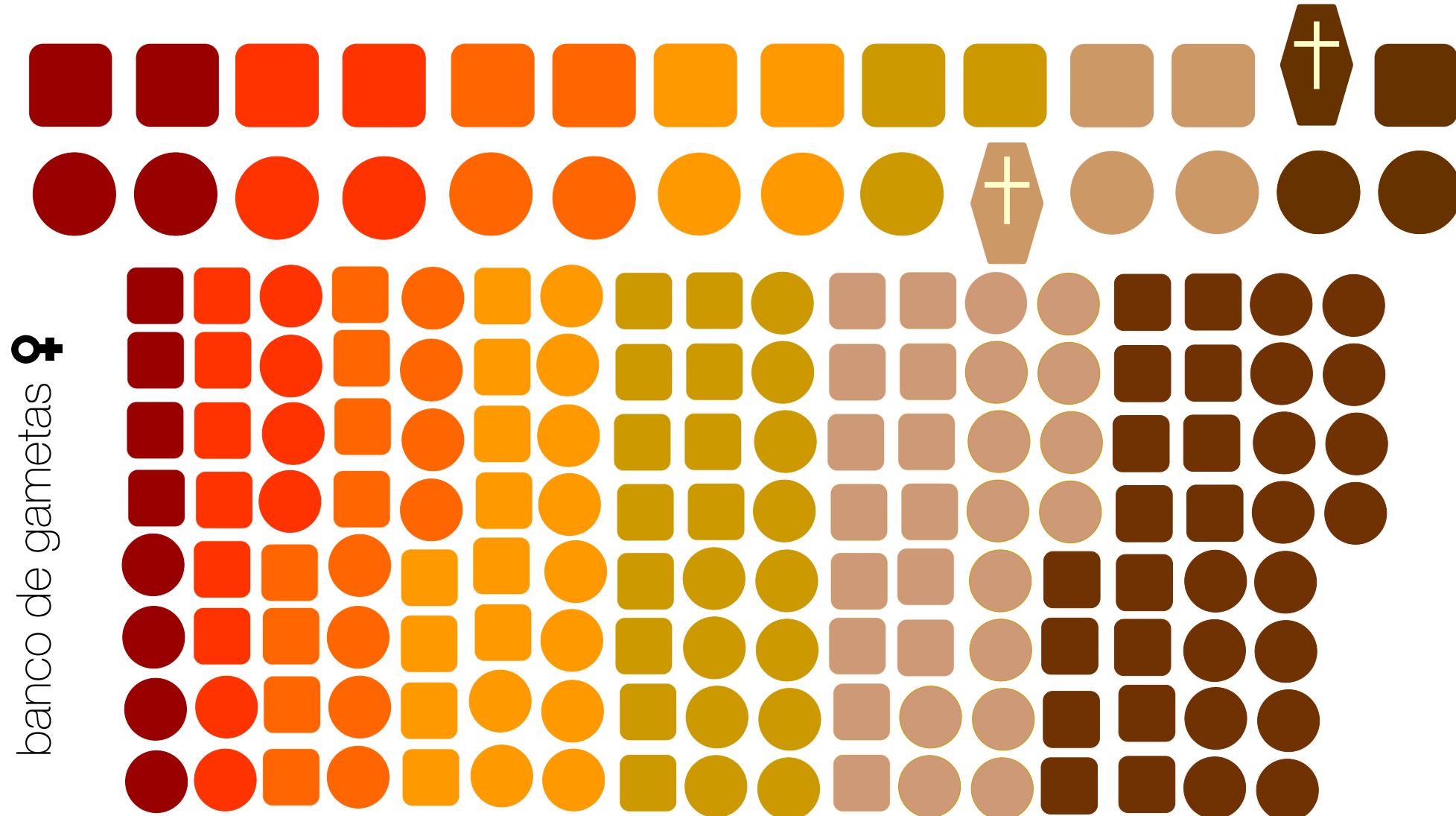


# modelo baseado em indivíduo





# modelo baseado em indivíduo



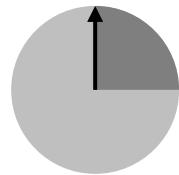
**parâmetros**

riqueza  $t=0$

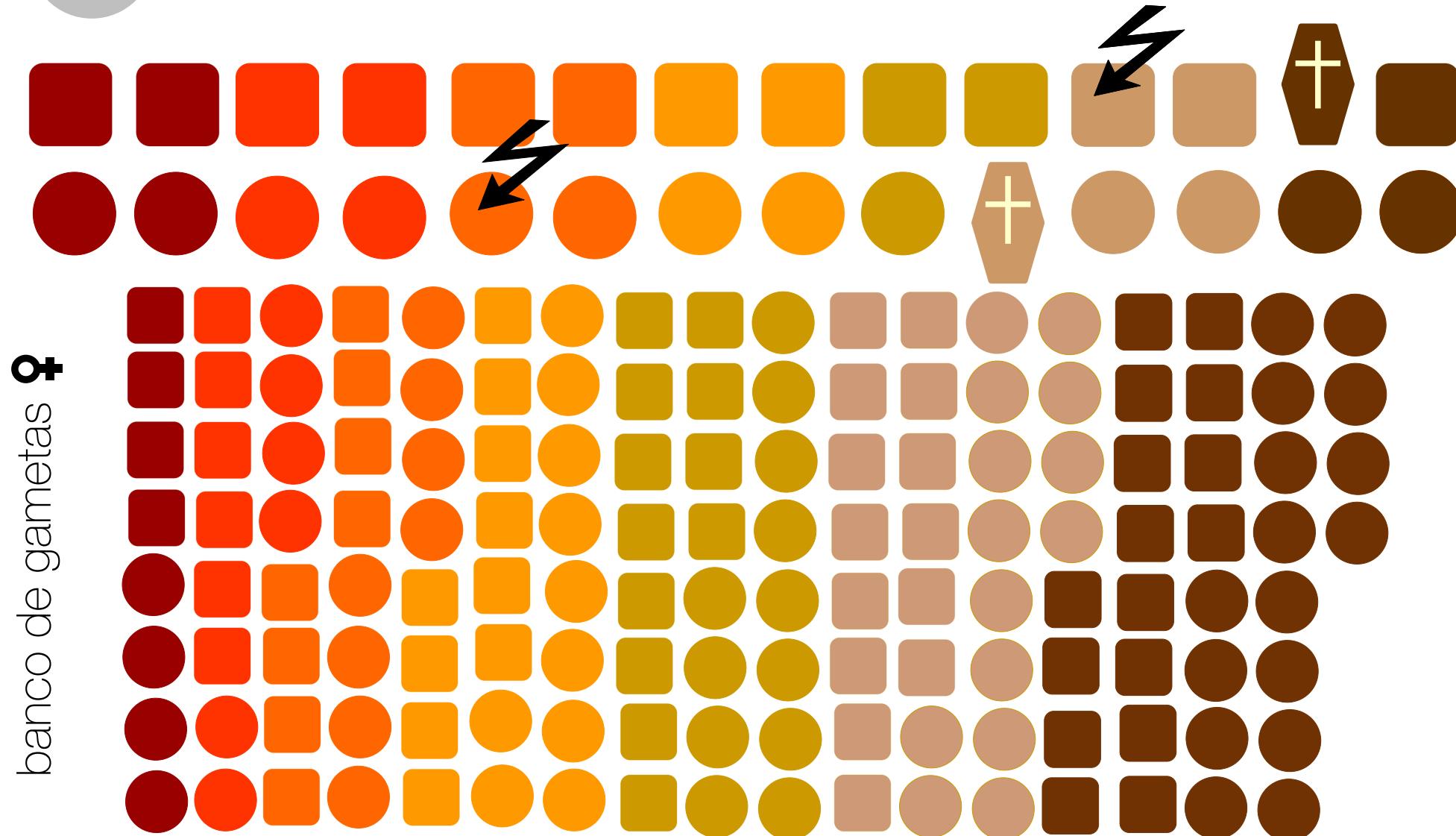
abundância  $t=0$

no gametas ♀/ciclo

constante



# modelo baseado em indivíduo



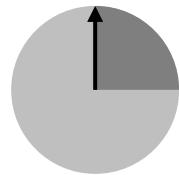
## parâmetros

riqueza  $t_0$

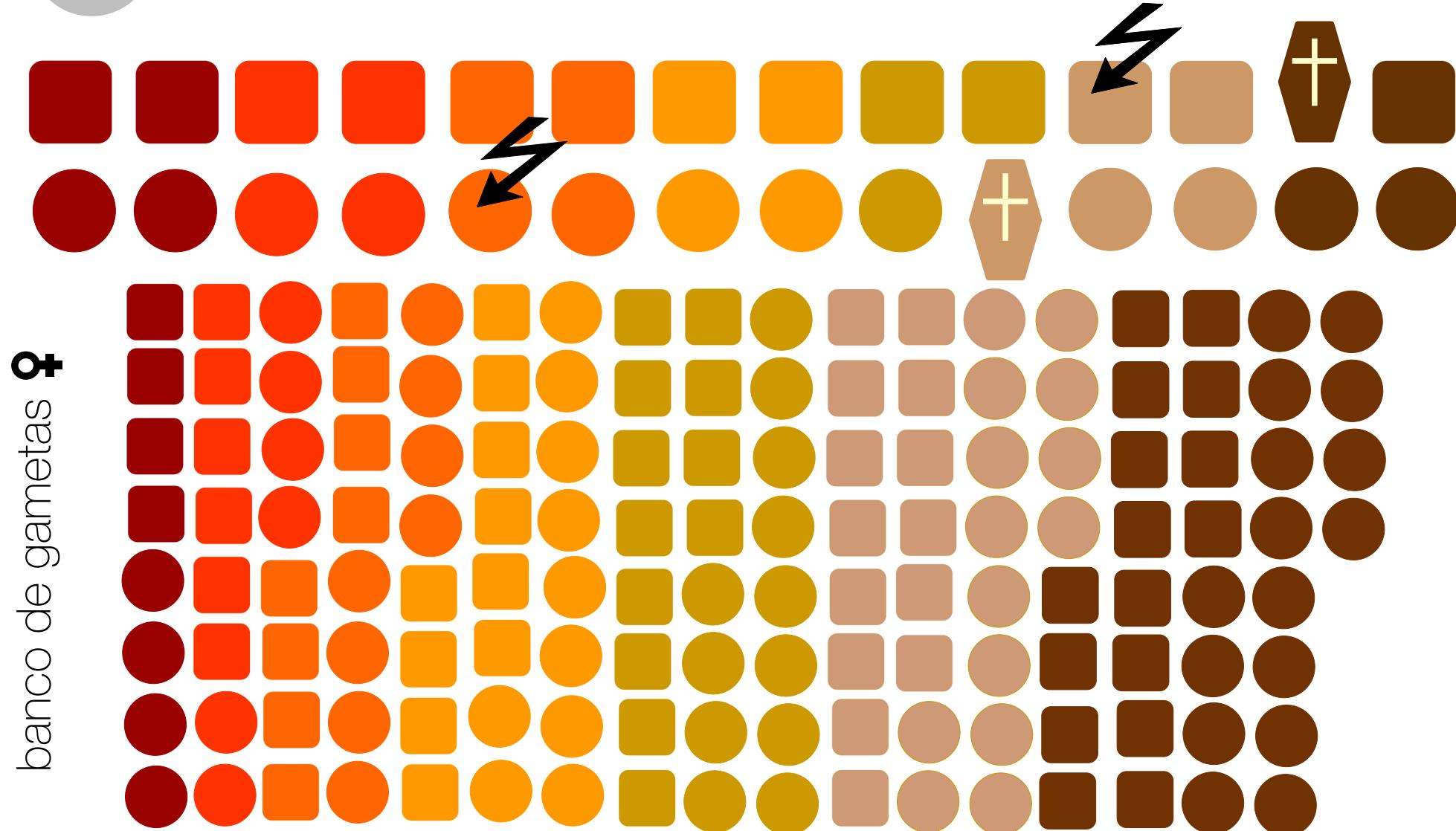
abundância  $t_0$

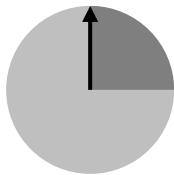
no gametas ♀/ciclo

constante

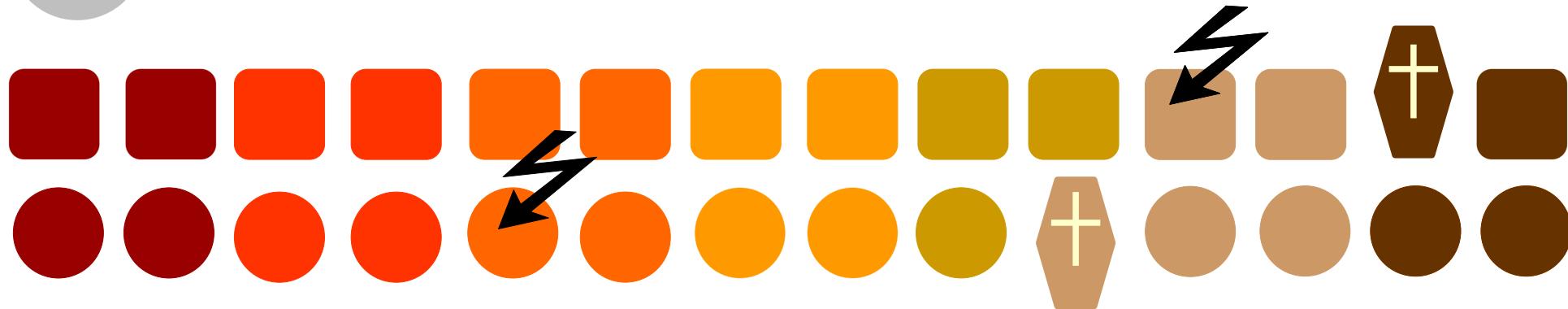


# modelo baseado em indivíduo





# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

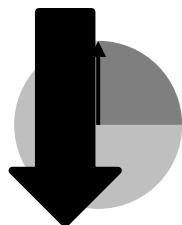
abundância  $t_0$

no gametas ♀/ciclo

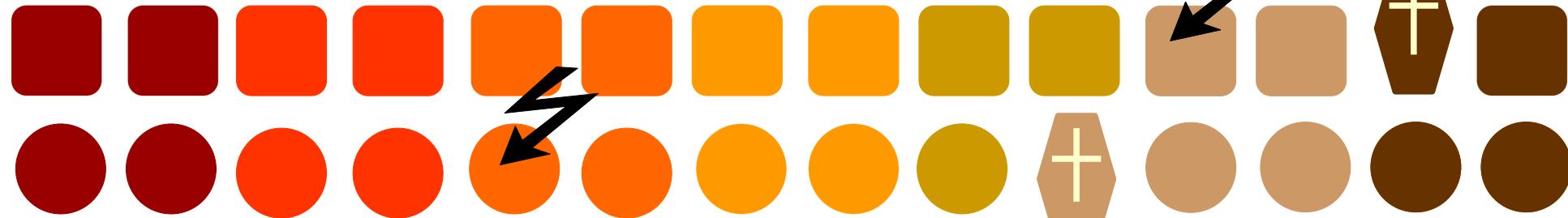
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

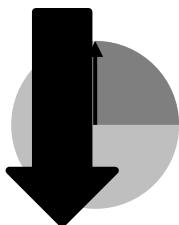
abundância  $t_0$

no gametas ♀/ciclo

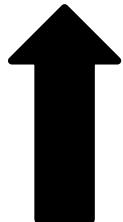
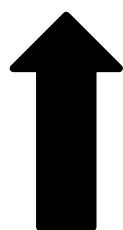
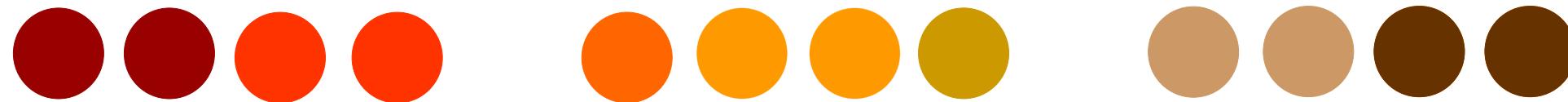
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

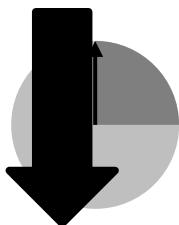
abundância  $t_0$

no gametas ♀/ciclo

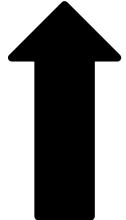
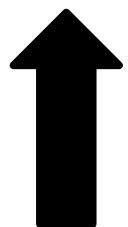
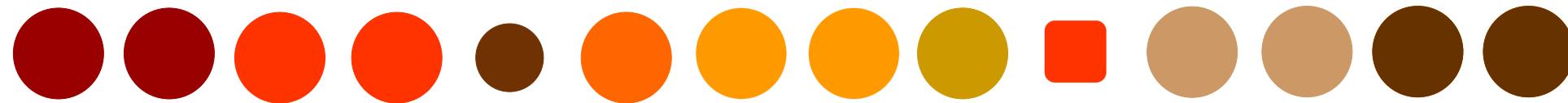
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

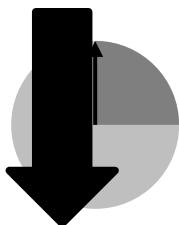
abundância  $t_0$

no gametas ♀/ciclo

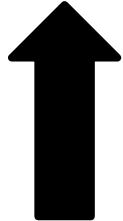
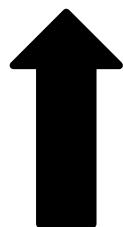
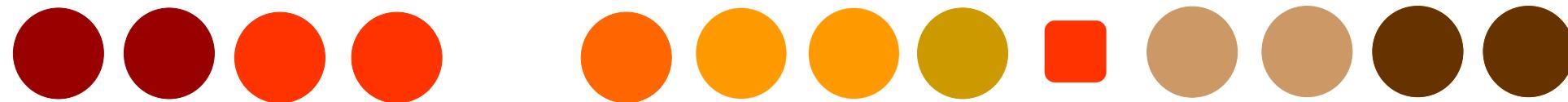
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

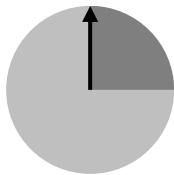
abundância  $t_0$

no gametas ♀/ciclo

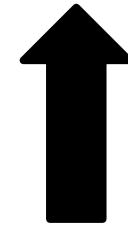
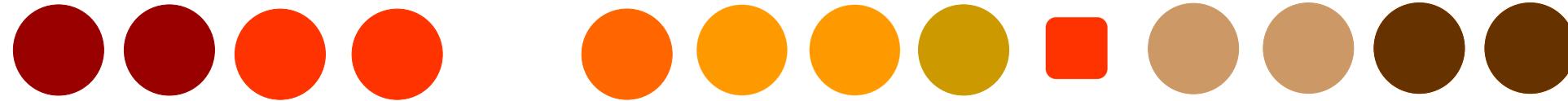
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

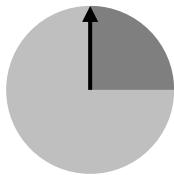
abundância  $t_0$

no gametas ♀/ciclo

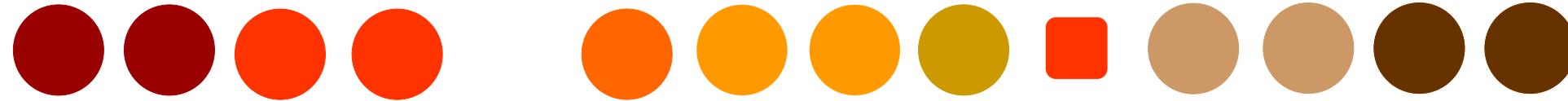
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

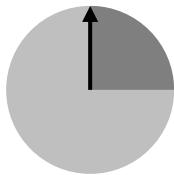
abundância  $t_0$

no gametas ♀/ciclo

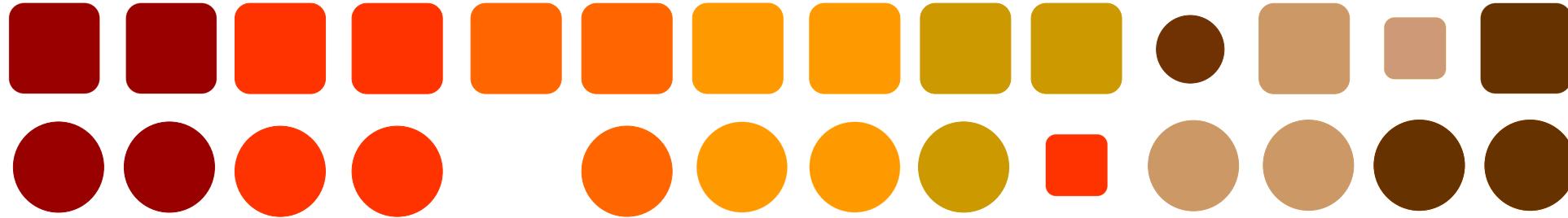
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

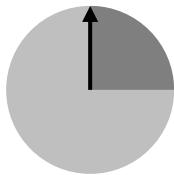
no gametas ♀/ciclo

constante

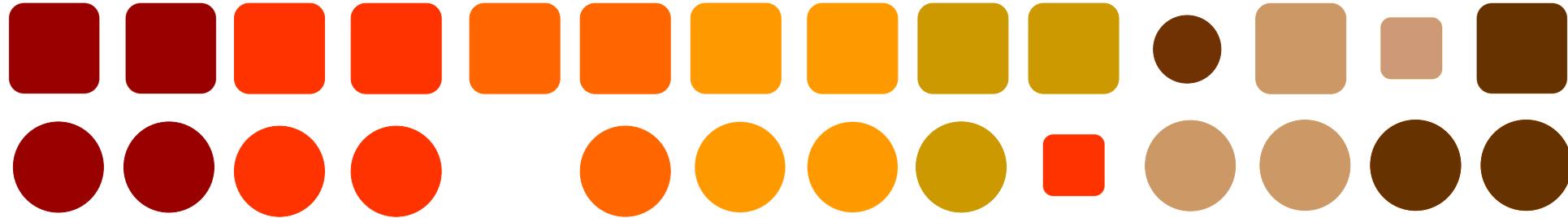
no distúrbios

% morta/distúrbio

$$\frac{\bullet + \bullet}{2}$$



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

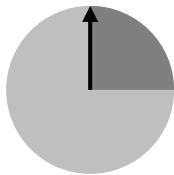
abundância  $t_0$

no gametas ♀/ciclo

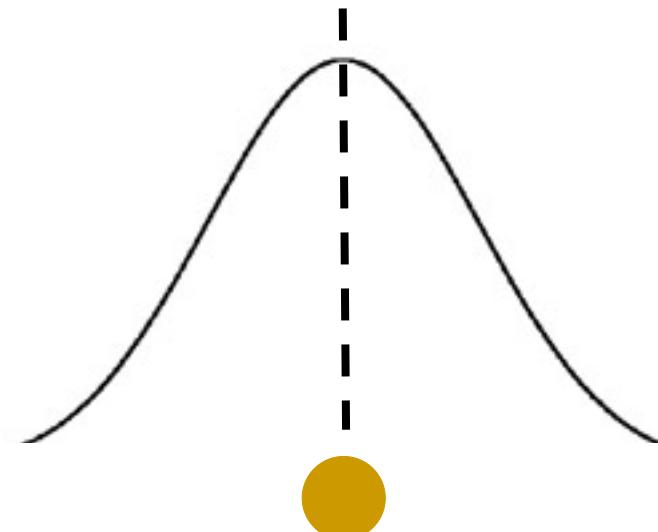
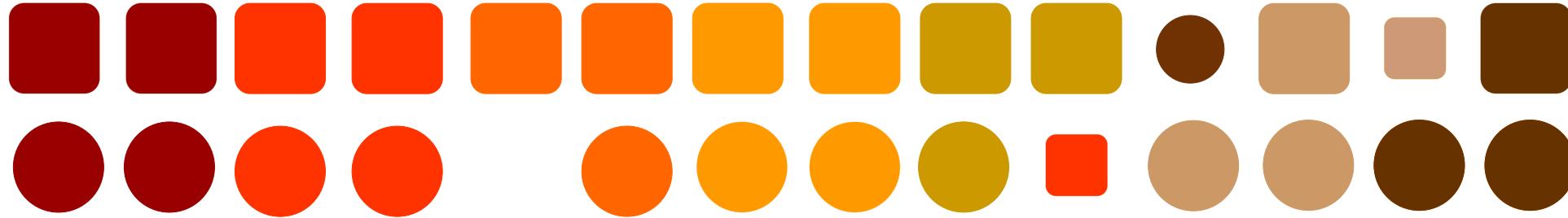
constante

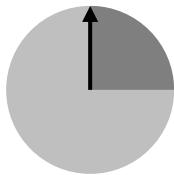
no distúrbios

% morta/distúrbio

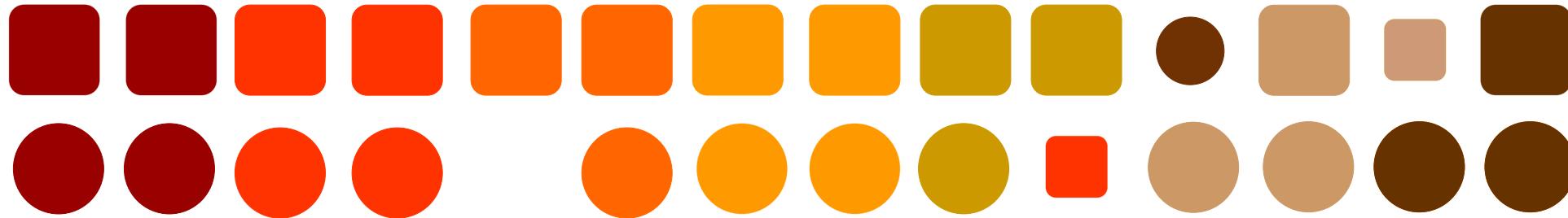


# modelo baseado em indivíduo





# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

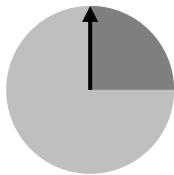
abundância  $t_0$

no gametas ♀/ciclo

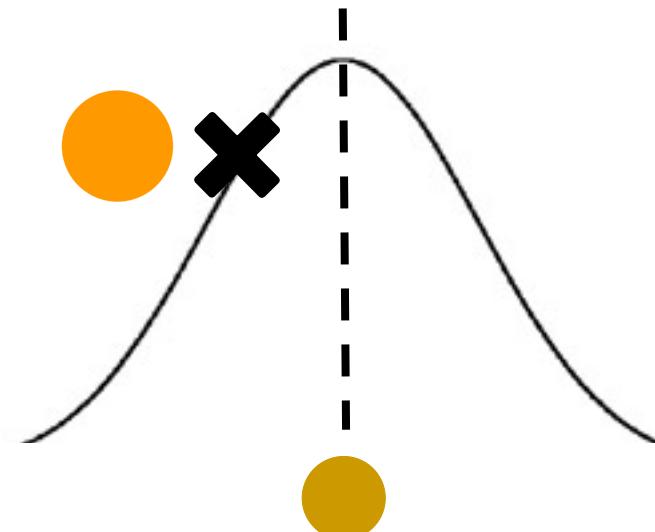
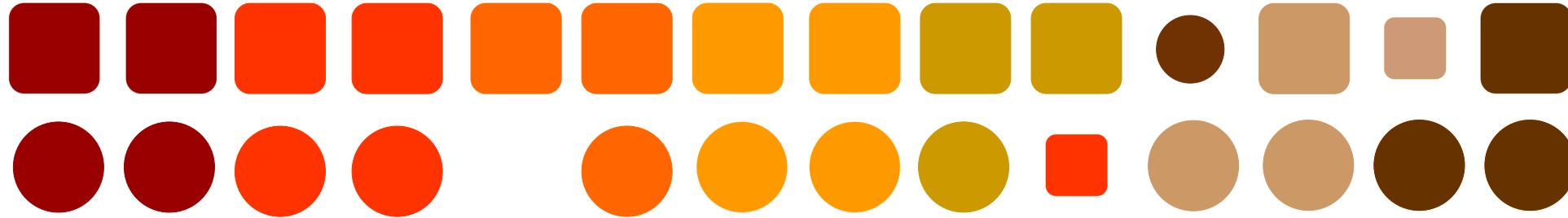
constante

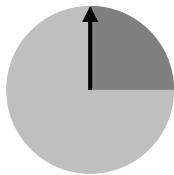
no distúrbios

% morta/distúrbio

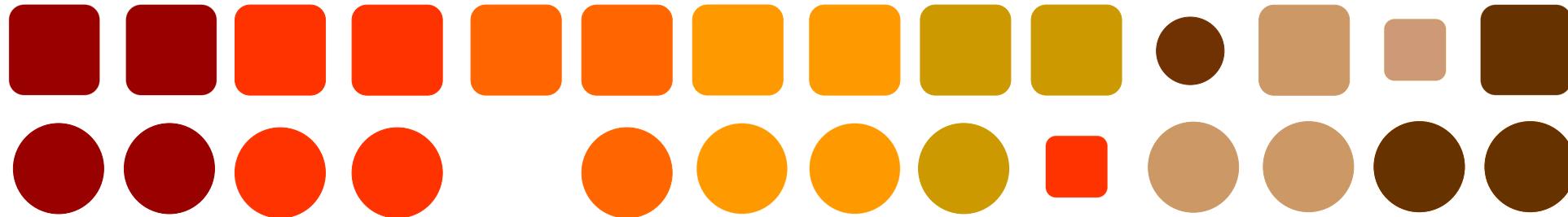


# modelo baseado em indivíduo





# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

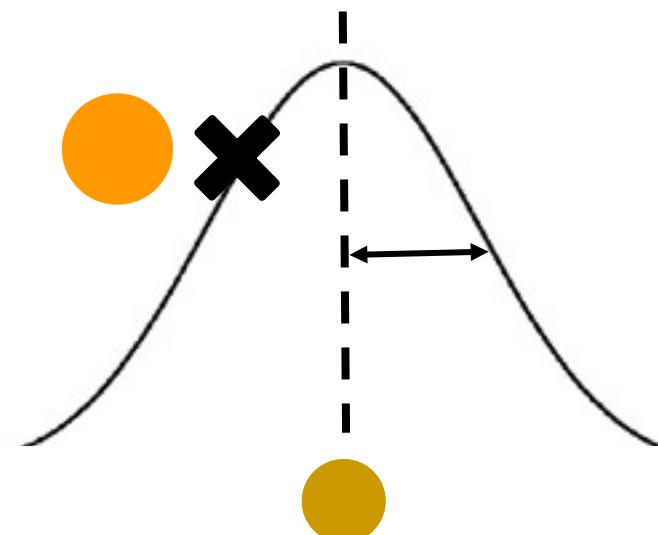
abundância  $t_0$

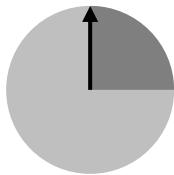
no gametas ♀/ciclo

constante

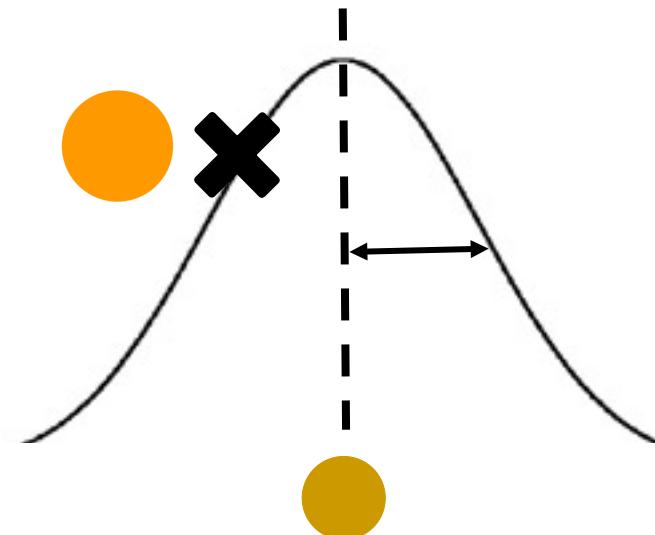
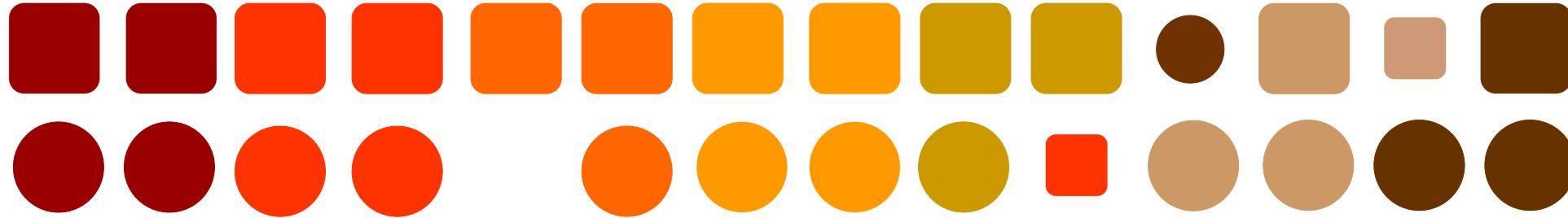
no distúrbios

% morta/distúrbio





# modelo baseado em indivíduo



**parâmetros**

riqueza  $t_0$

abundância  $t_0$

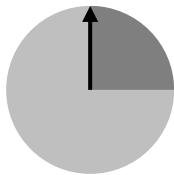
no gametas ♀/ciclo

constante

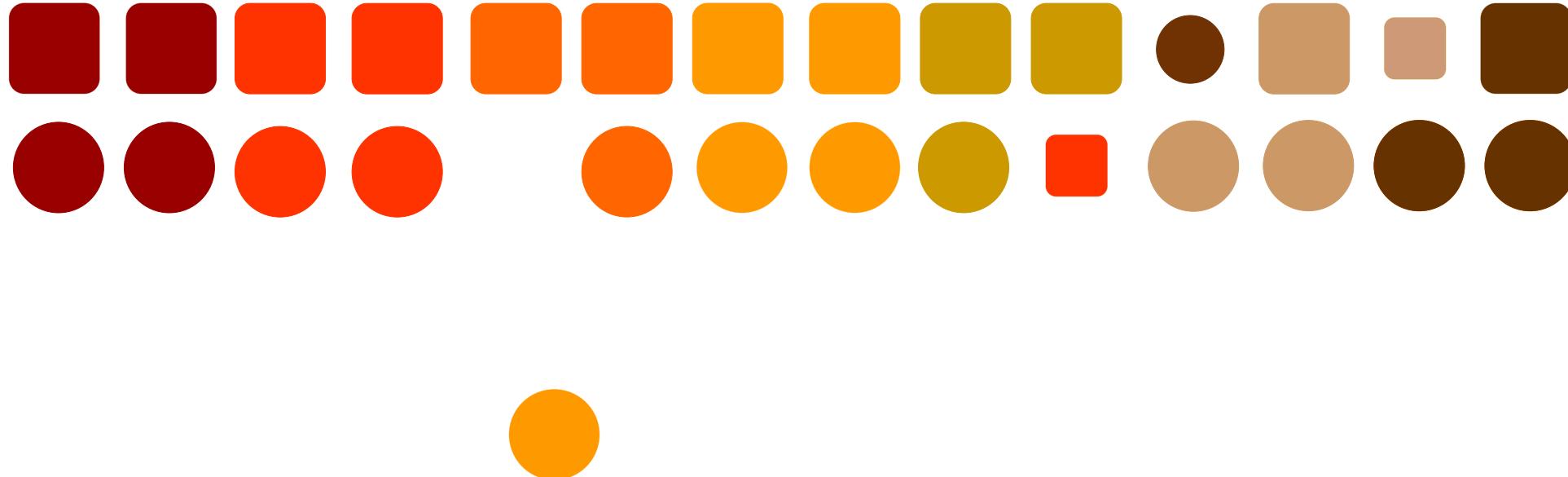
no distúrbios

% morta/distúrbio

taxa de mutação



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

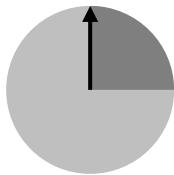
no gametas ♀/ciclo

constante

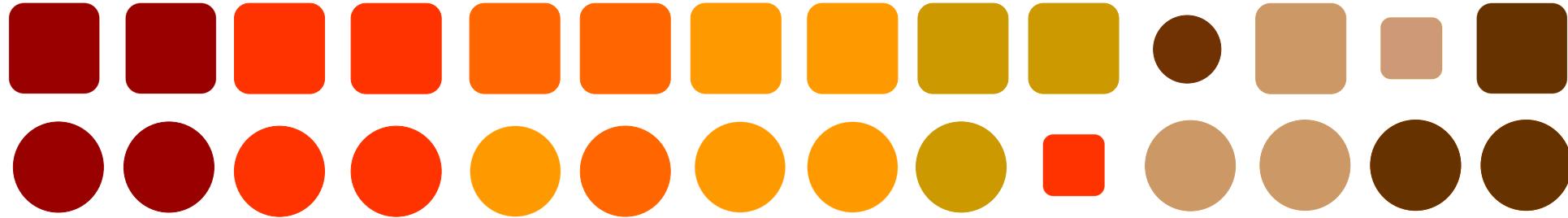
no distúrbios

% morta/distúrbio

taxa de mutação



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

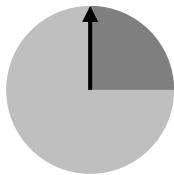
no gametas ♀/ciclo

constante

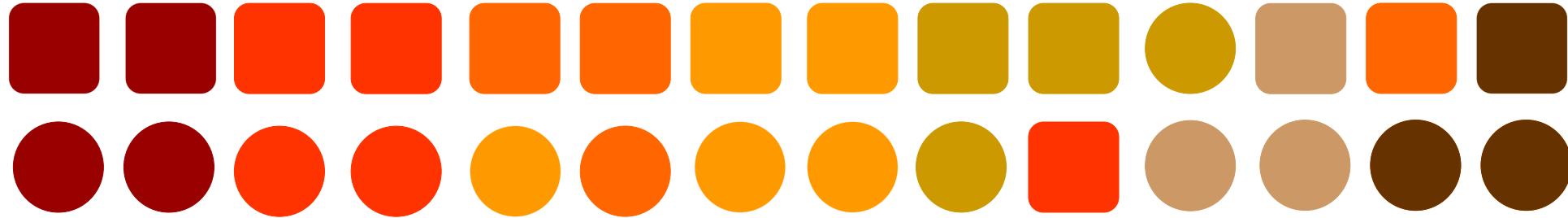
no distúrbios

% morta/distúrbio

taxa de mutação



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

constante

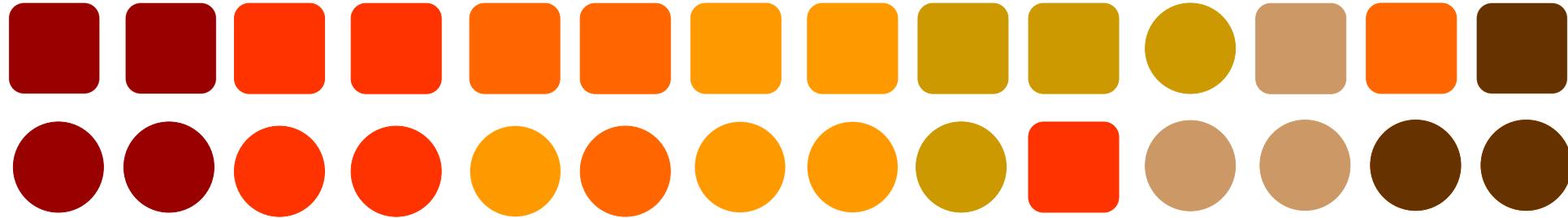
no distúrbios

% morta/distúrbio

taxa de mutação



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

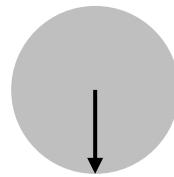
no gametas ♀/ciclo

constante

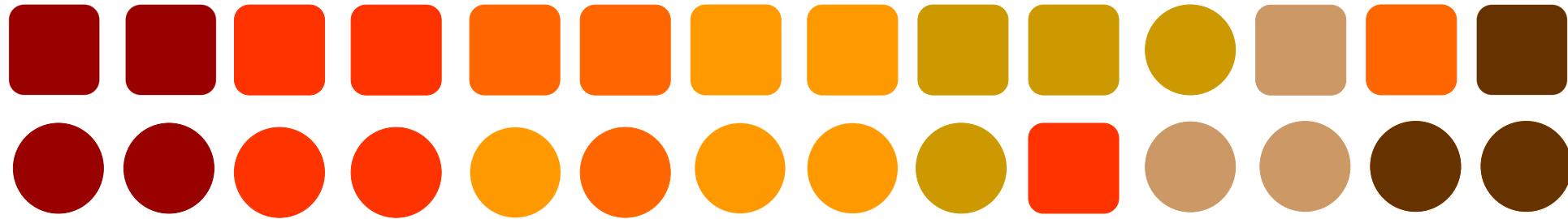
no distúrbios

% morta/distúrbio

taxa de mutação



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

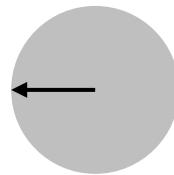
constante

no distúrbios

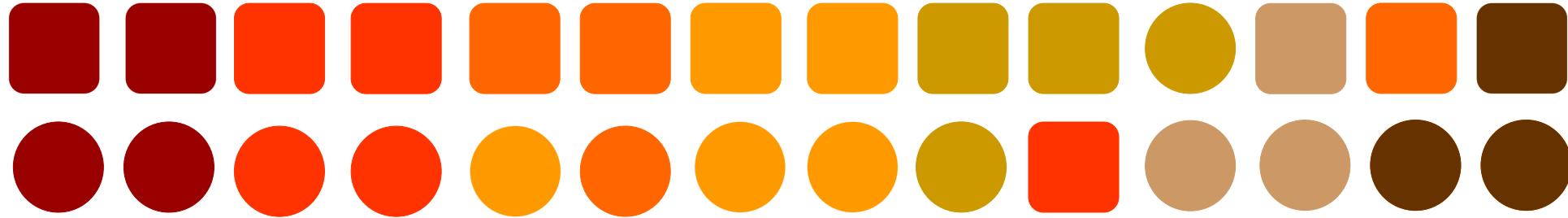
% morta/distúrbio

taxa de mutação

no tempos



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

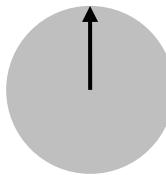
constante

no distúrbios

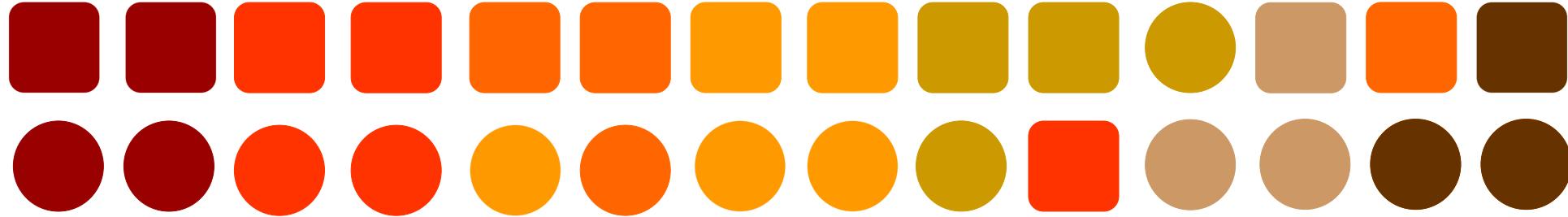
% morta/distúrbio

taxa de mutação

no tempos



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

constante

no distúrbios

% morta/distúrbio

taxa de mutação

no tempos



# cenários simulados



# cenários simulados

**evolutivo**

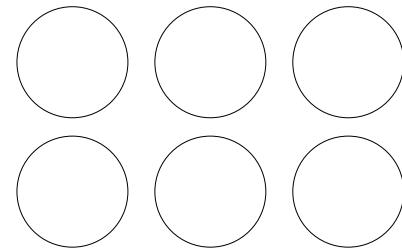
**ecológico**

**eco-evolutivo**



# cenários simulados

**evolutivo**

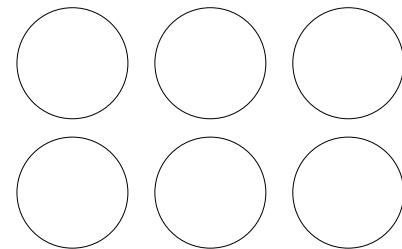


**ecológico**

**eco-evolutivo**

# cenários simulados

**evolutivo**



**ecológico**

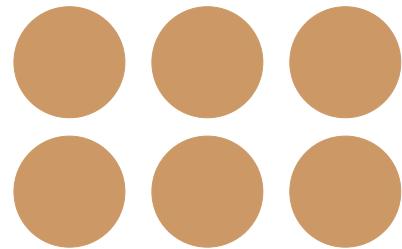
**eco-evolutivo**

1 espécie



# cenários simulados

**evolutivo**



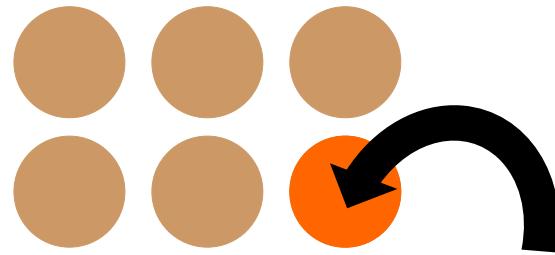
1 espécie

**ecológico**

**eco-evolutivo**

# cenários simulados

**evolutivo**



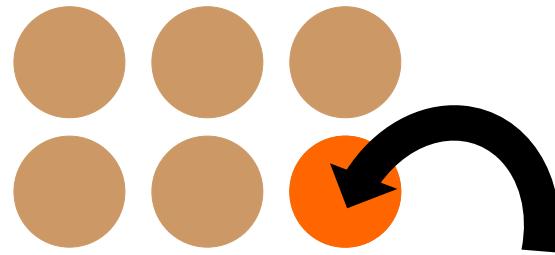
1 espécie

**ecológico**

**eco-evolutivo**

# cenários simulados

**evolutivo**



1 espécie

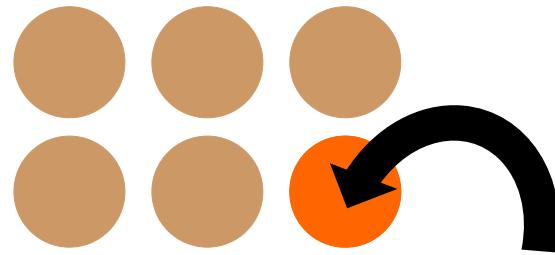
mutação > 0

**ecológico**

**eco-evolutivo**

# cenários simulados

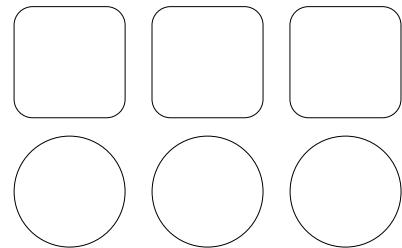
**evolutivo**



1 espécie

mutação > 0

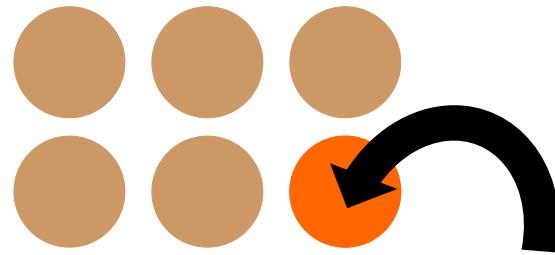
**ecológico**



**eco-evolutivo**

# cenários simulados

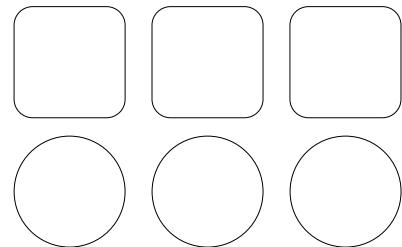
**evolutivo**



1 espécie

mutação > 0

**ecológico**

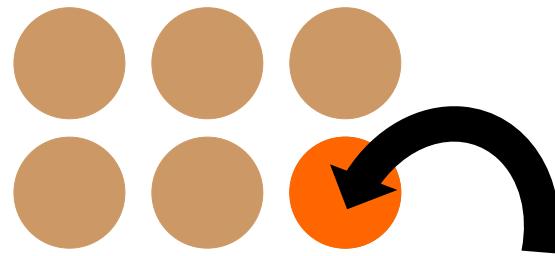


+ 1 espécie

**eco-evolutivo**

# cenários simulados

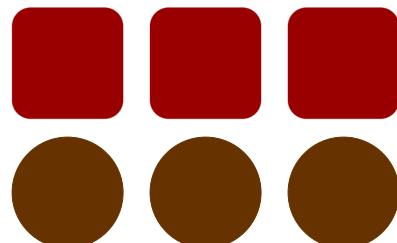
**evolutivo**



1 espécie

mutação > 0

**ecológico**

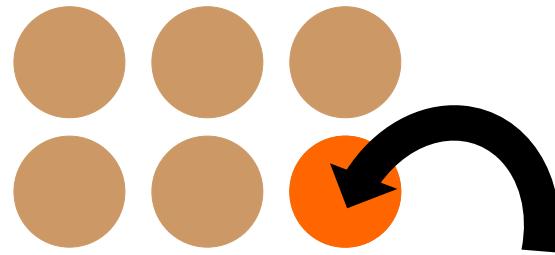


+ 1 espécie

**eco-evolutivo**

# cenários simulados

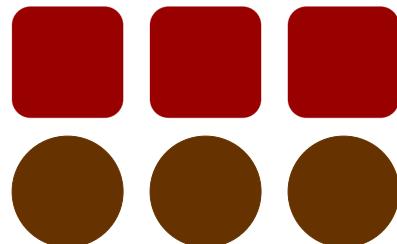
## evolutivo



1 espécie

mutação > 0

## ecológico



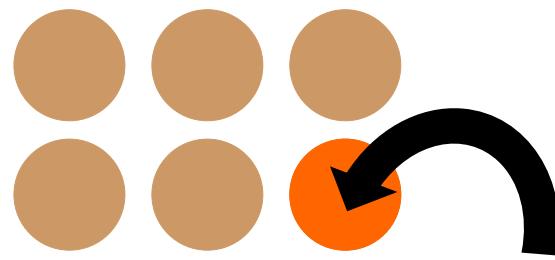
+ 1 espécie

mutação = 0

## eco-evolutivo

# cenários simulados

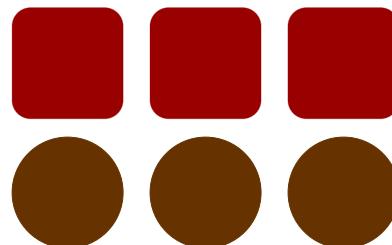
## evolutivo



1 espécie

mutação > 0

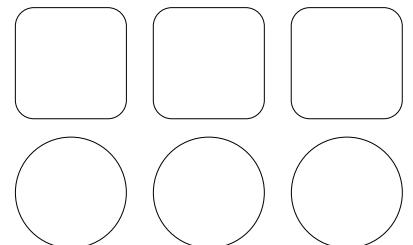
## ecológico



+ 1 espécie

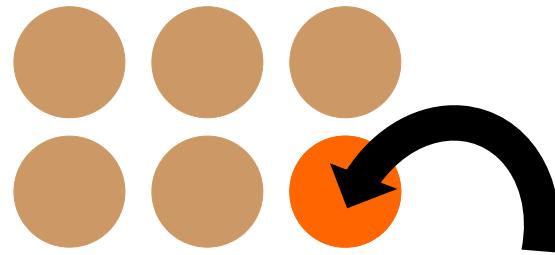
mutação = 0

## eco-evolutivo



# cenários simulados

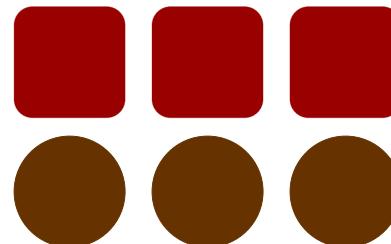
## evolutivo



1 espécie

mutação > 0

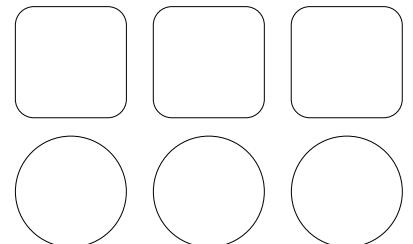
## ecológico



+ 1 espécie

mutação = 0

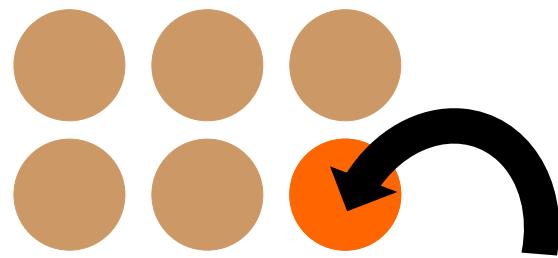
## eco-evolutivo



+ 1 espécie

# cenários simulados

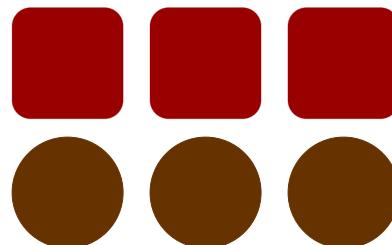
## evolutivo



1 espécie

mutação > 0

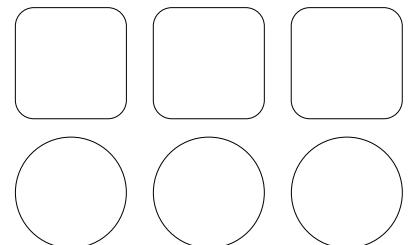
## ecológico



+ 1 espécie

mutação = 0

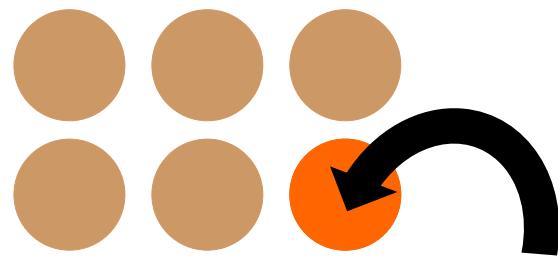
## eco-evolutivo



+ 1 espécie

# cenários simulados

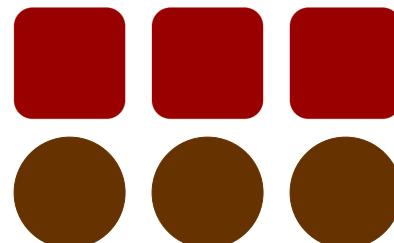
## evolutivo



1 espécie

mutação > 0

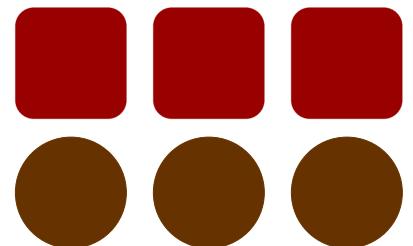
## ecológico



+ 1 espécie

mutação = 0

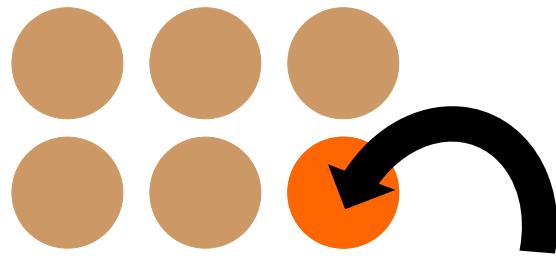
## eco-evolutivo



+ 1 espécie

# cenários simulados

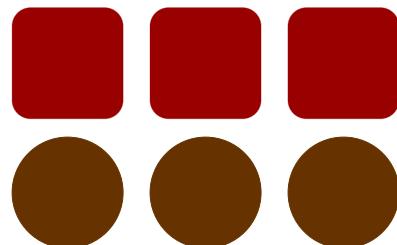
## evolutivo



1 espécie

mutação > 0

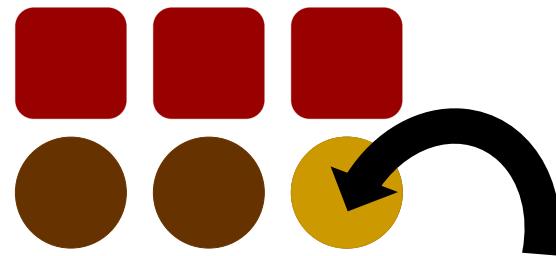
## ecológico



+ 1 espécie

mutação = 0

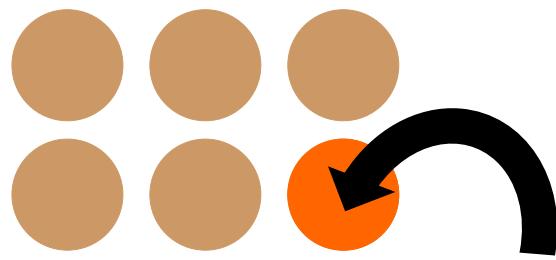
## eco-evolutivo



+ 1 espécie

# cenários simulados

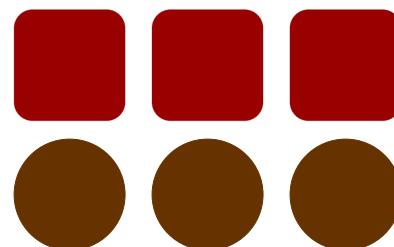
## evolutivo



1 espécie

mutação > 0

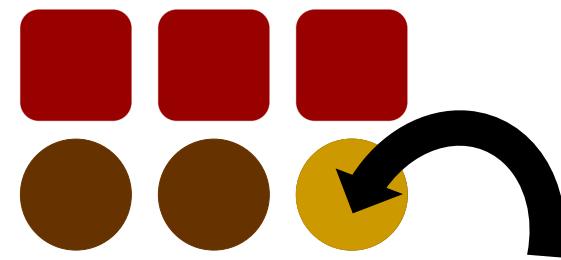
## ecológico



+ 1 espécie

mutação = 0

## eco-evolutivo

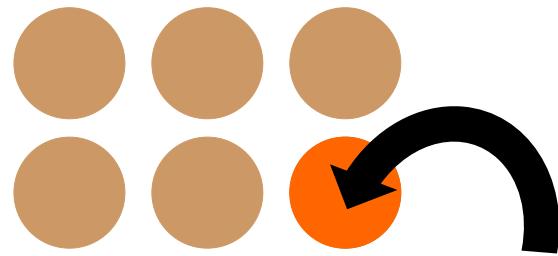


+ 1 espécie

mutação > 0

# cenários simulados

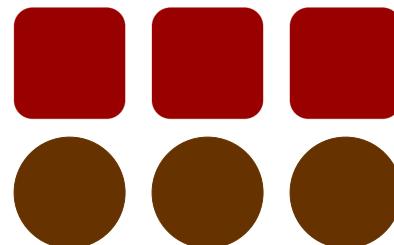
## evolutivo



1 espécie

**mutação > 0**

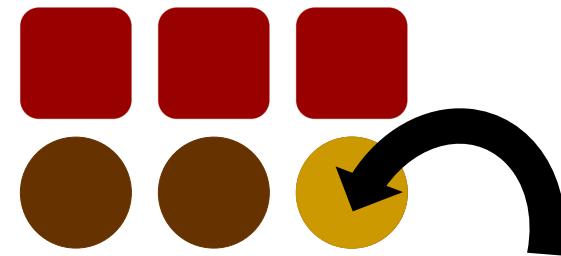
## ecológico



+ 1 espécie

mutação = 0

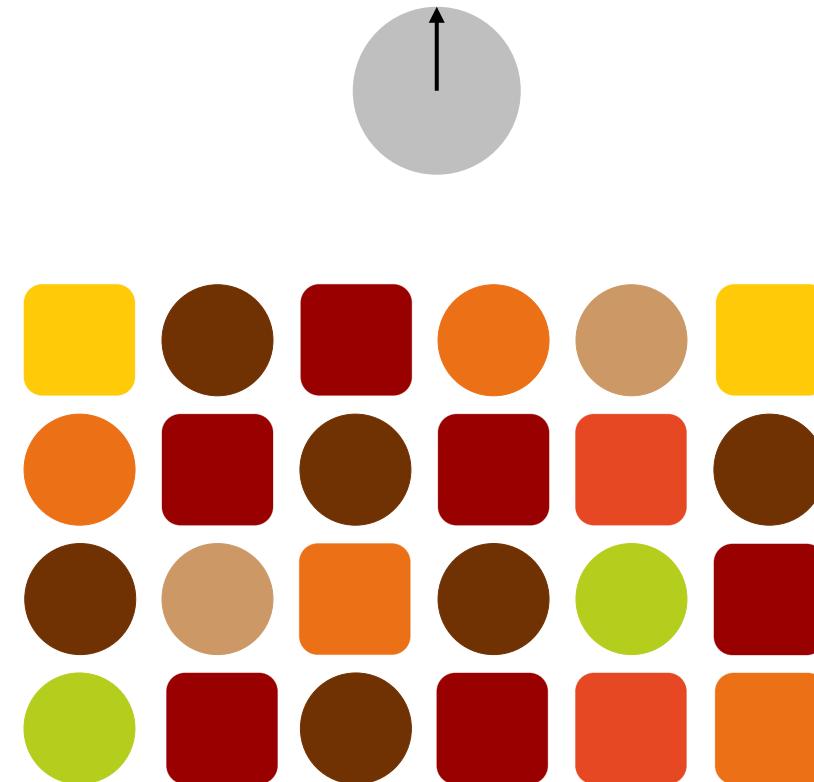
## eco-evolutivo



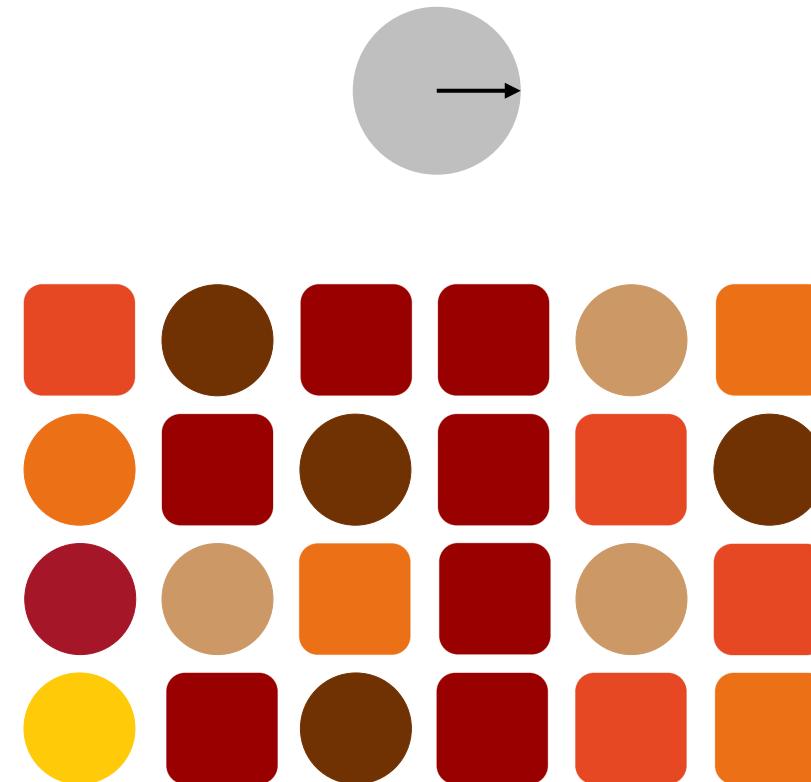
+ 1 espécie

**mutação > 0**

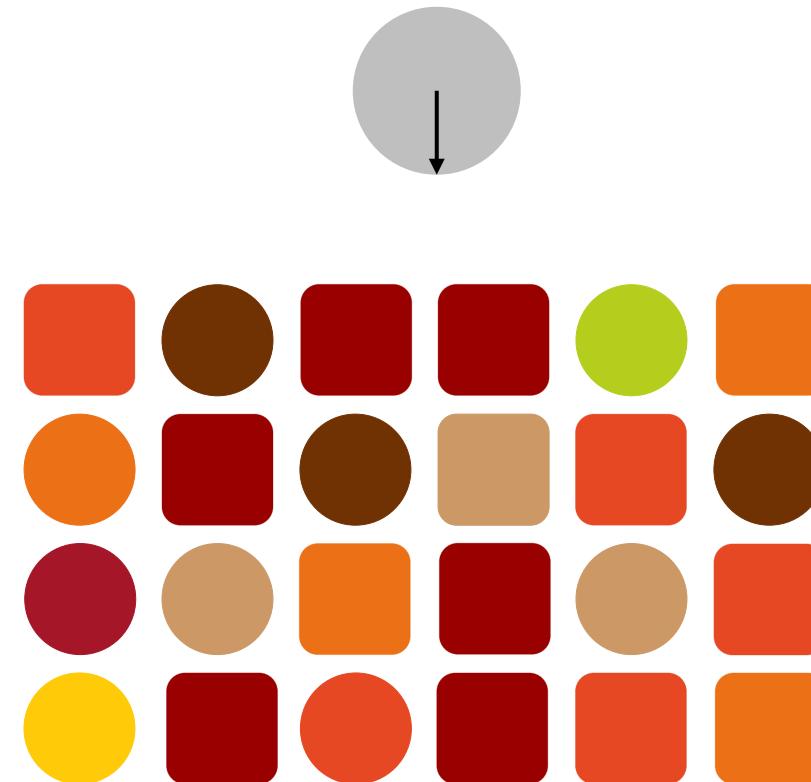
# variáveis de interesse



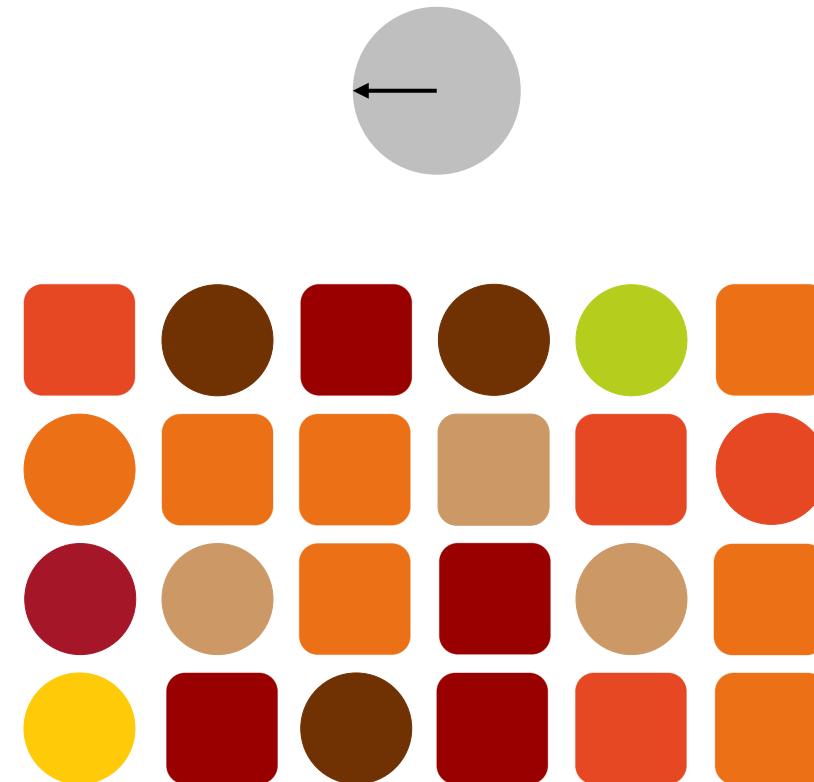
# variáveis de interesse



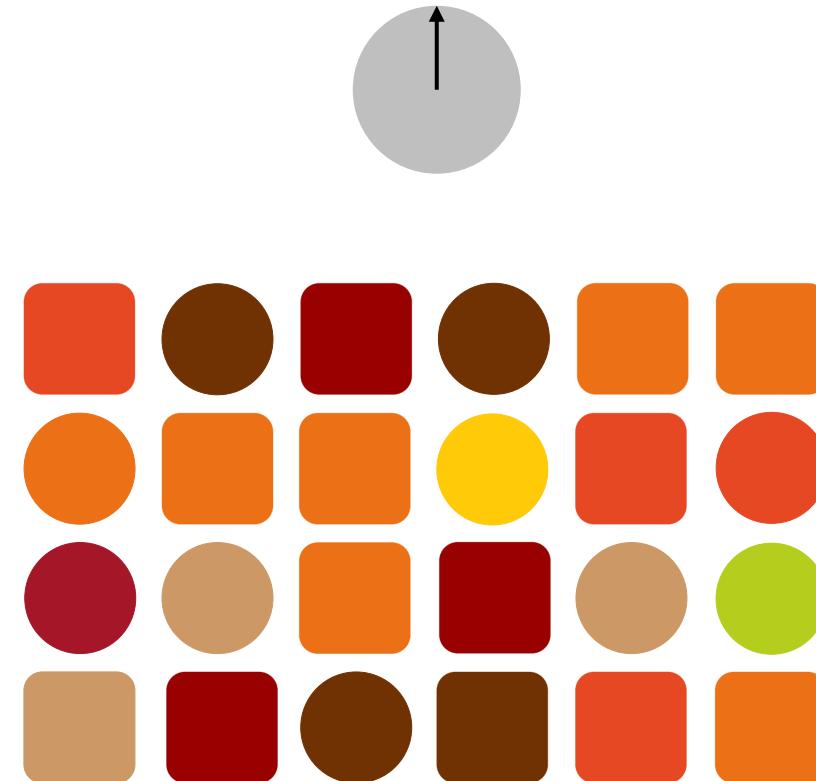
# variáveis de interesse



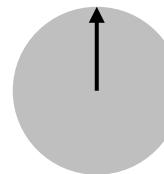
# variáveis de interesse



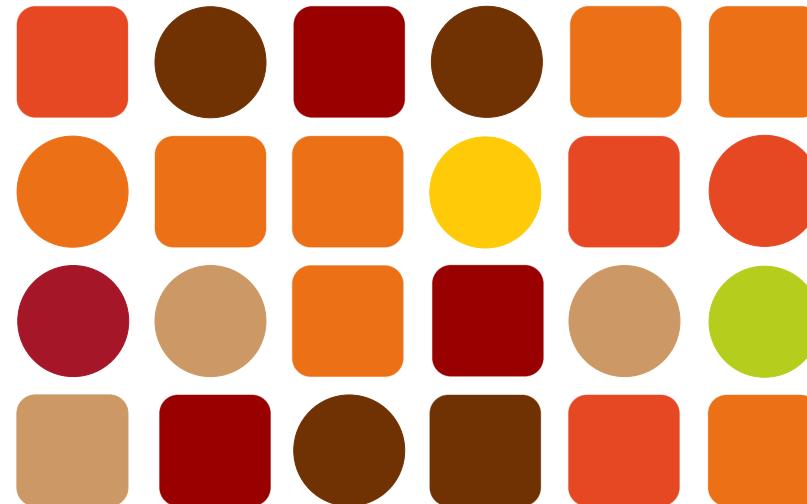
# variáveis de interesse



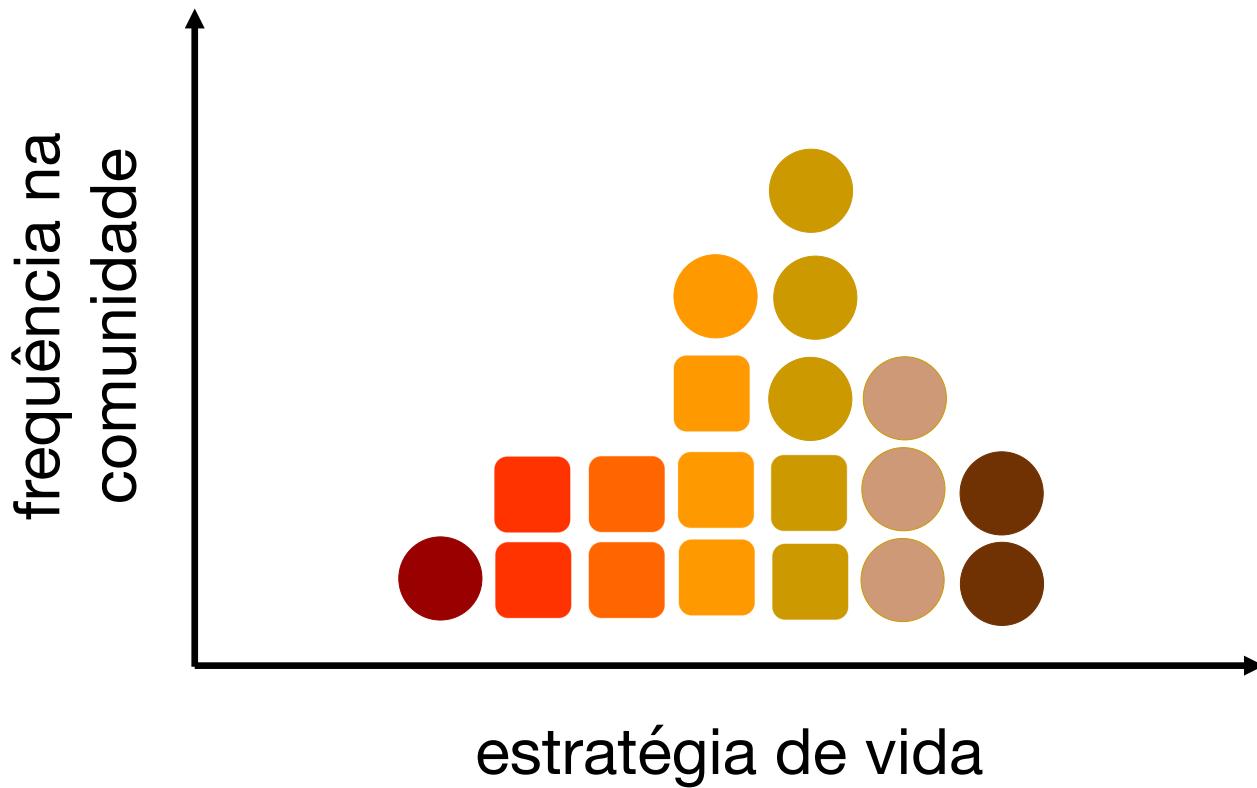
# variáveis de interesse



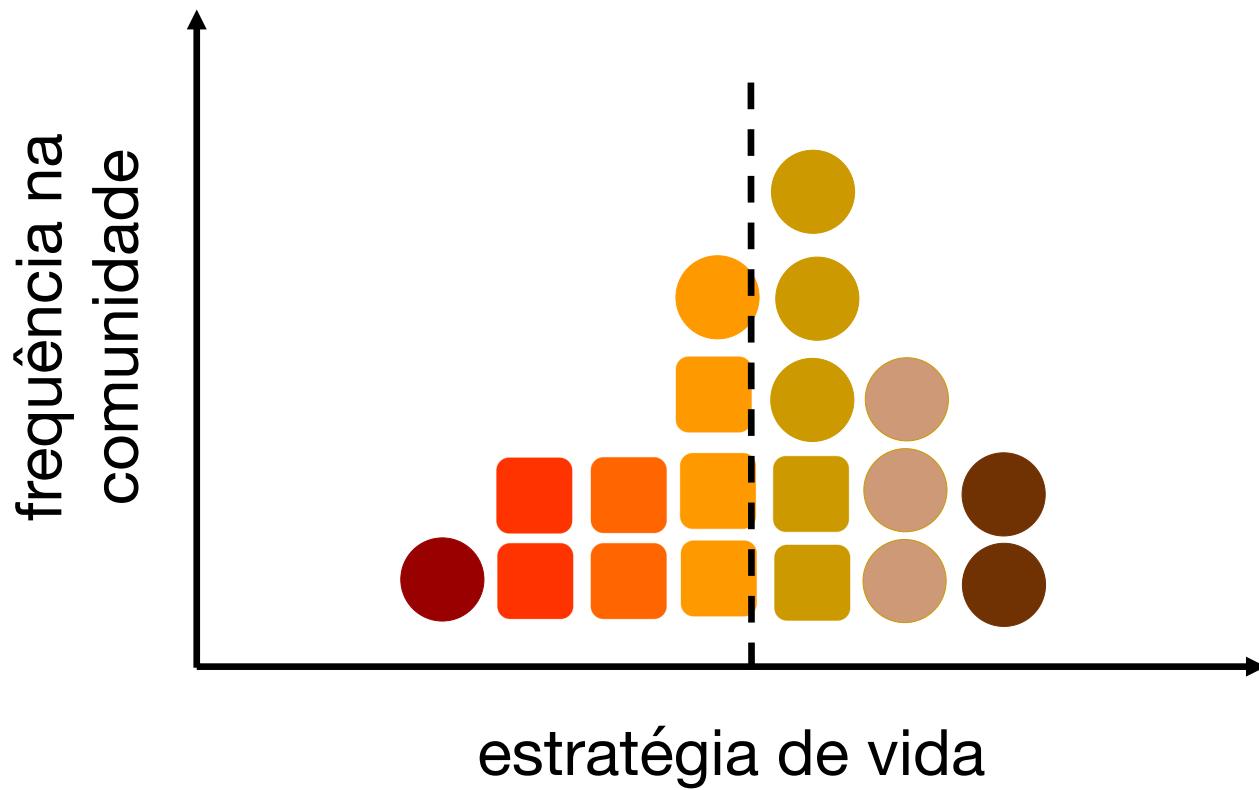
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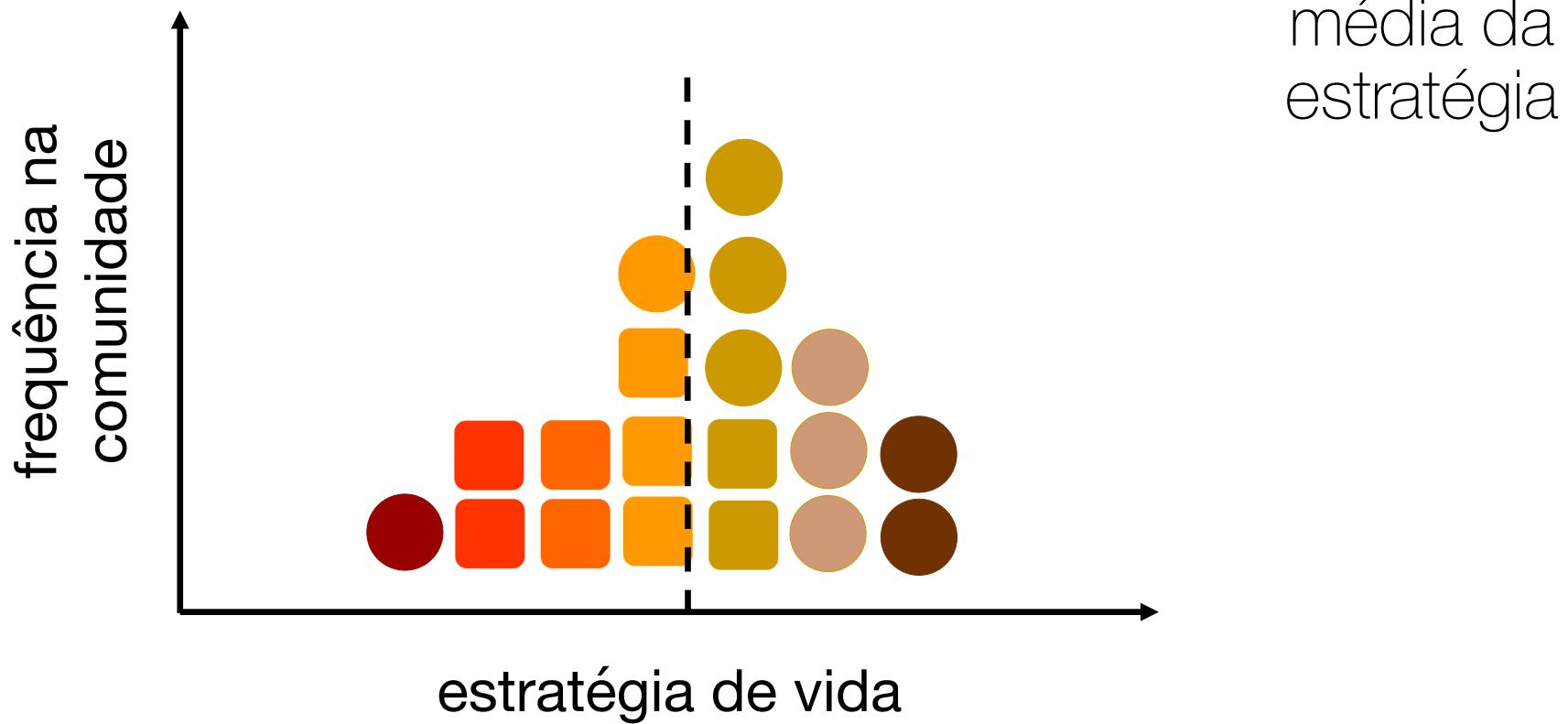
# variáveis de interesse



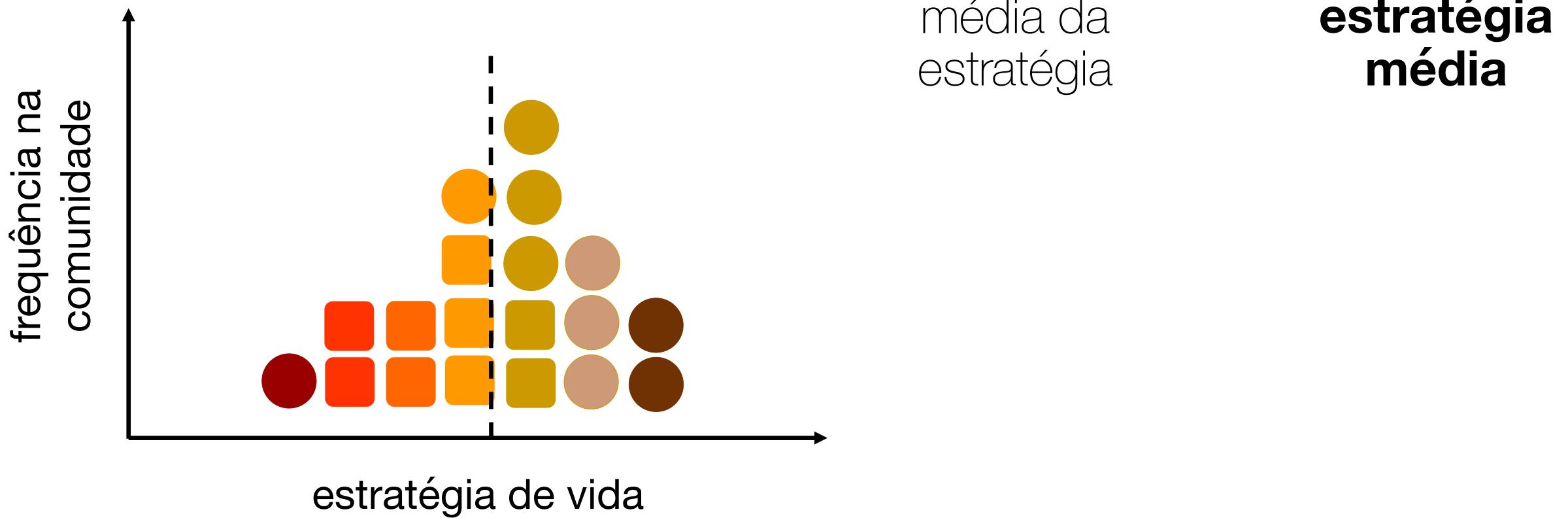
# variáveis de interesse



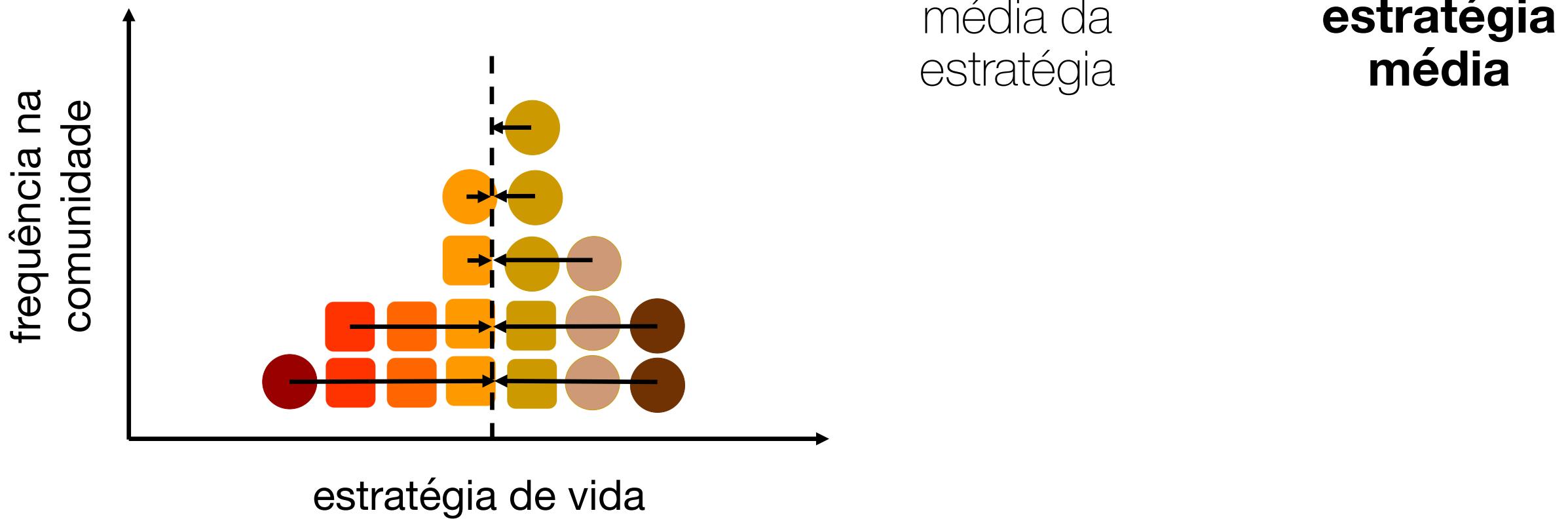
# variáveis de interesse



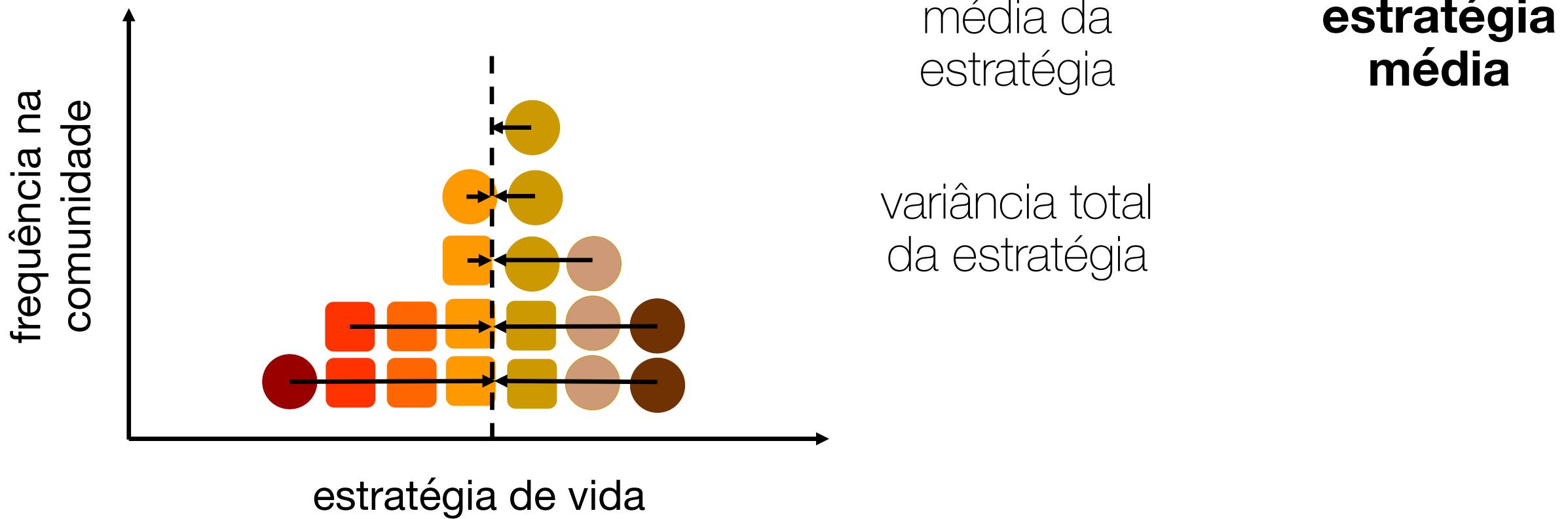
# variáveis de interesse



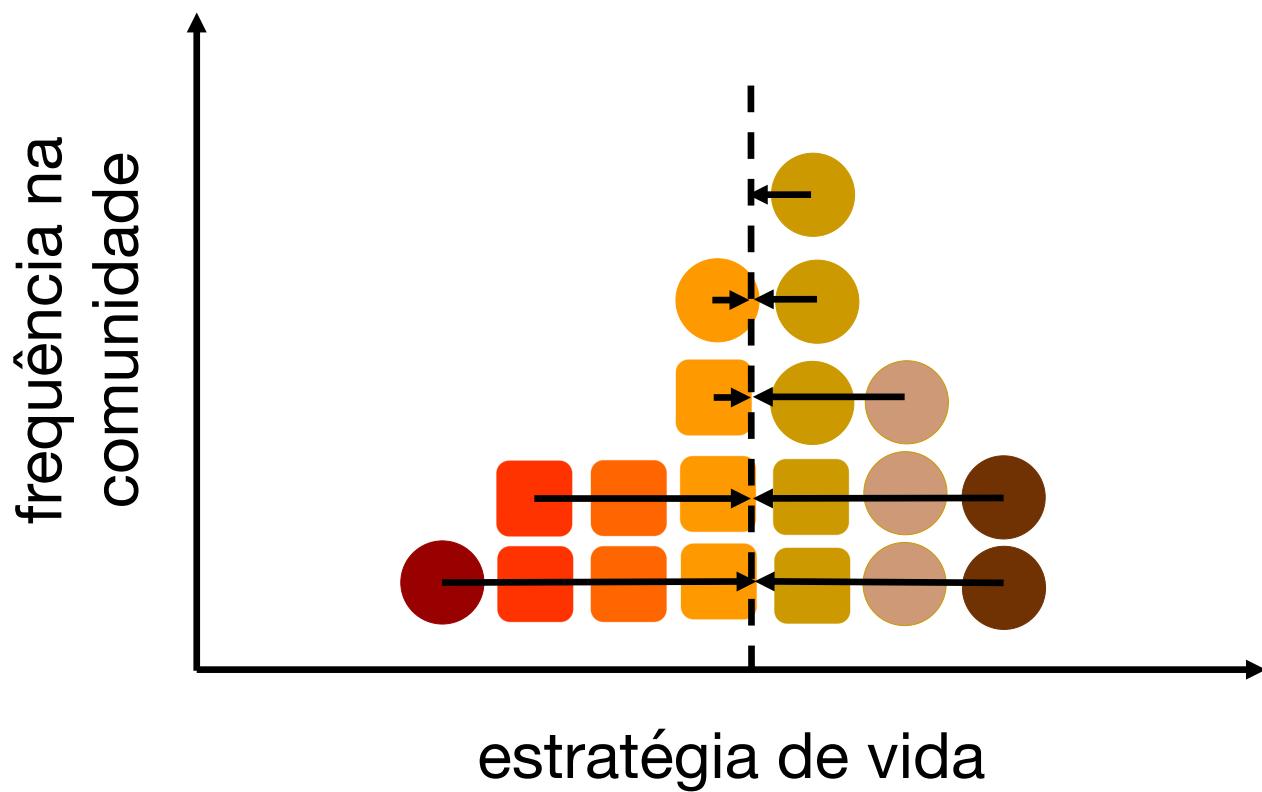
# variáveis de interesse



# variáveis de interesse



# variáveis de interesse



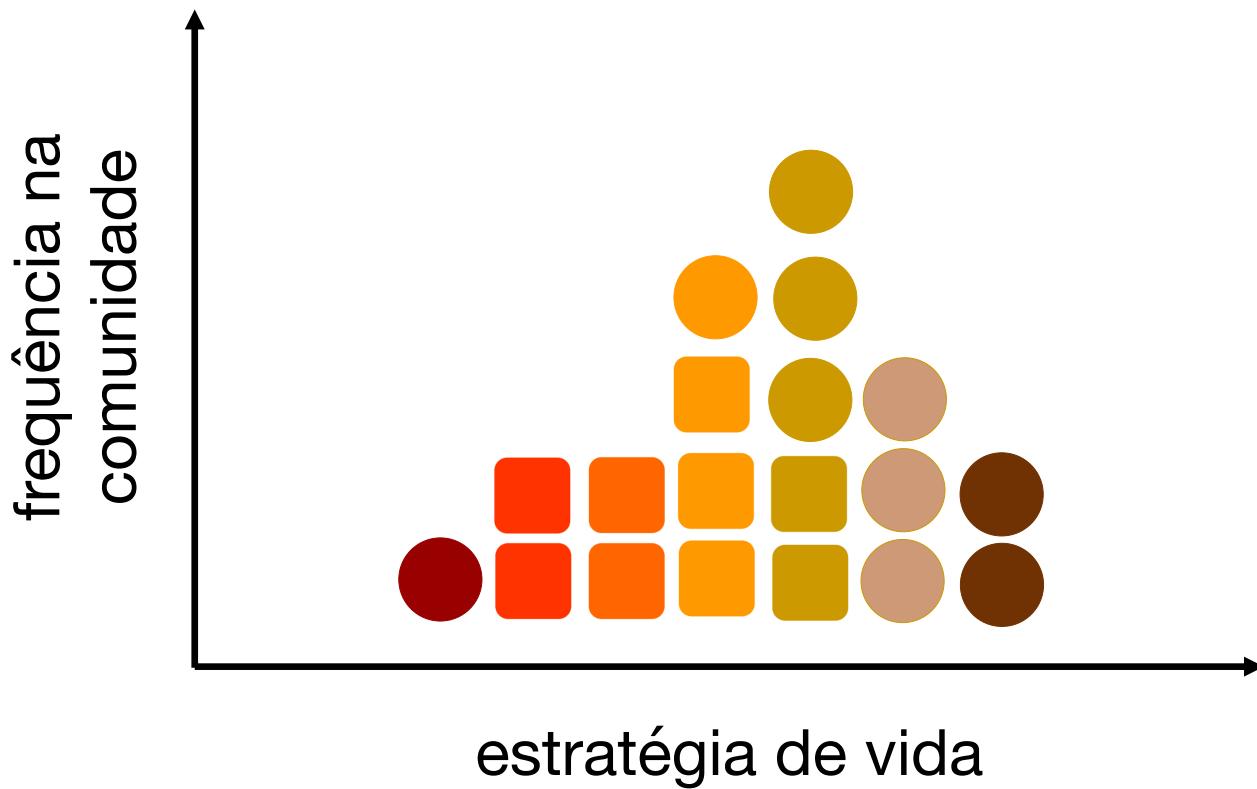
média da  
estratégia

variância total  
da estratégia

**estratégia  
média**

**diversidade  
de estratégias**

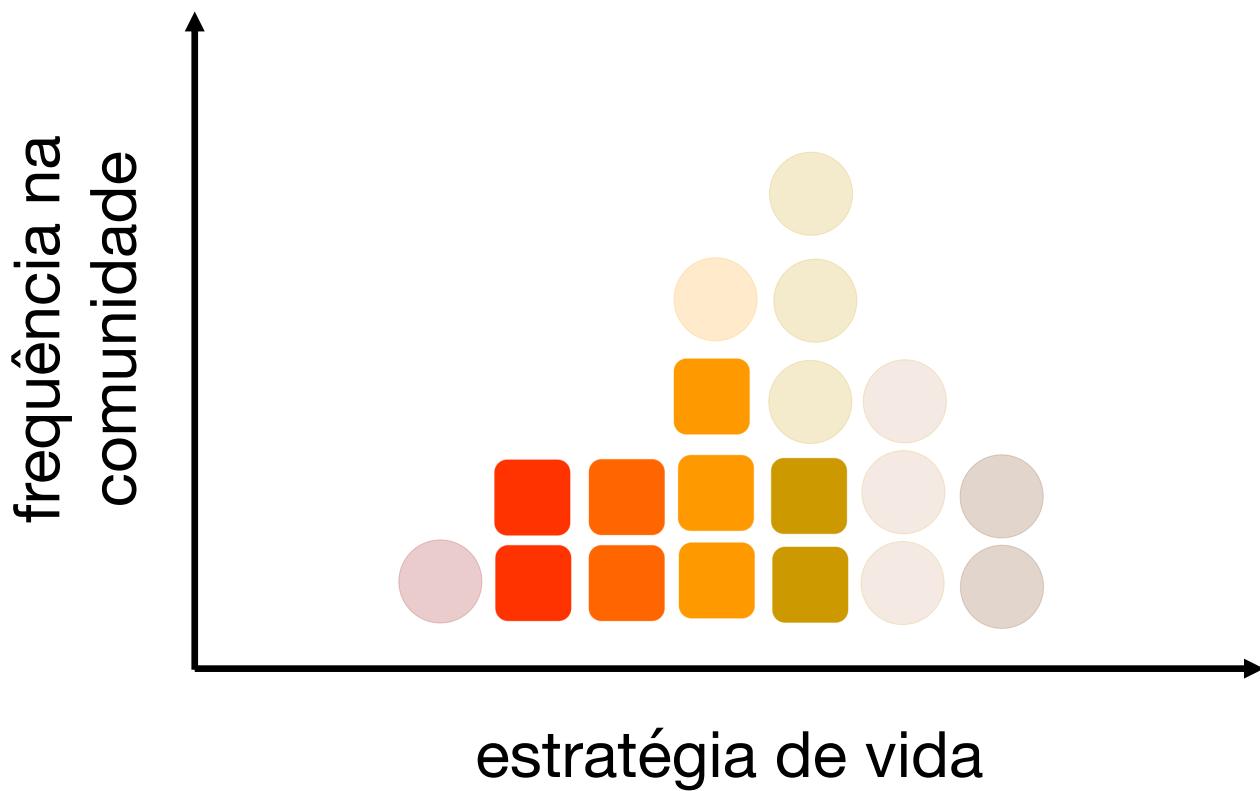
# variáveis de interesse



média da estratégia  
variância total da estratégia

**estratégia média**  
**diversidade de estratégias**

# variáveis de interesse



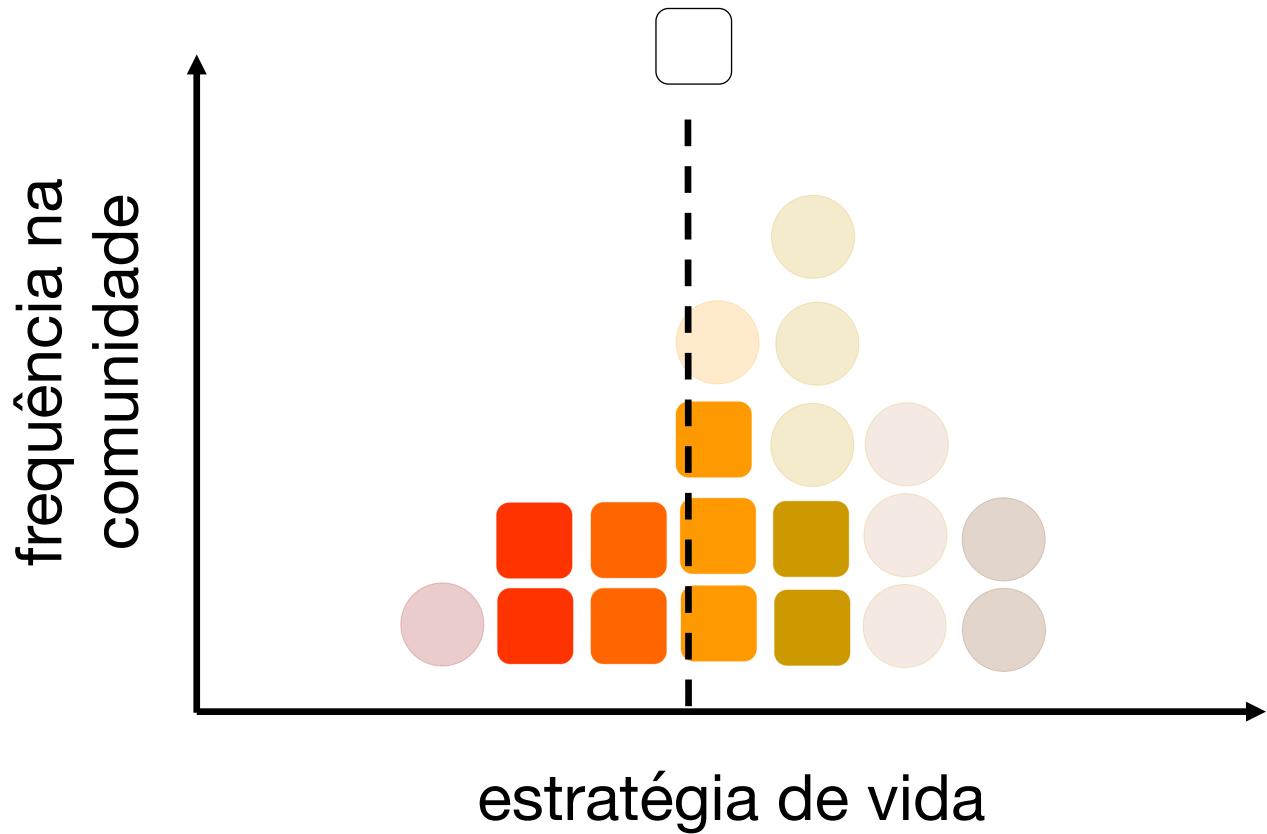
média da  
estratégia

variância total  
da estratégia

**estratégia  
média**

**diversidade  
de estratégias**

# variáveis de interesse



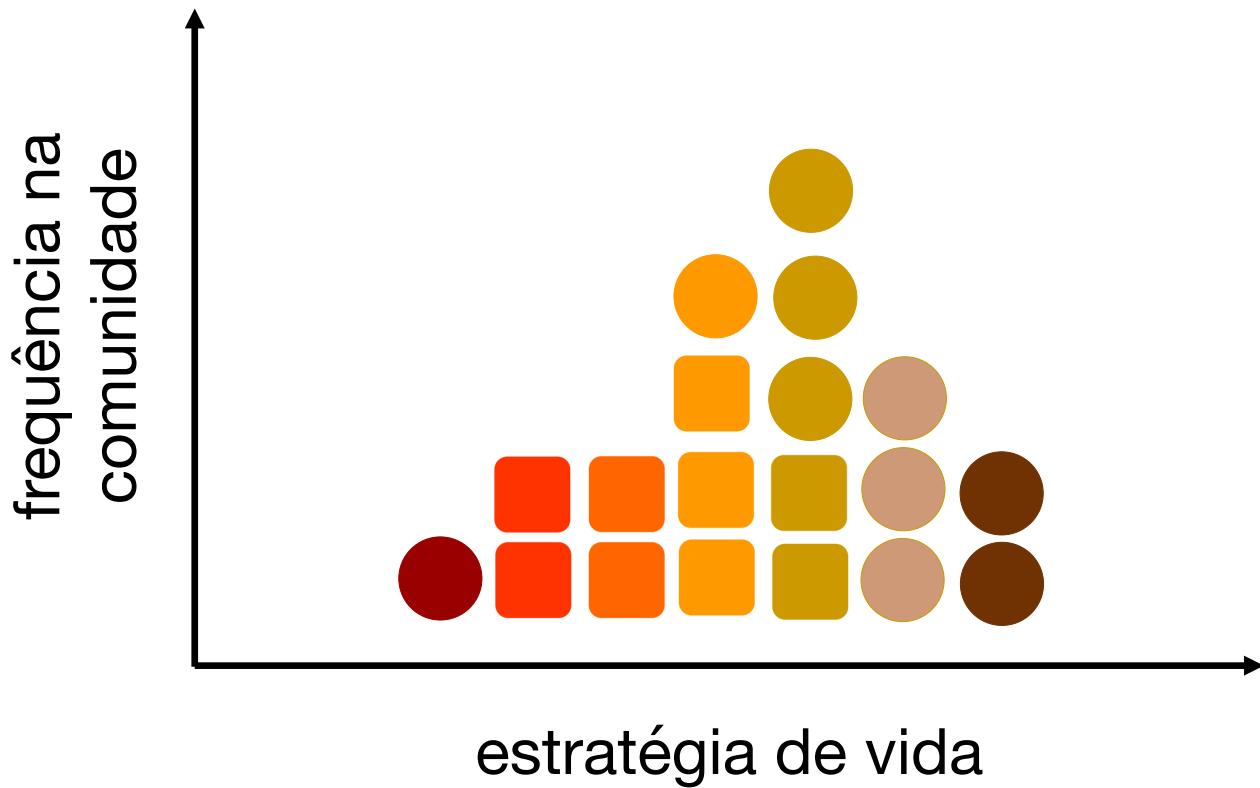
média da  
estratégia

variância total  
da estratégia

**estratégia  
média**

**diversidade  
de estratégias**

# variáveis de interesse

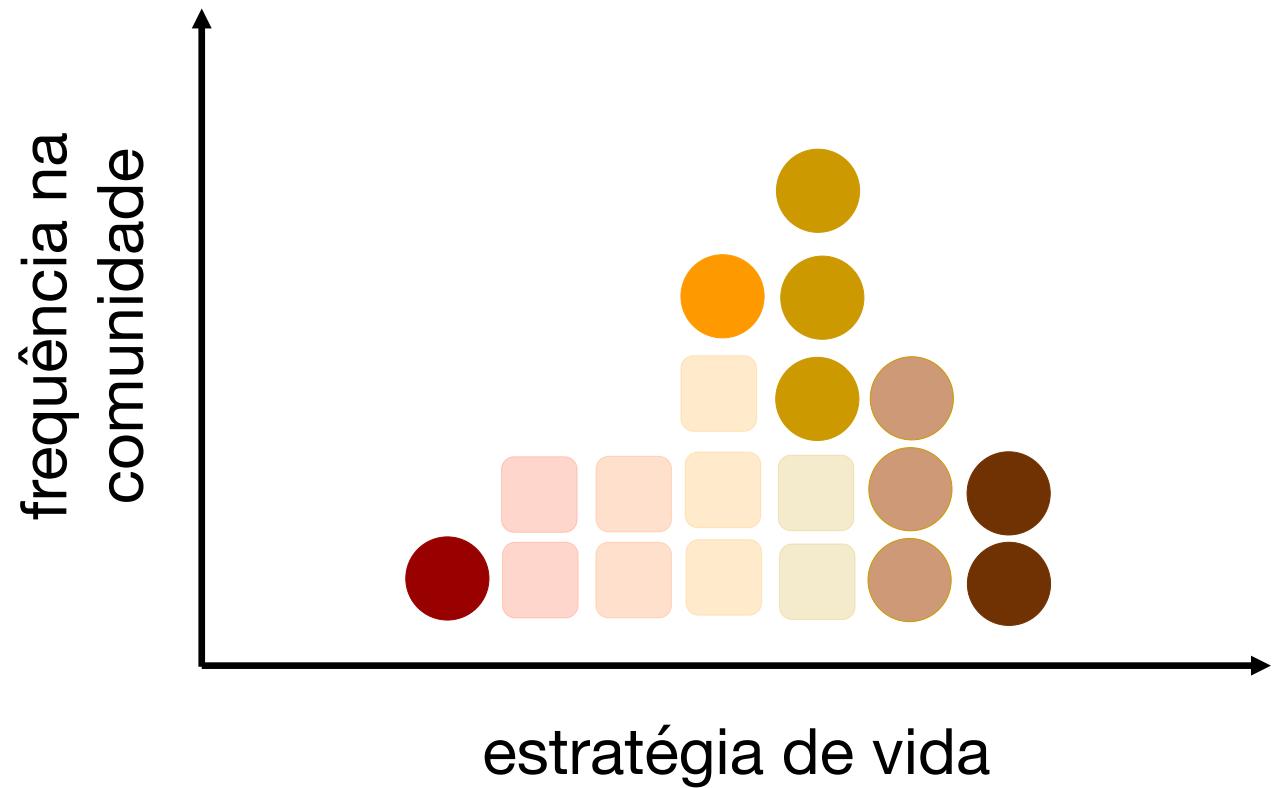


média da  
estratégia

variância total  
da estratégia

**diversidade  
de estratégias**

# variáveis de interesse



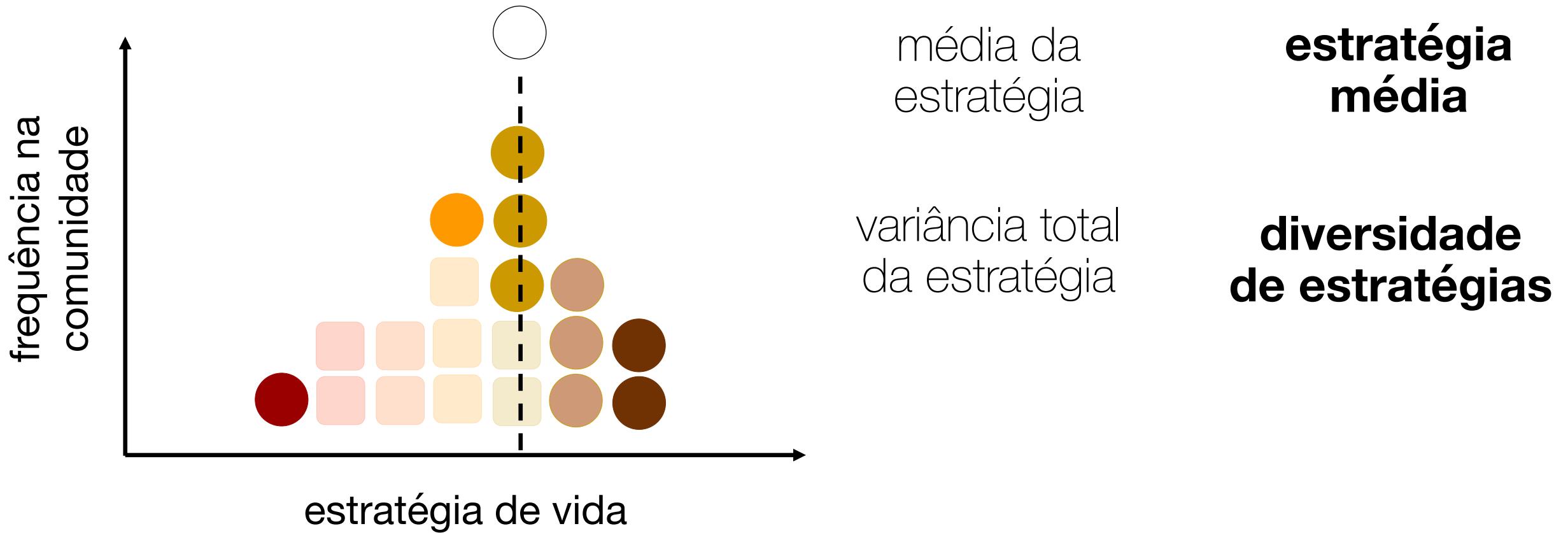
média da estratégia

variância total da estratégia

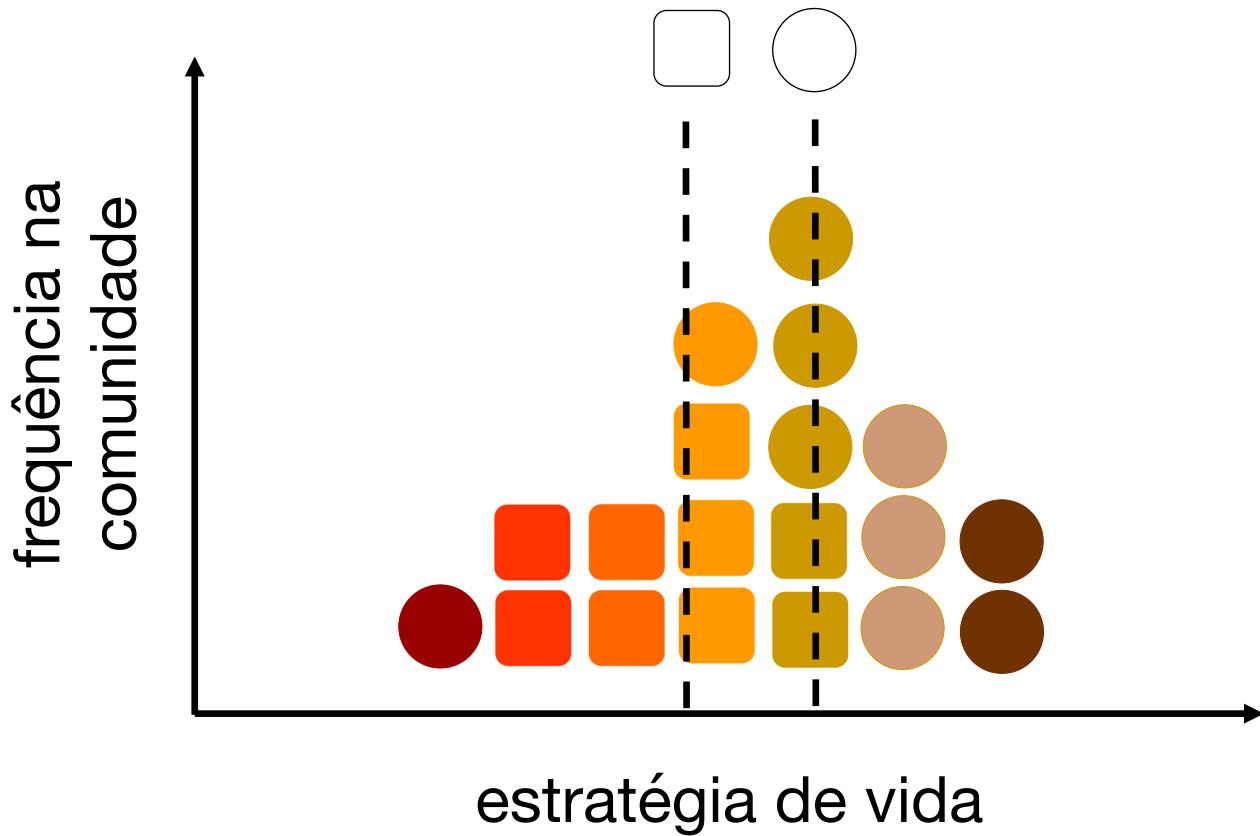
**diversidade de estratégias**

estratégia média

# variáveis de interesse



# variáveis de interesse



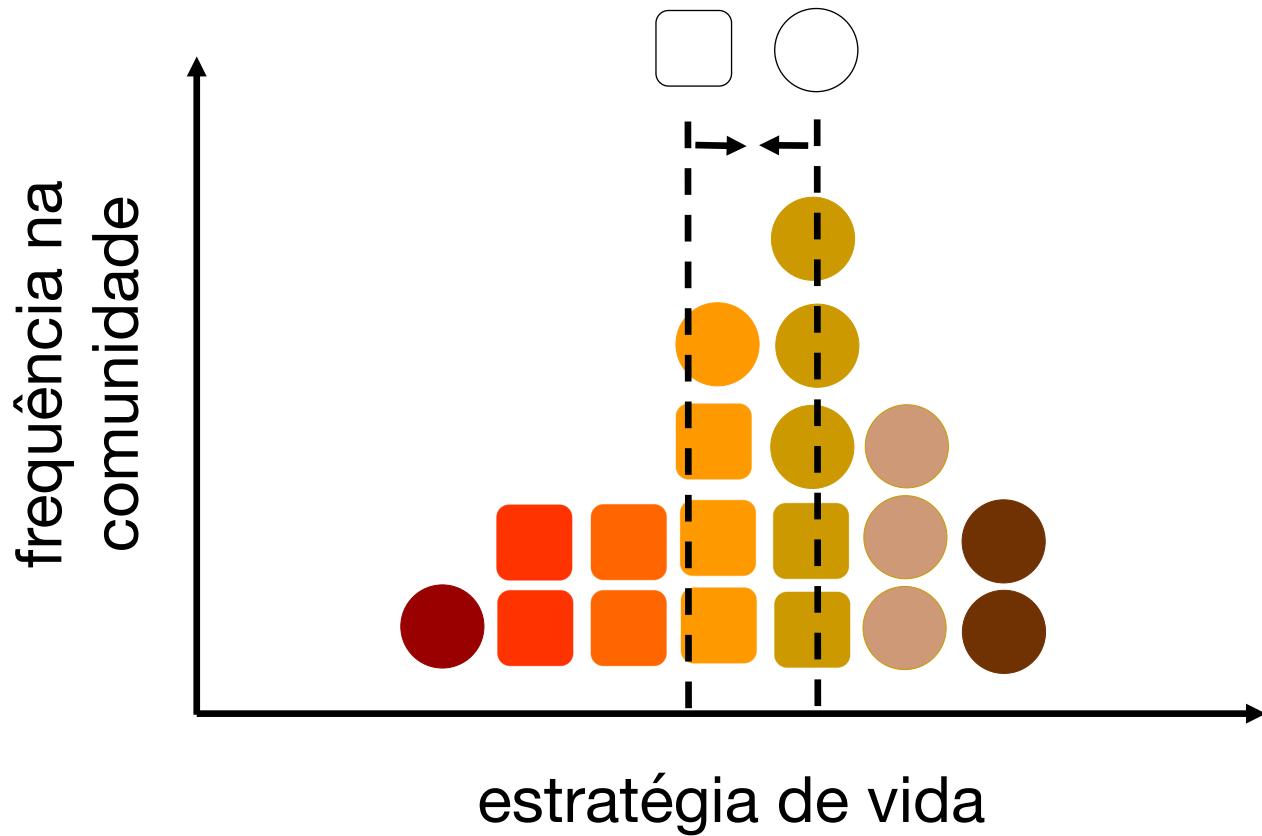
média da  
estratégia

variância total  
da estratégia

**estratégia  
média**

**diversidade  
de estratégias**

# variáveis de interesse



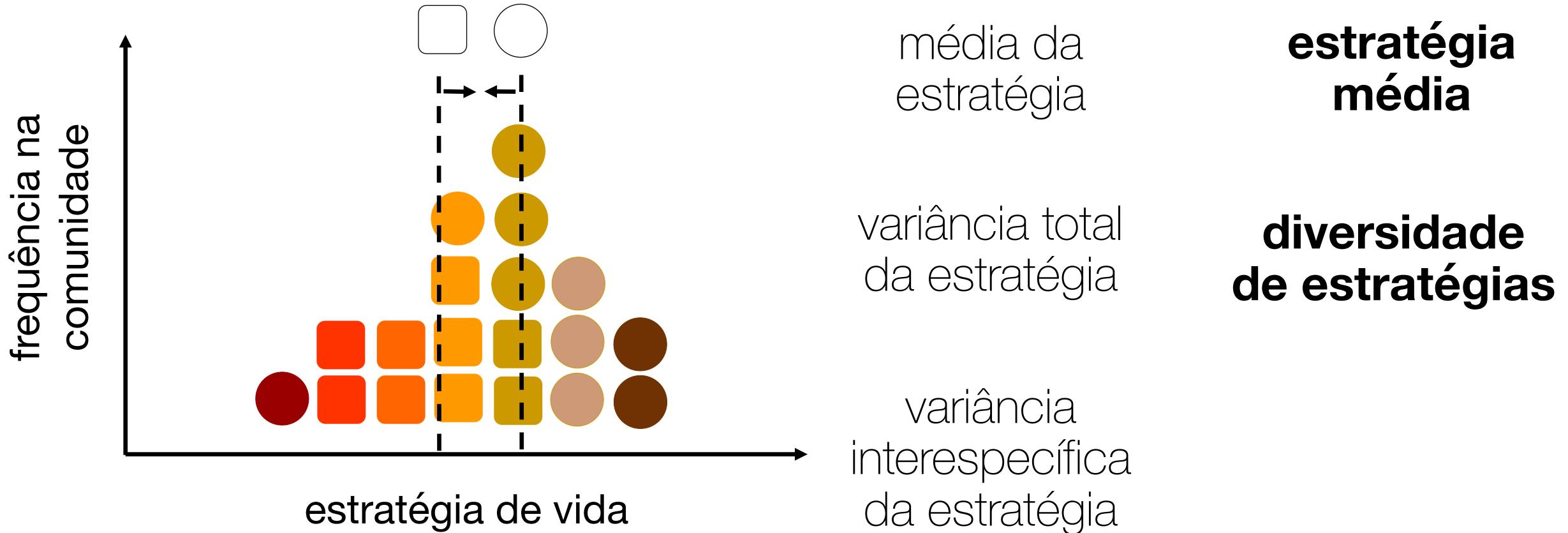
média da  
estratégia

variância total  
da estratégia

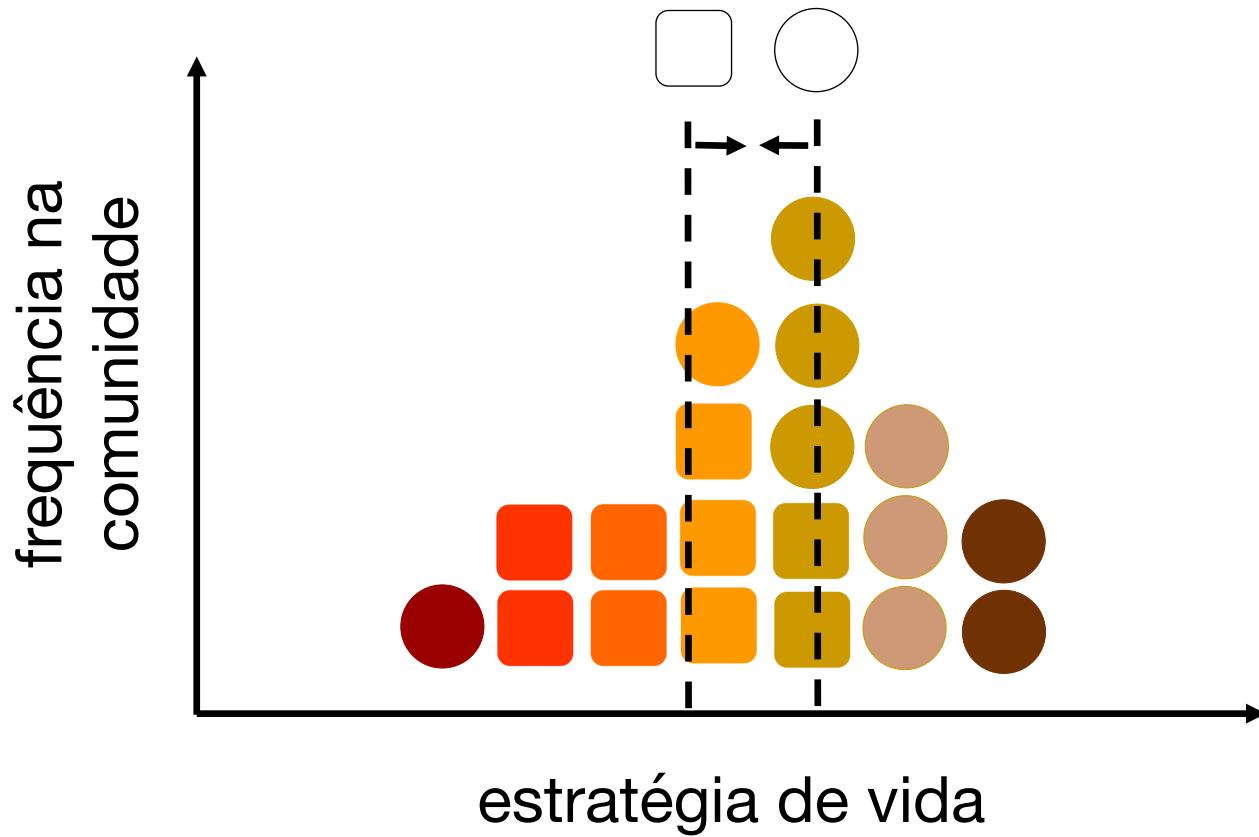
**estratégia  
média**

**diversidade  
de estratégias**

# variáveis de interesse



# variáveis de interesse



média da  
estratégia

variância total  
da estratégia

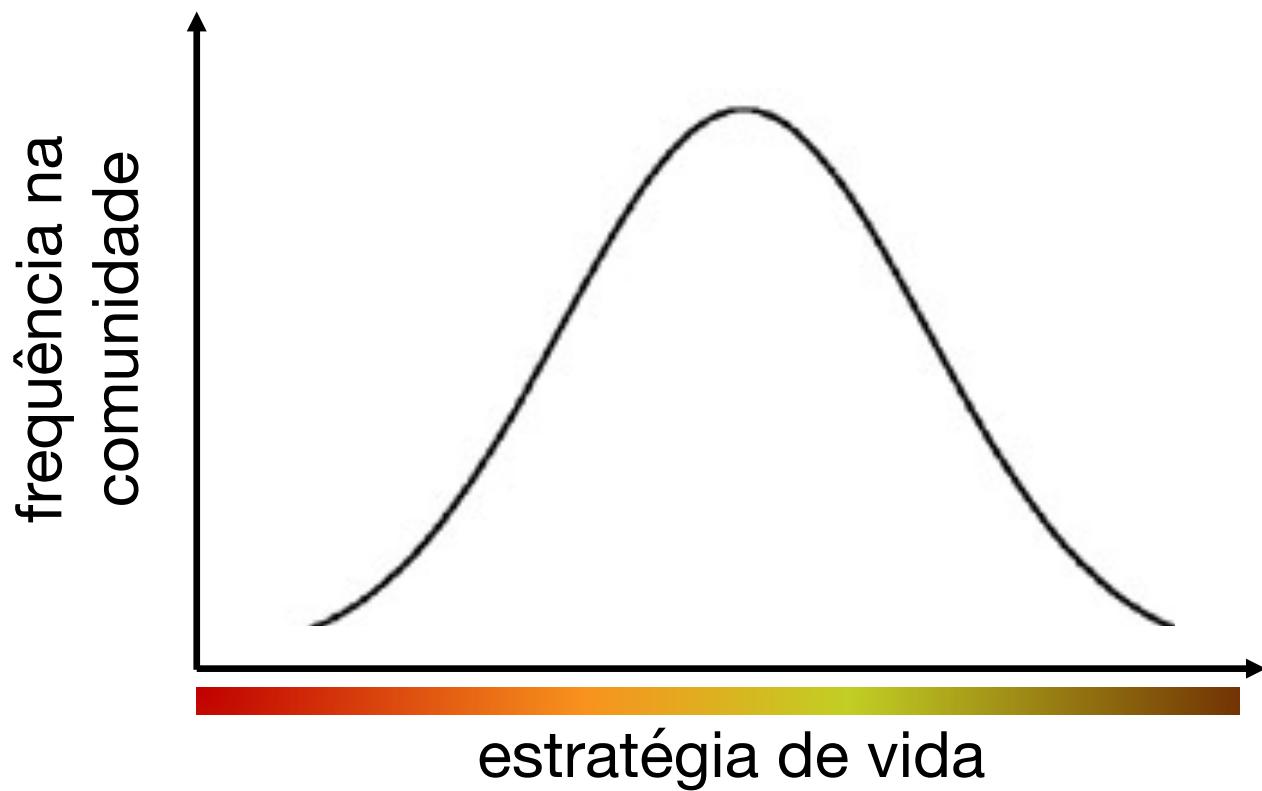
variância  
interespecífica  
da estratégia

**estratégia  
média**

**diversidade  
de estratégias**

**heterogeneidade  
interespecífica  
de estratégias**

# variáveis de interesse



média da estratégia

variância total da estratégia

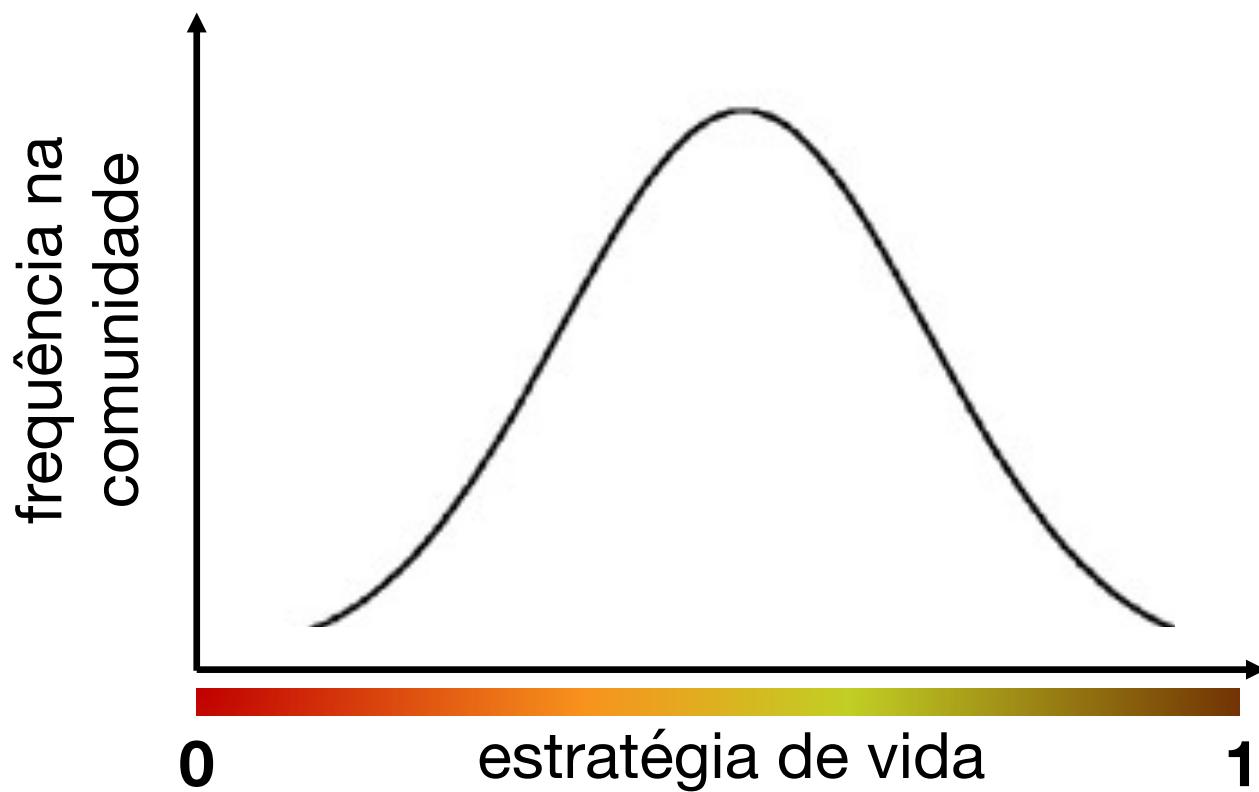
variância interespecífica da estratégia

**estratégia média**

**diversidade de estratégias**

**heterogeneidade interespecífica de estratégias**

# variáveis de interesse



média da estratégia

variância total da estratégia

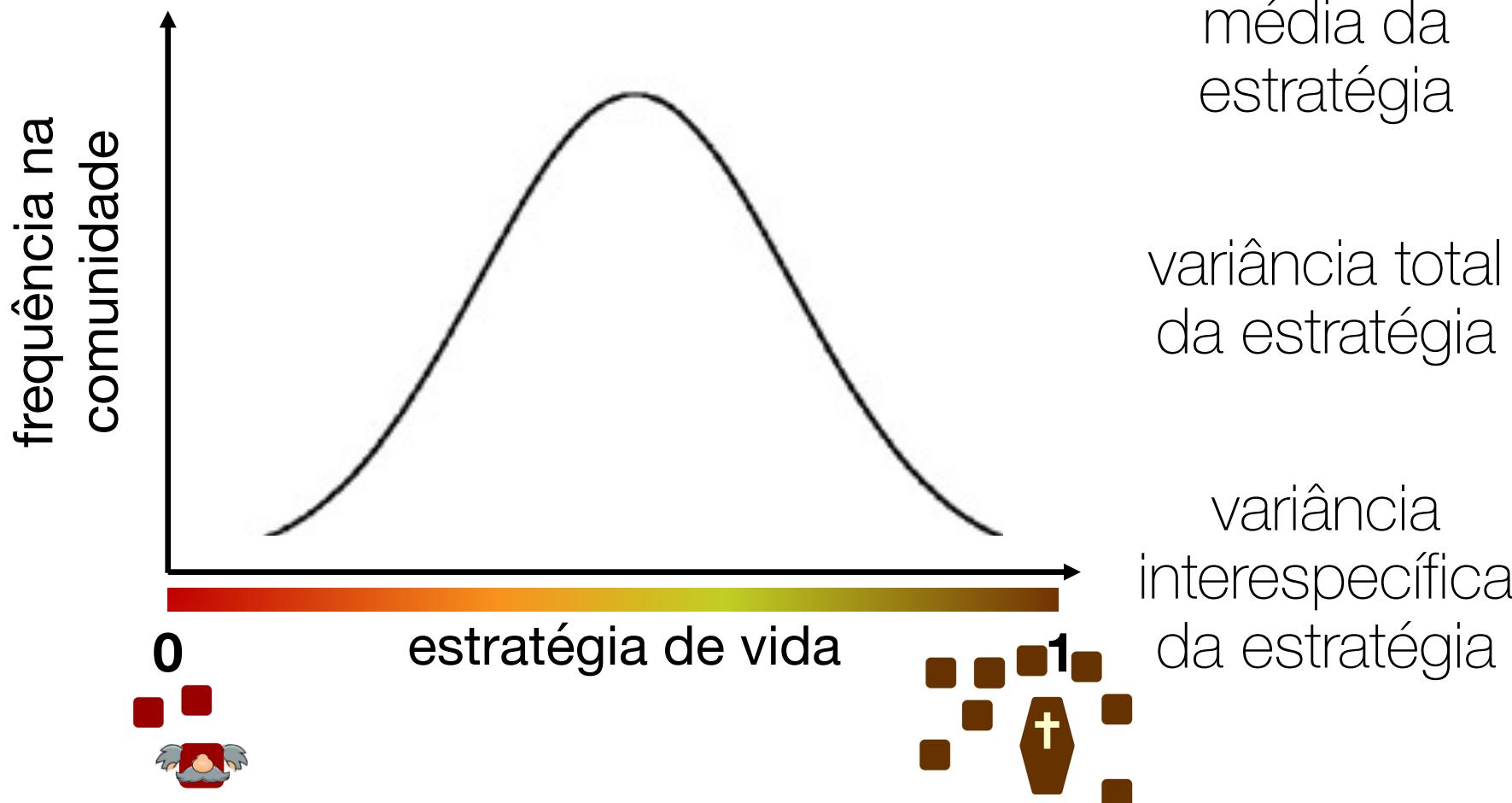
variância interespecífica da estratégia

**estratégia média**

**diversidade de estratégias**

**heterogeneidade interespecífica de estratégias**

# variáveis de interesse



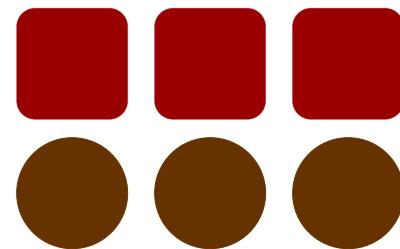
**estratégia média**

**diversidade de estratégias**

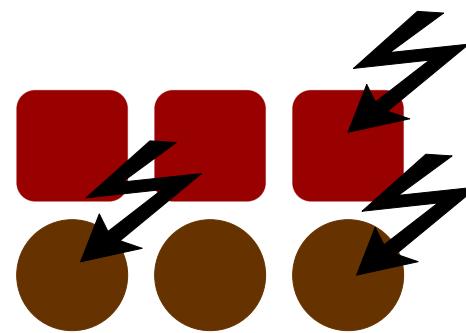
**heterogeneidade interespecífica de estratégias**

# variável preditora

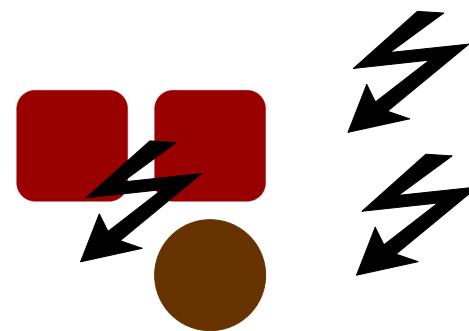
# variável preditora



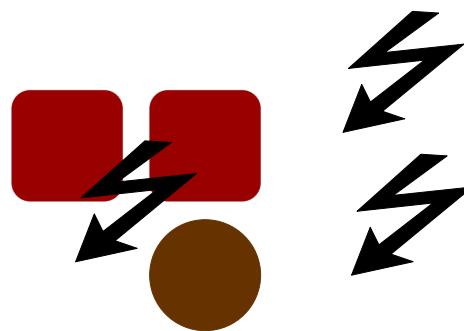
# variável preditora



# variável preditora

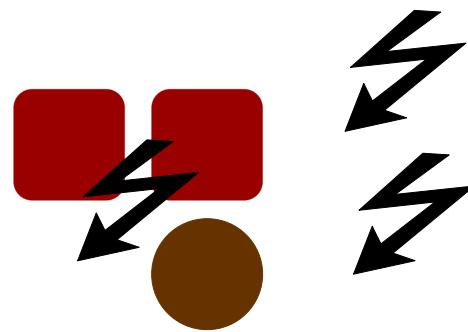


# variável preditora



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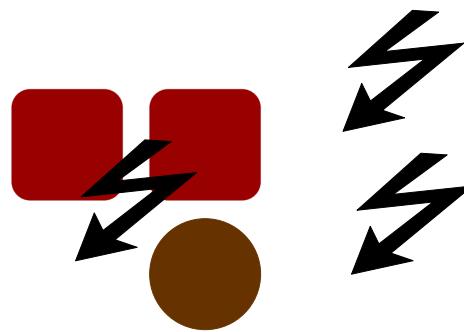
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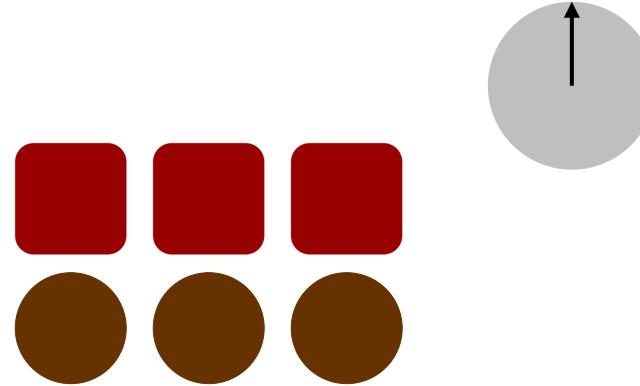
50%

**intensidade  
do distúrbio**

# variável preditora

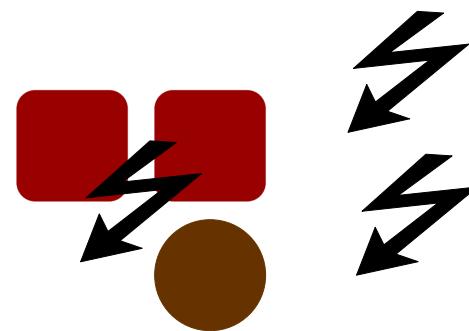


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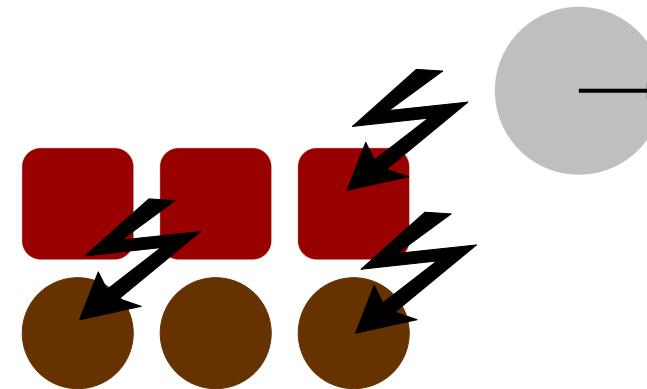


**intensidade  
do distúrbio**

# variável preditora

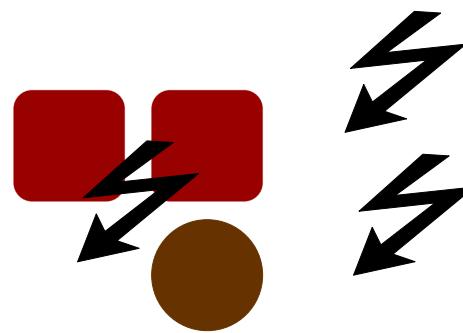


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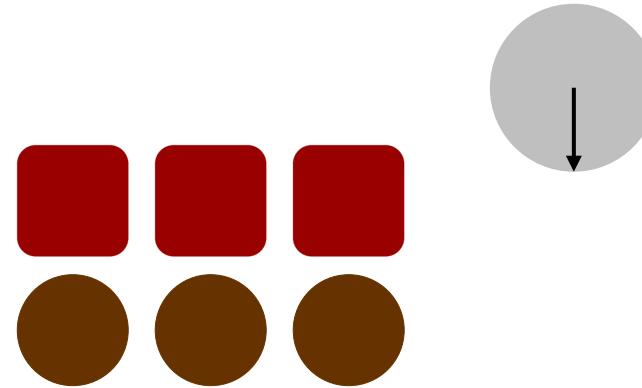


**intensidade  
do distúrbio**

# variável preditora

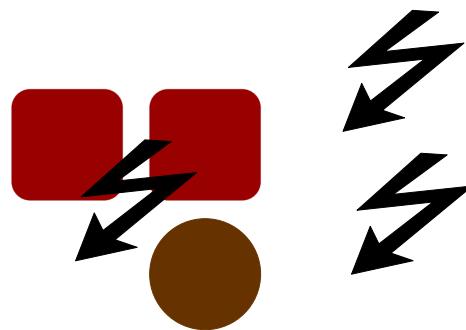


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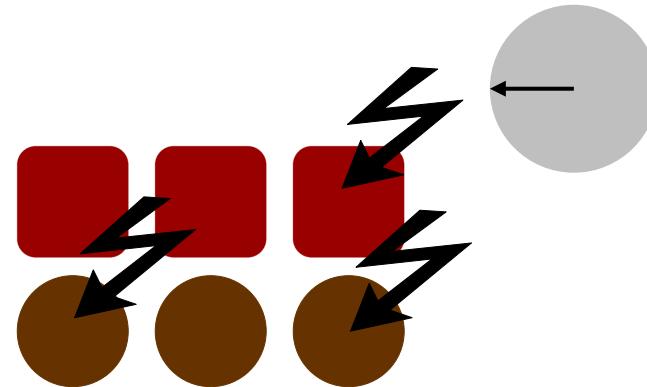


**intensidade  
do distúrbio**

# variável preditora

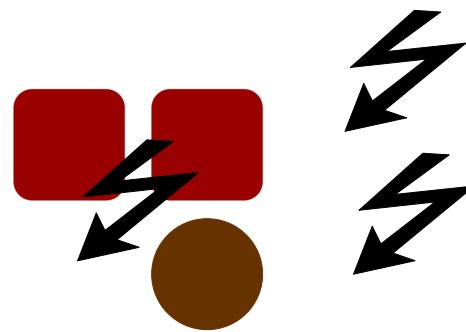


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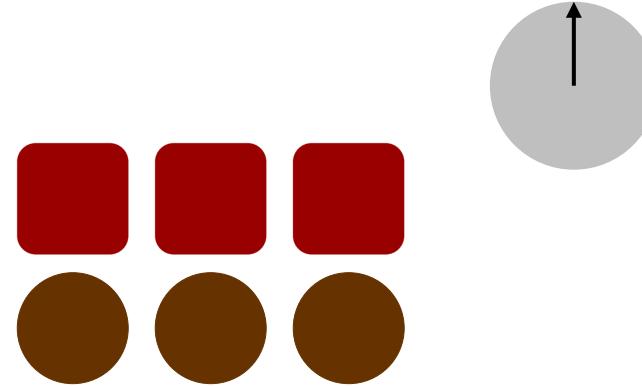


**intensidade  
do distúrbio**

# variável preditora

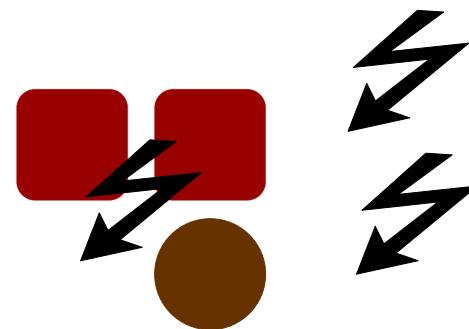


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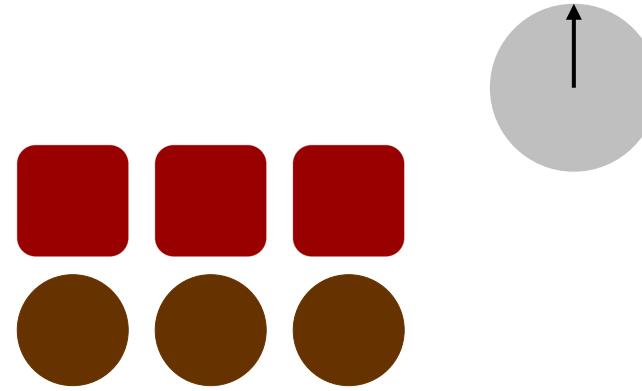
**intensidade  
do distúrbio**

# variável preditora



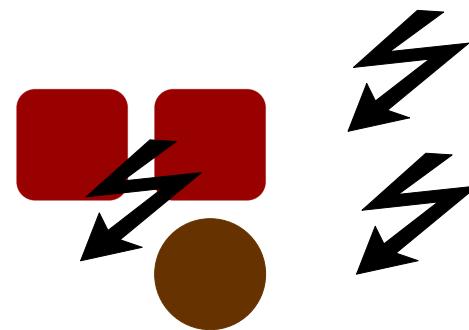
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**intensidade  
do distúrbio**



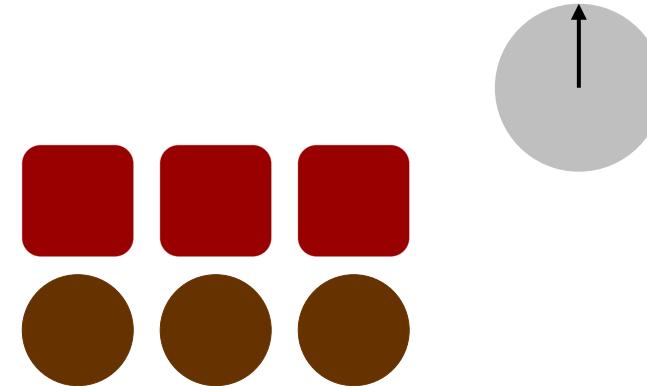
2 eventos

# variável preditora



50%

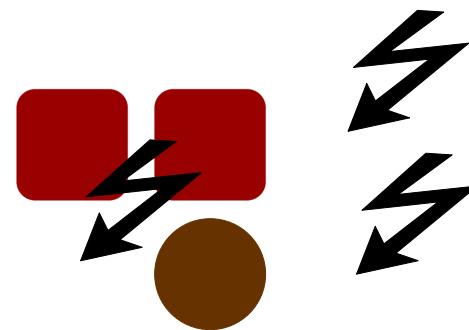
**intensidade  
do distúrbio**



2 eventos

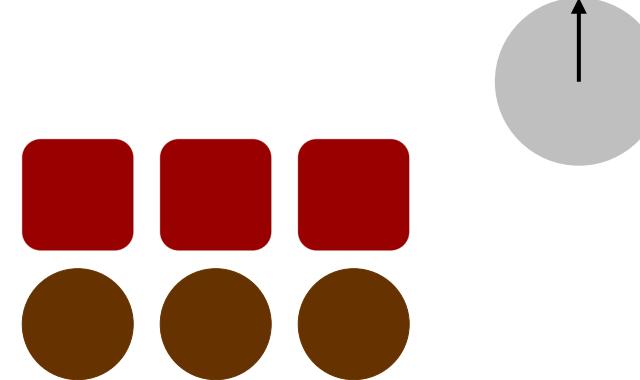
**número de  
eventos de  
distúrbio**

# variável preditora



50%

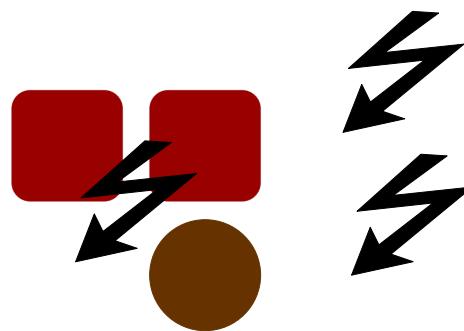
**intensidade  
do distúrbio**



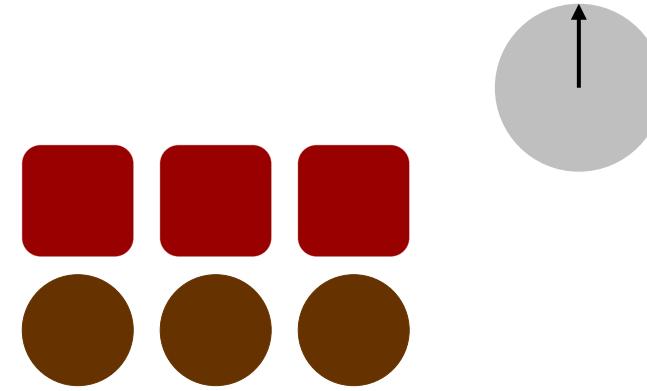
2 eventos

**número de  
eventos de  
distúrbio**

# variável preditora



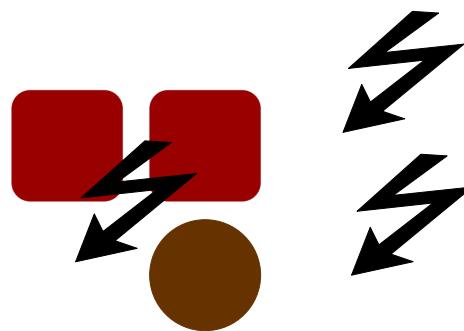
50%



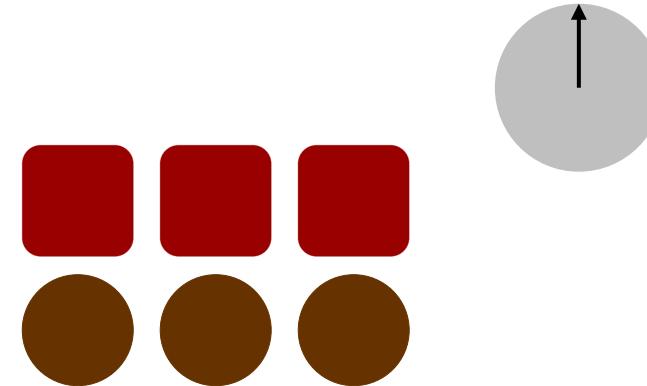
2 eventos

=

# variável preditora



50%



2 eventos

**índice de  
distúrbio**



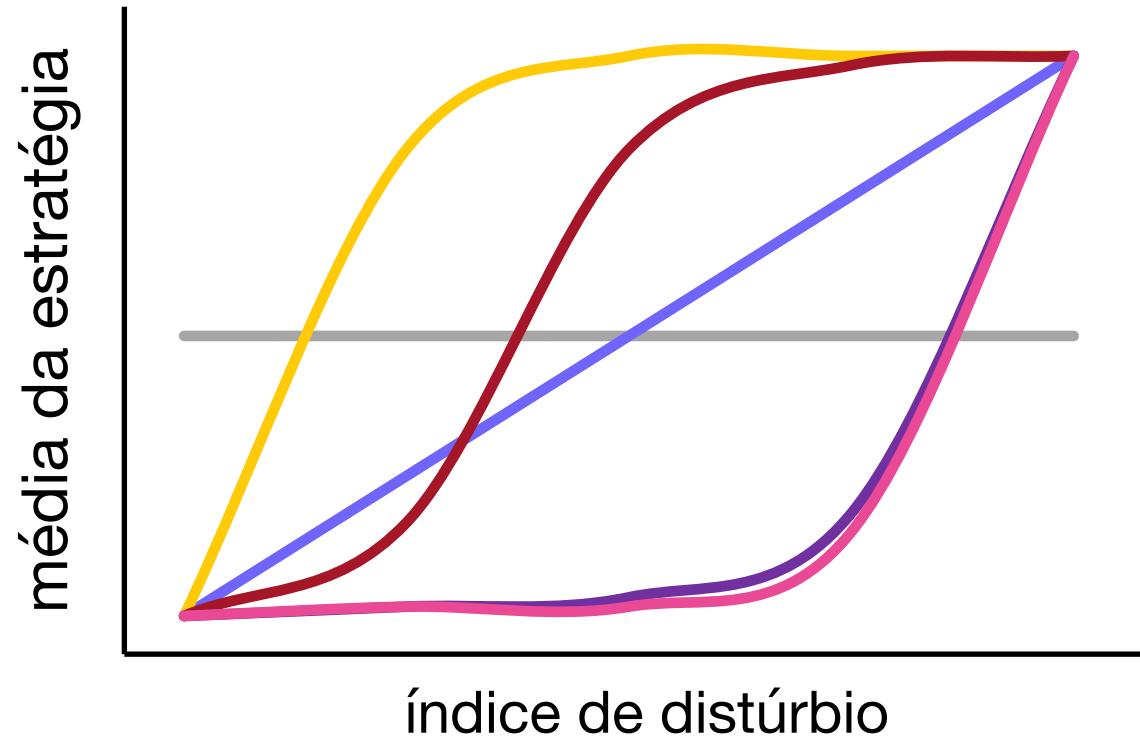
# análise dos dados



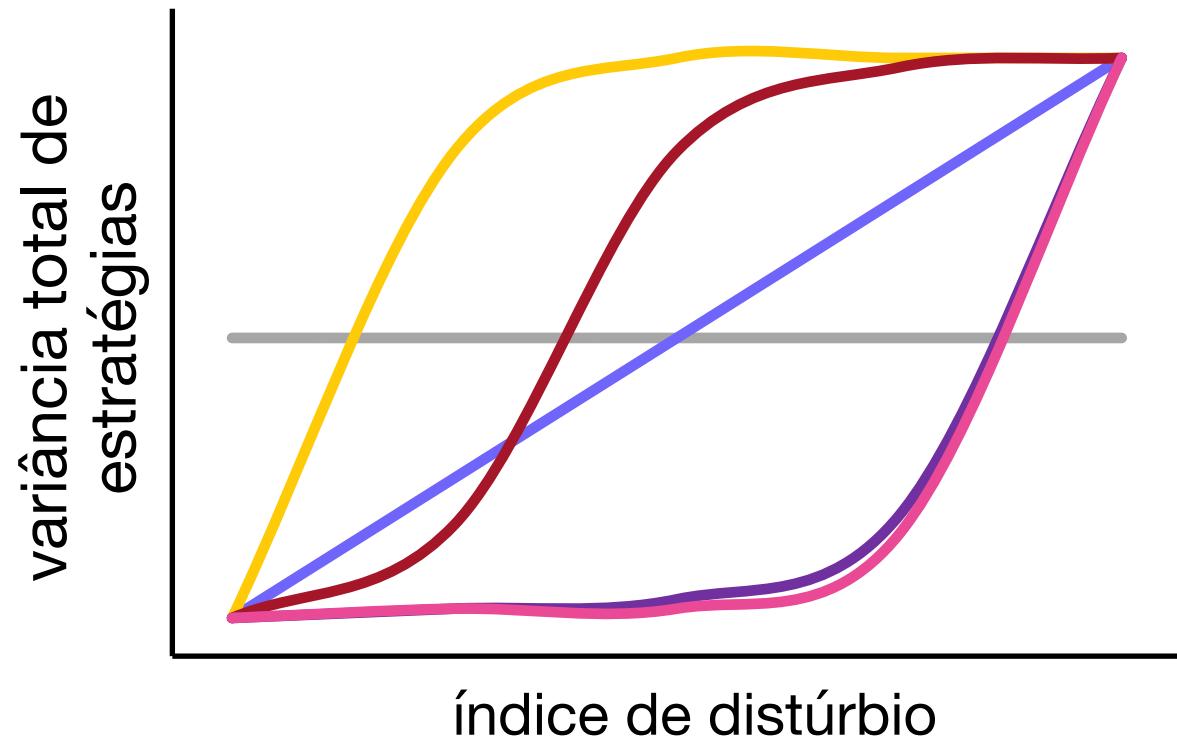
# modelos

estratégia média ~ distúrbio

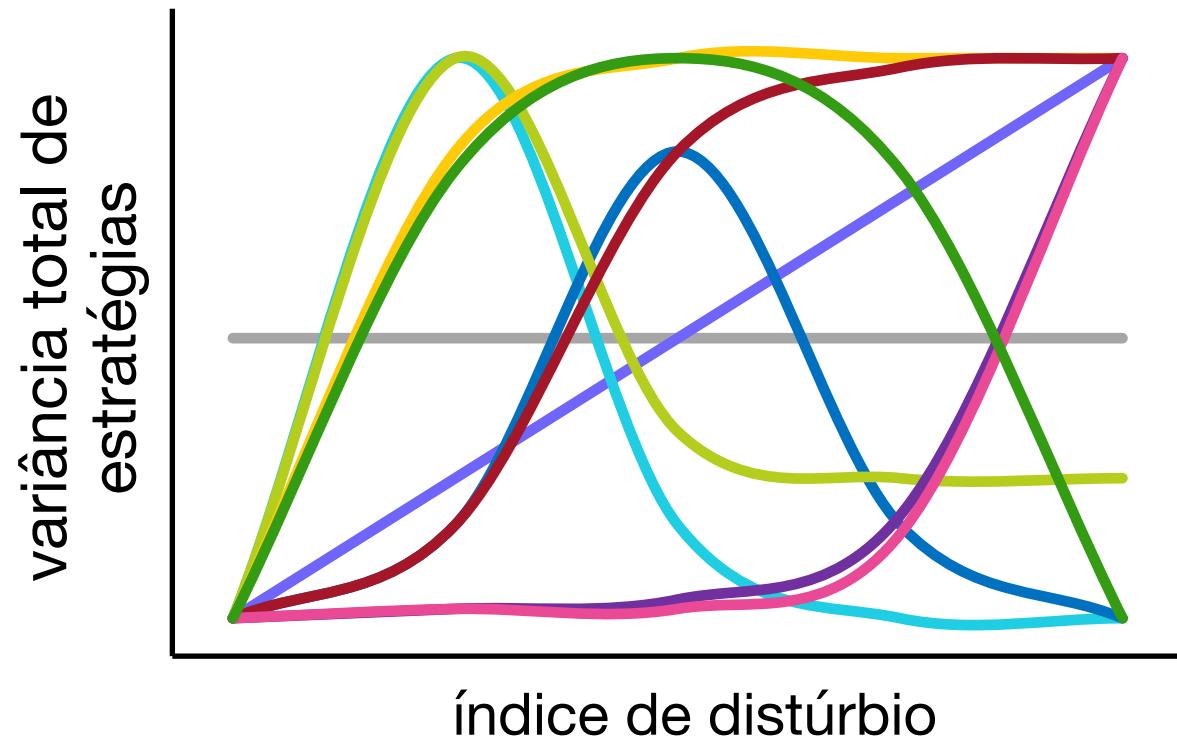
estratégia média ~ distúrbio



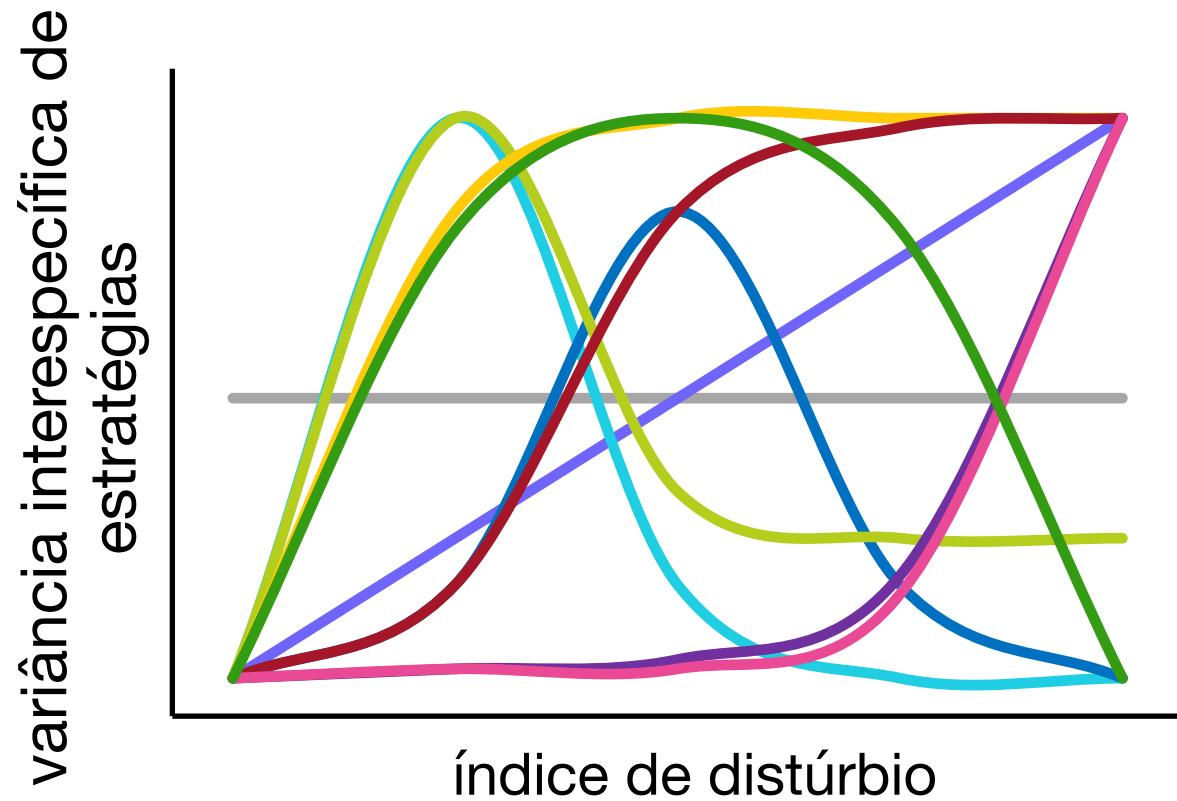
diversidade de estratégias ~ distúrbio



diversidade de estratégias ~ distúrbio



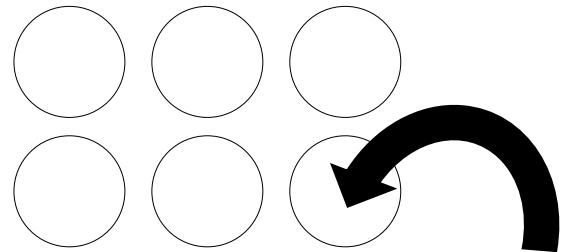
# heterogeneidade interespecífica de ~ estratéгias distúrbio





# seleção de modelos

## evolutivo

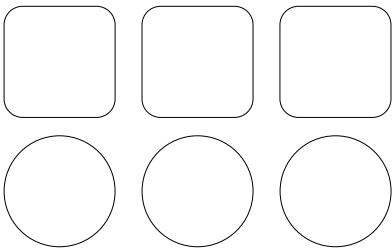


estratégia média

diversidade  
de estratégias

-

## ecológico

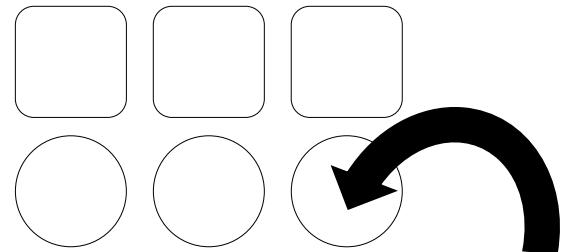


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

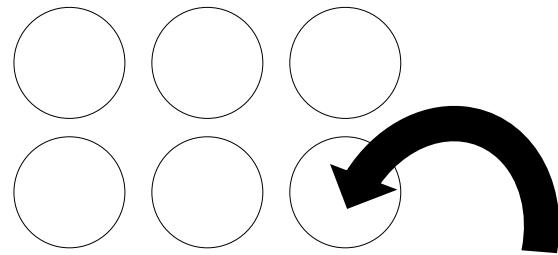


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

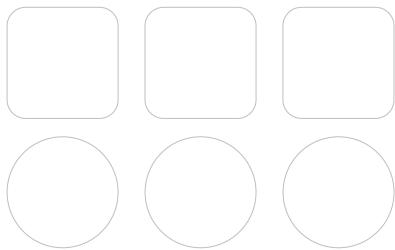


### estratégia média

diversidade  
de estratégias

-

## ecológico

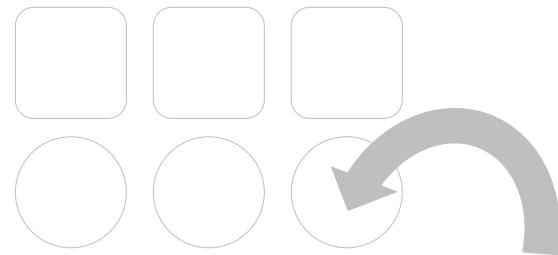


### estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

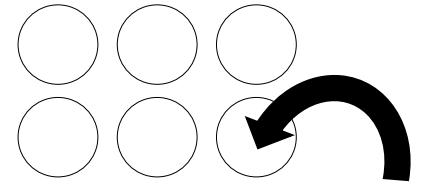
## eco-evolutivo



### estratégia média

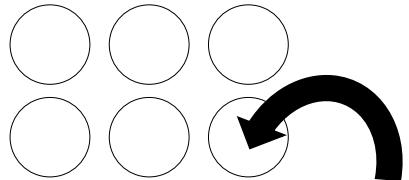
diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias



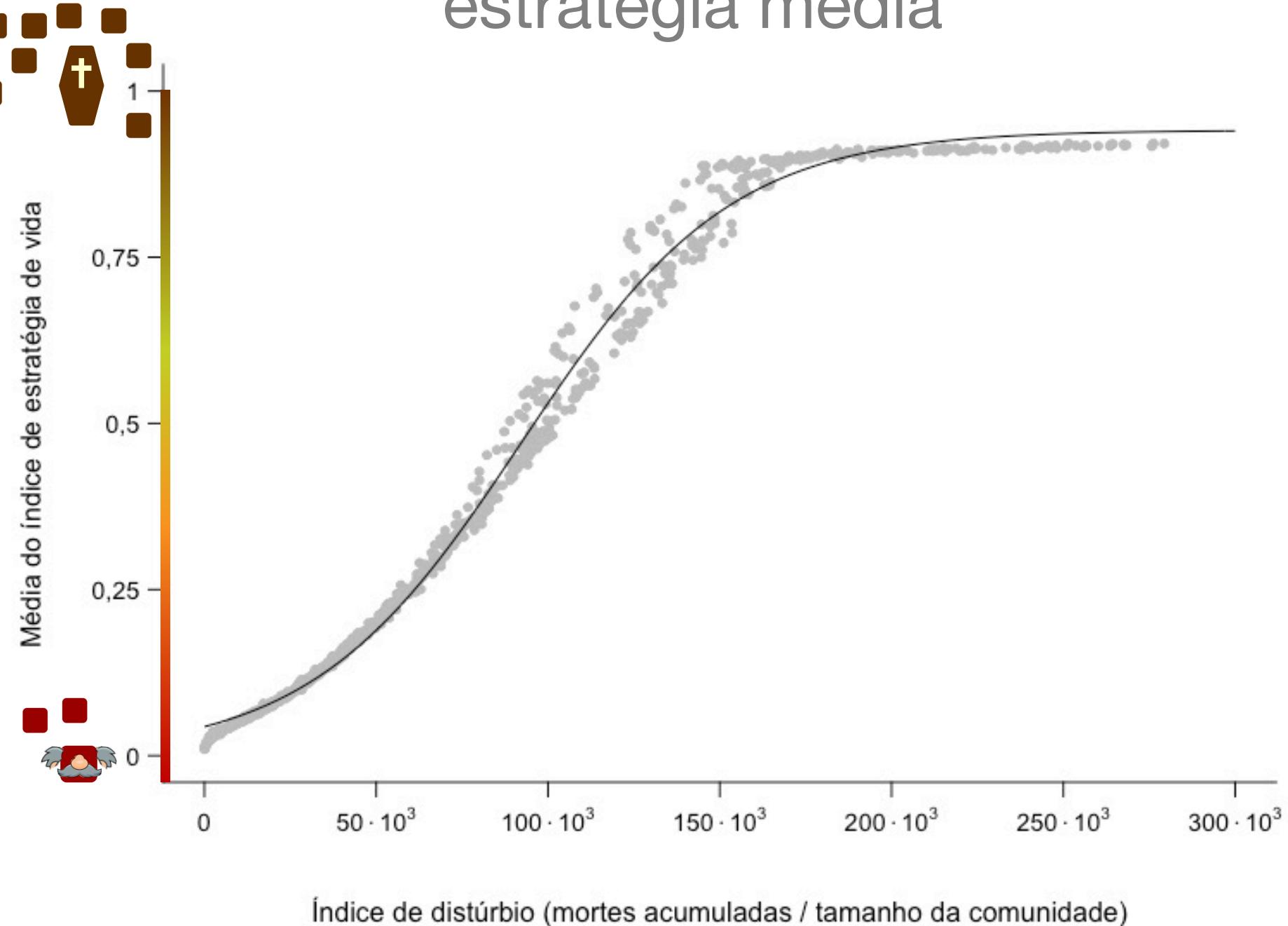
**evolutivo**

# estratégia média



**evolutivo**

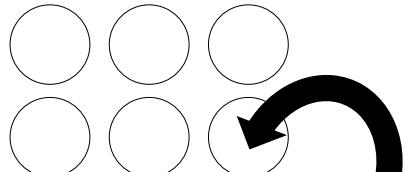
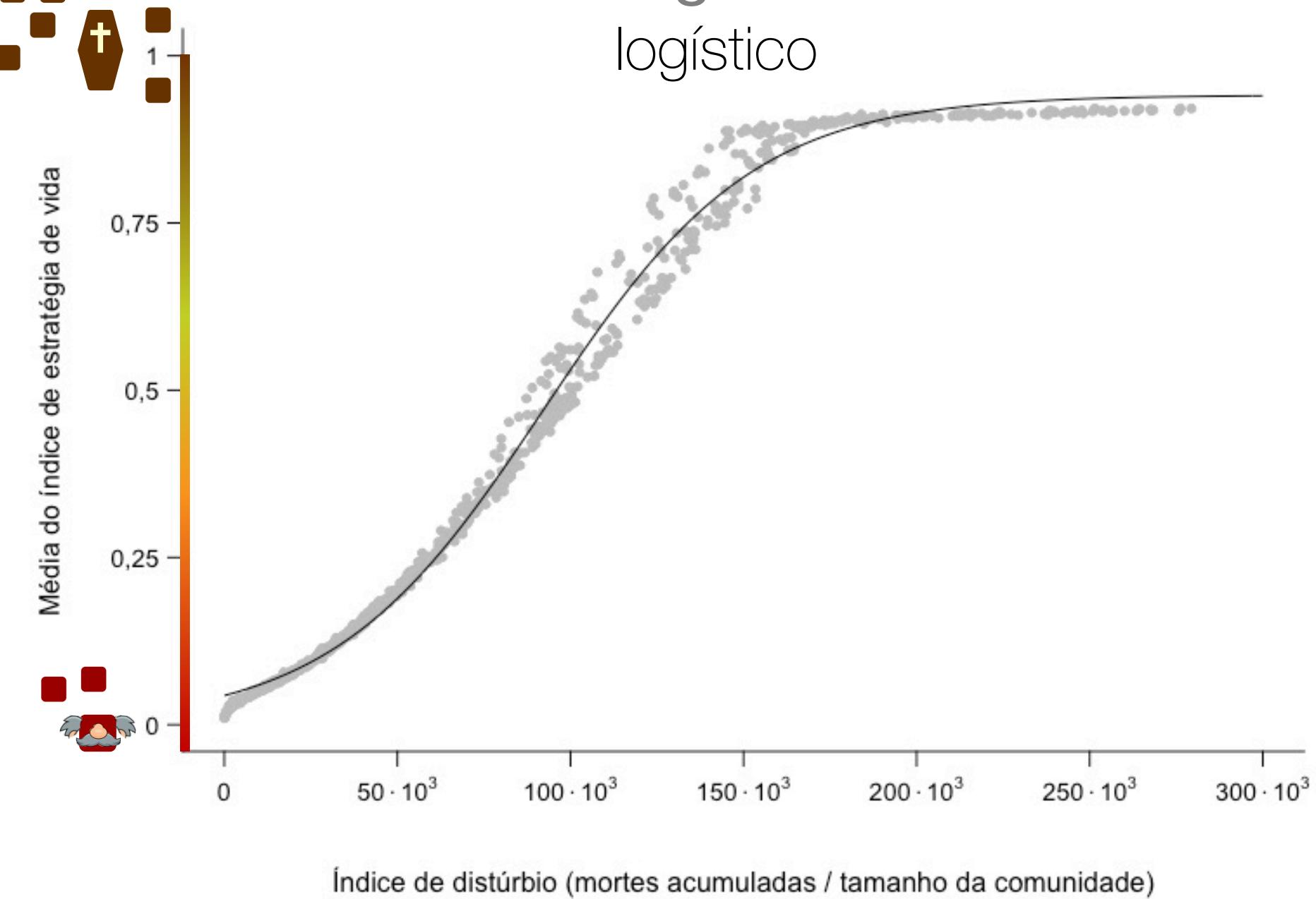
# estratégia média



evolutivo

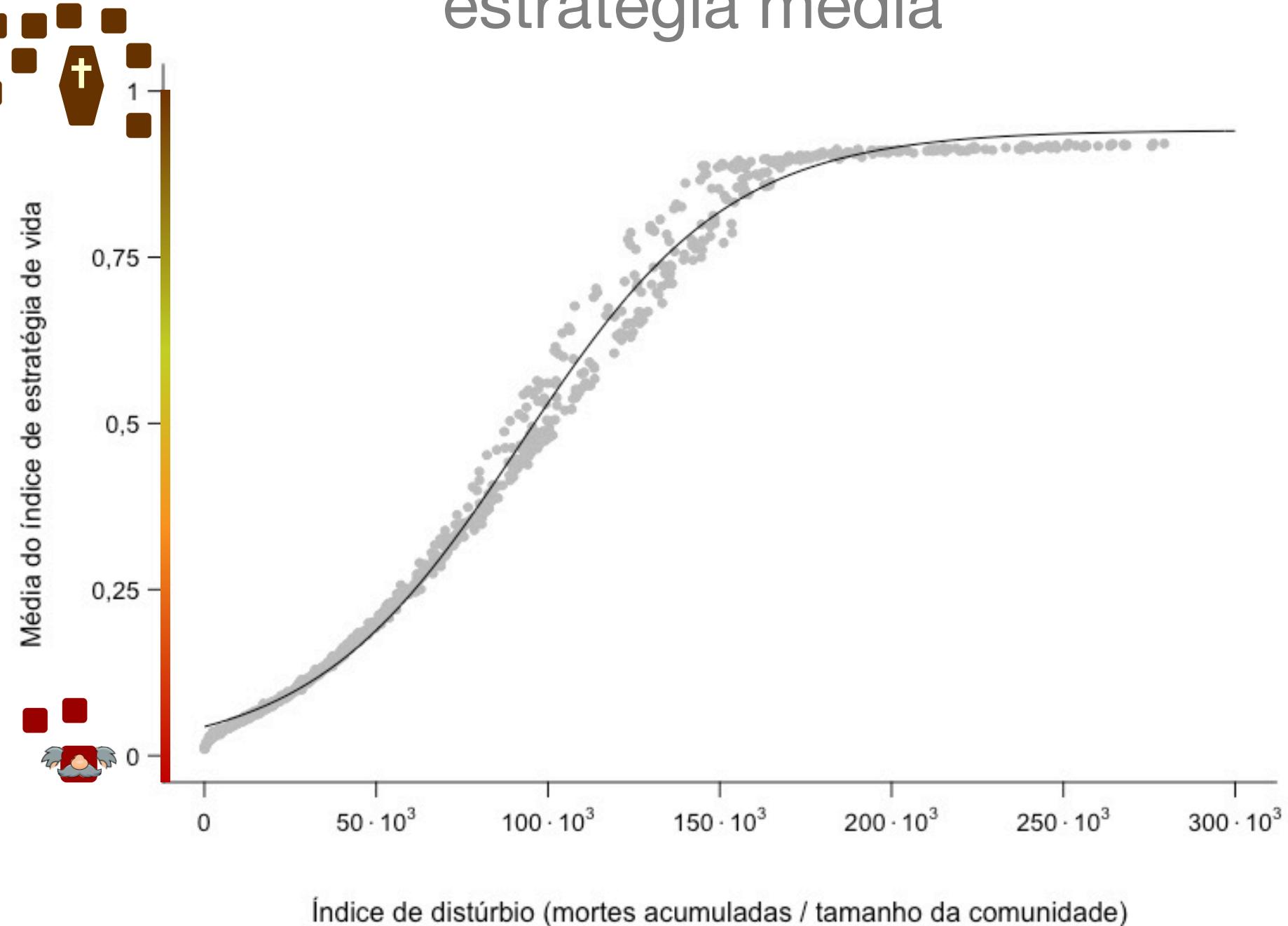
# estratégia média

logístico



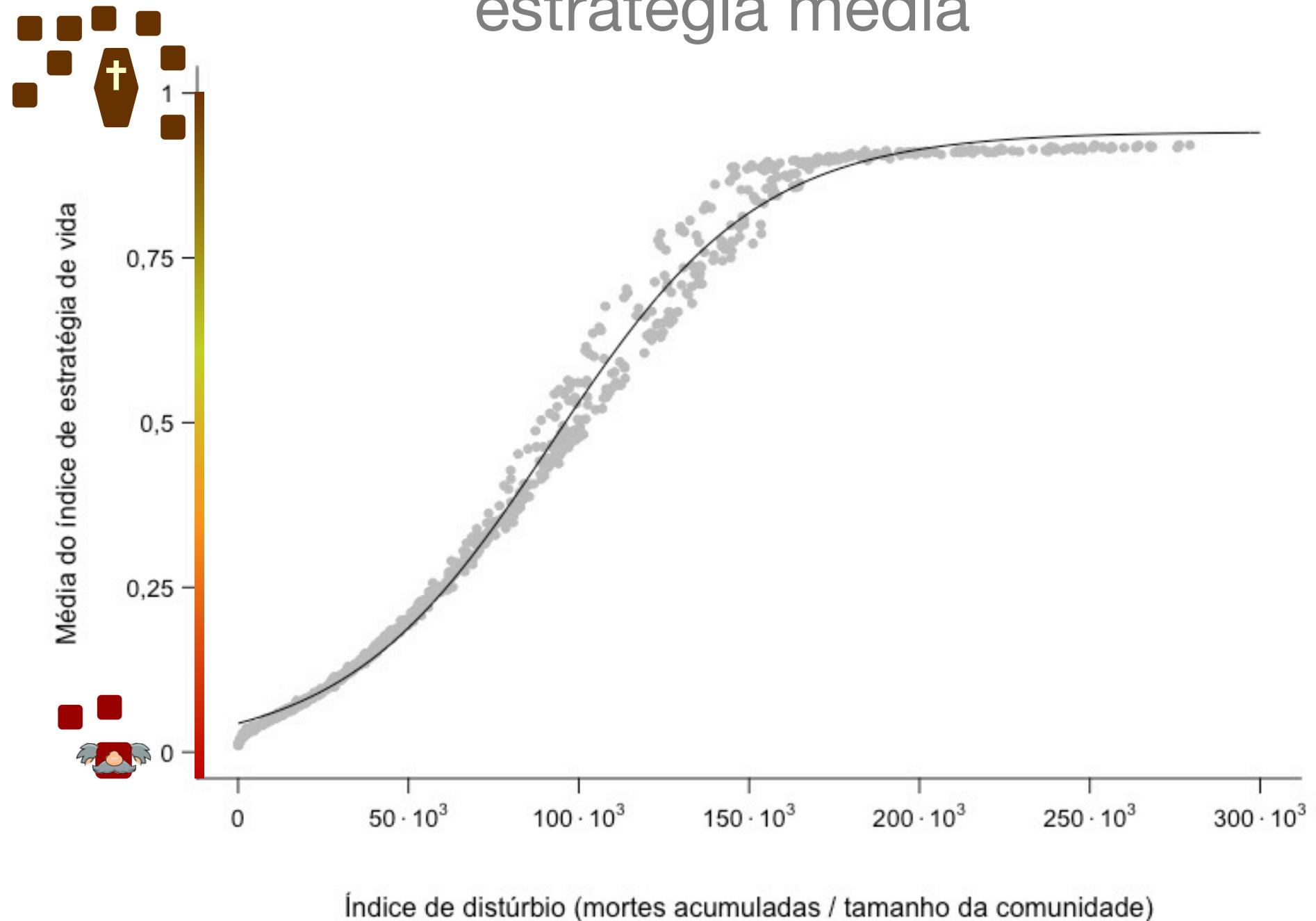
**evolutivo**

# estratégia média

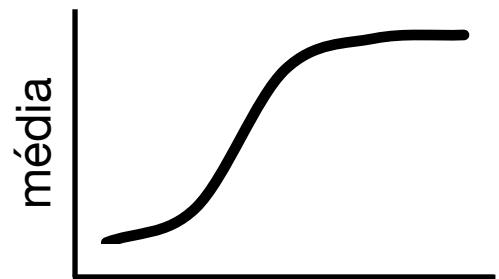
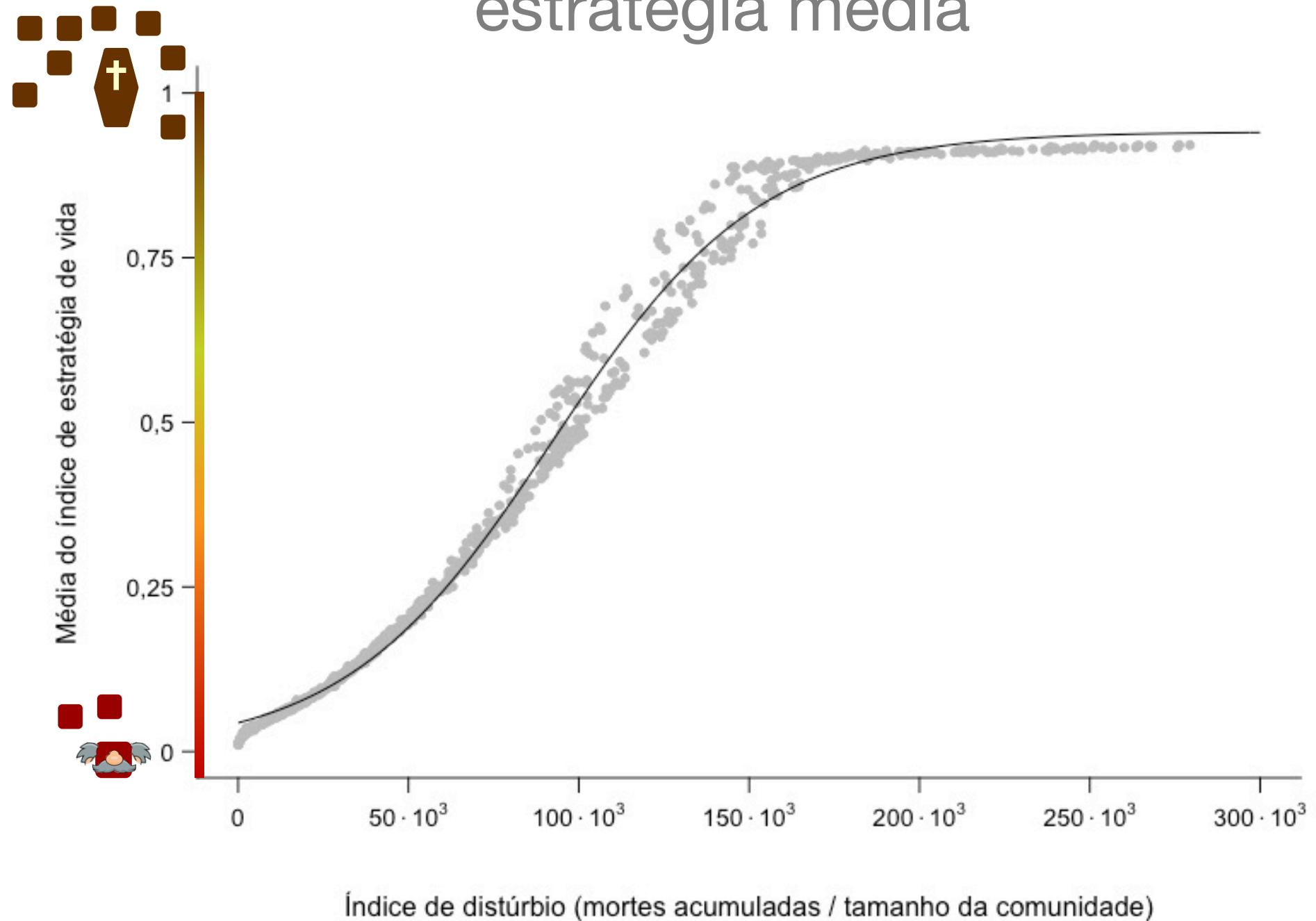


evolutivo

# estratégia média

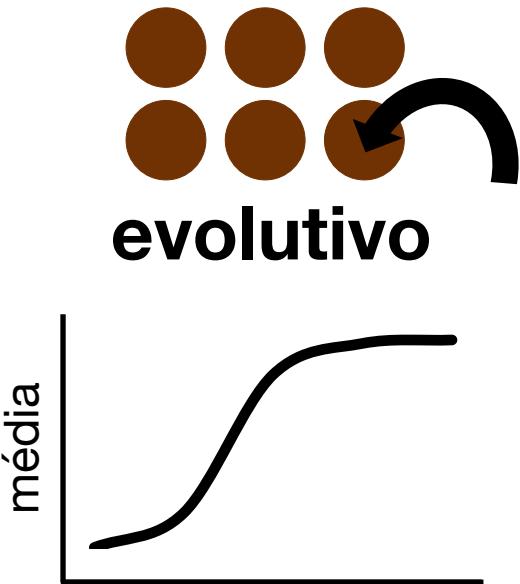


# estratégia média



# seleção natural

- variação herdável
- componente da aptidão



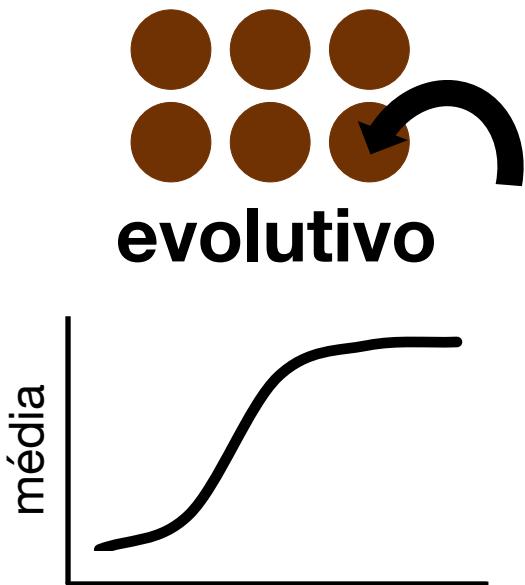
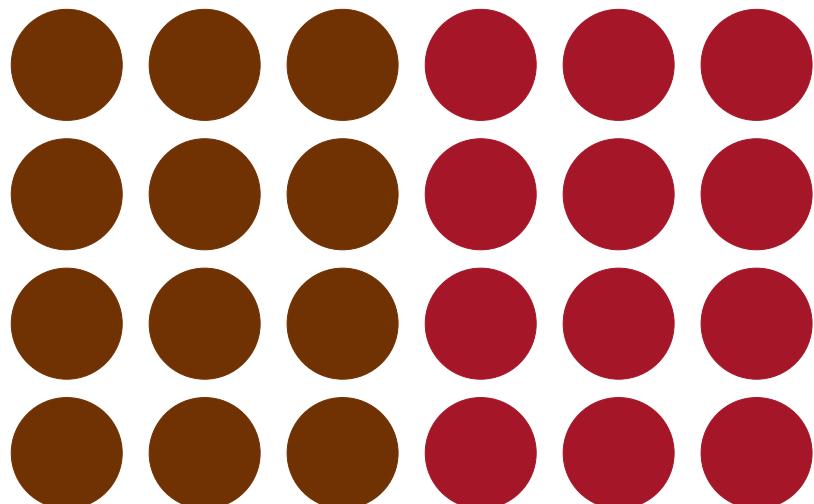
# seleção natural

- variação herdável
- componente da aptidão

banco

x 96

x 24



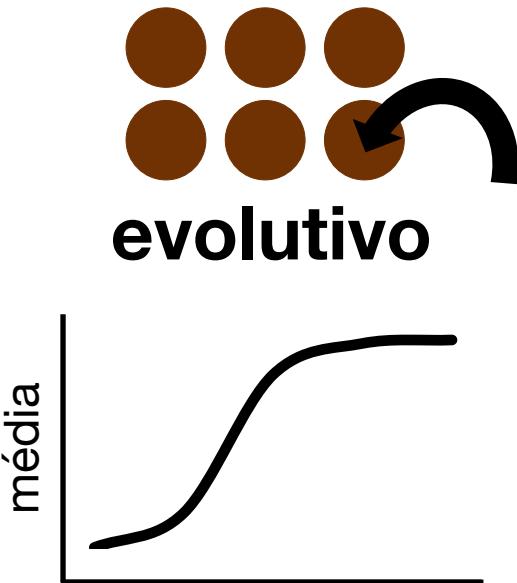
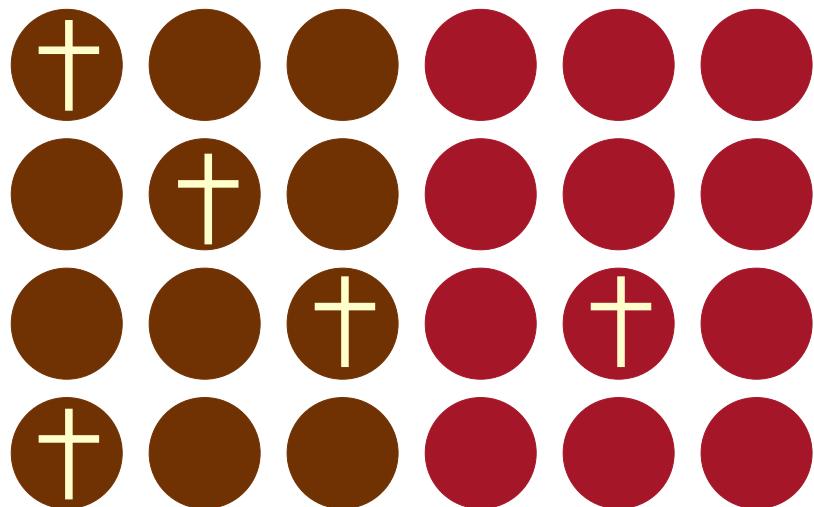
# seleção natural

- variação herdável
- componente da aptidão

banco

x 96

x 24



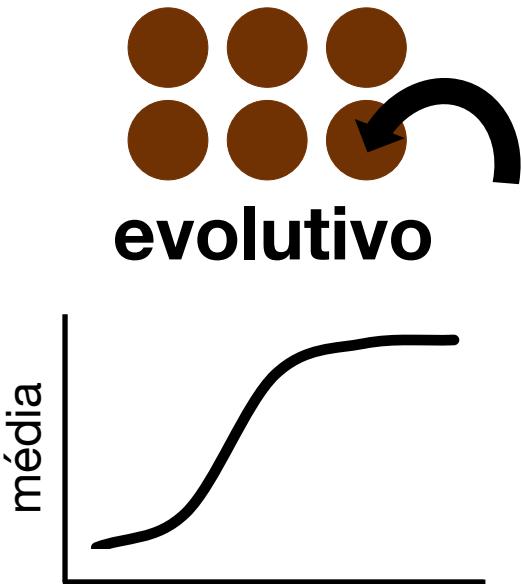
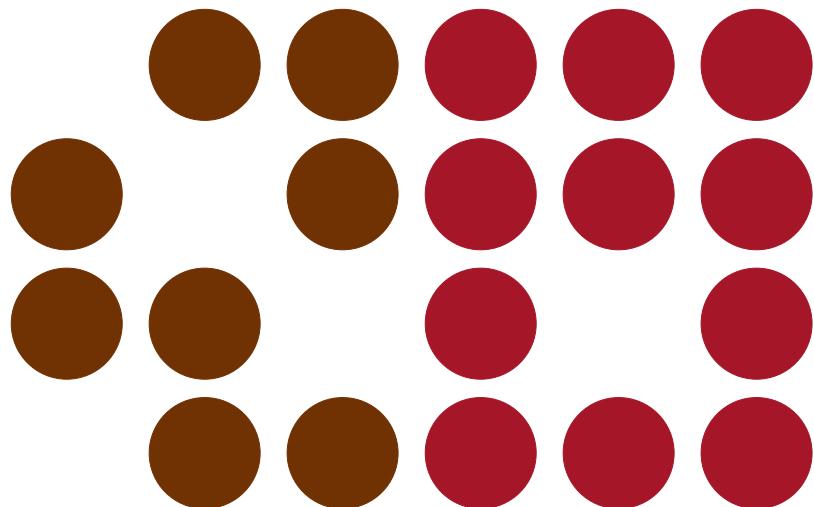
# seleção natural

- variação herdável
- componente da aptidão

banco

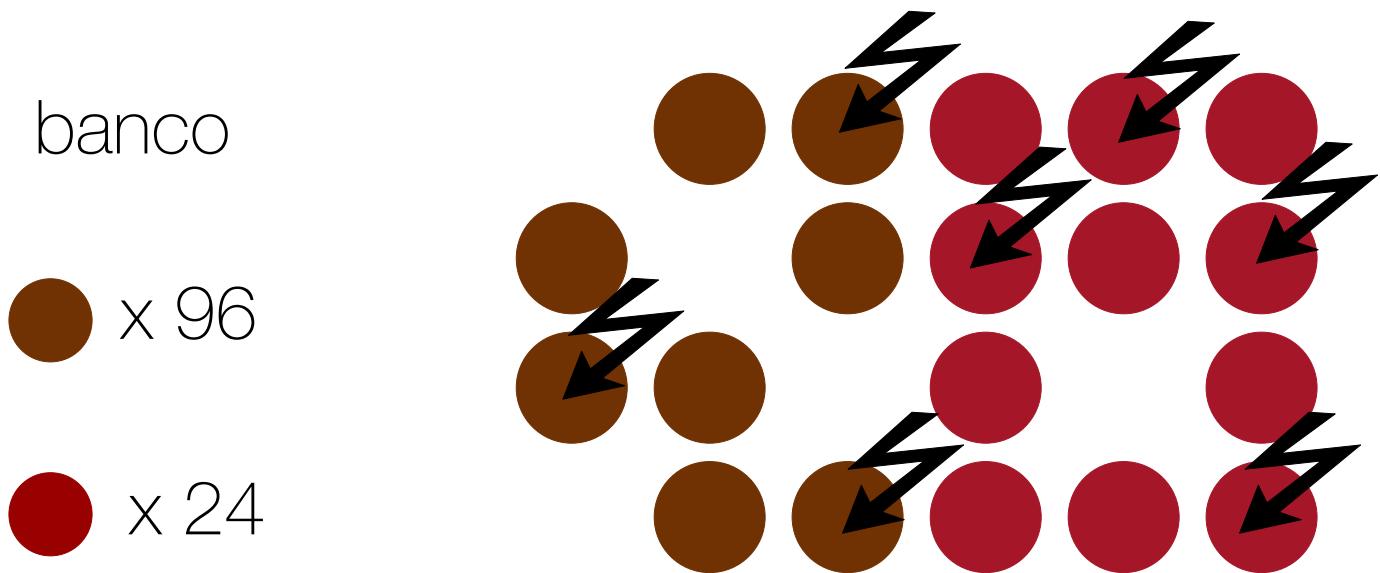
x 96

x 24



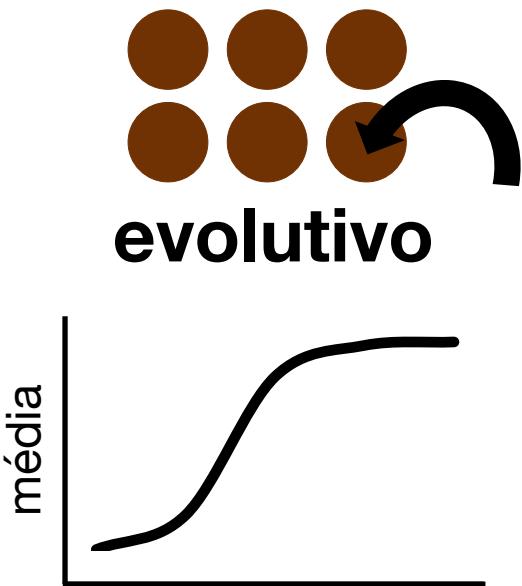
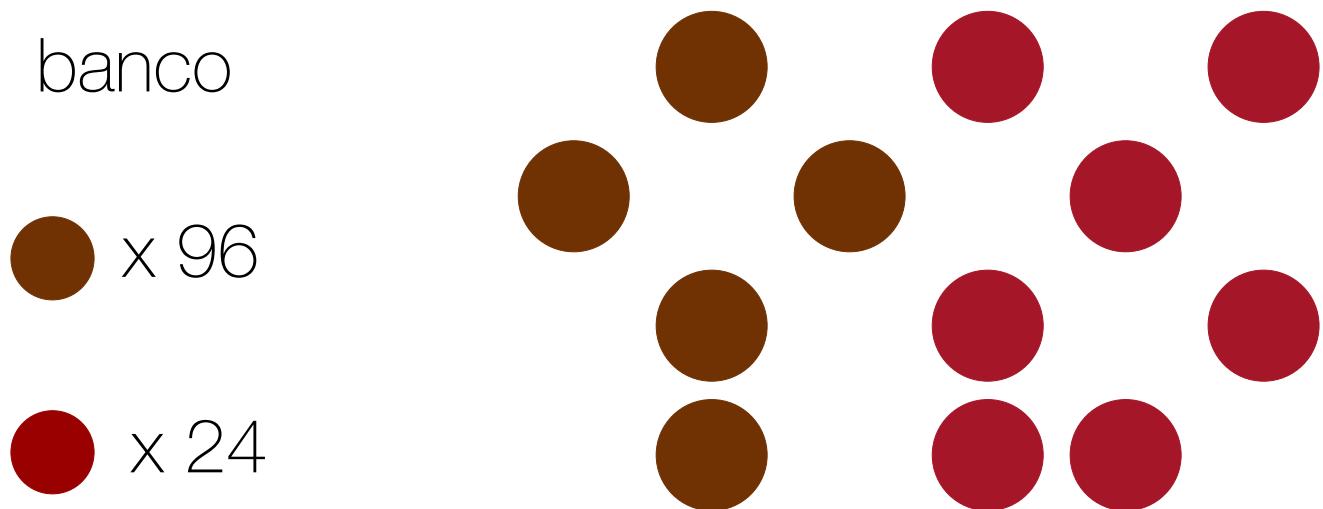
# seleção natural

- variação herdável
- componente da aptidão



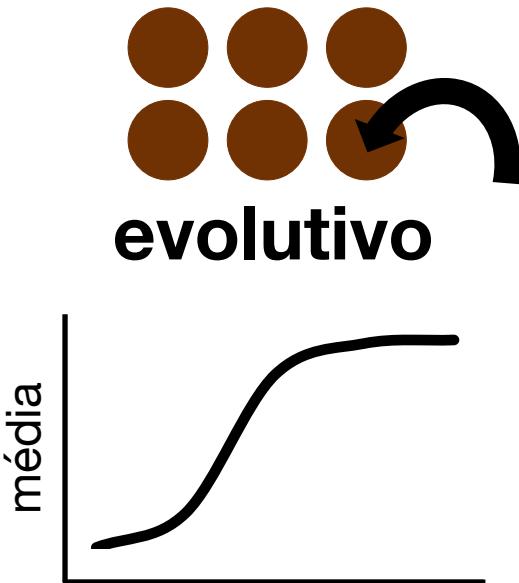
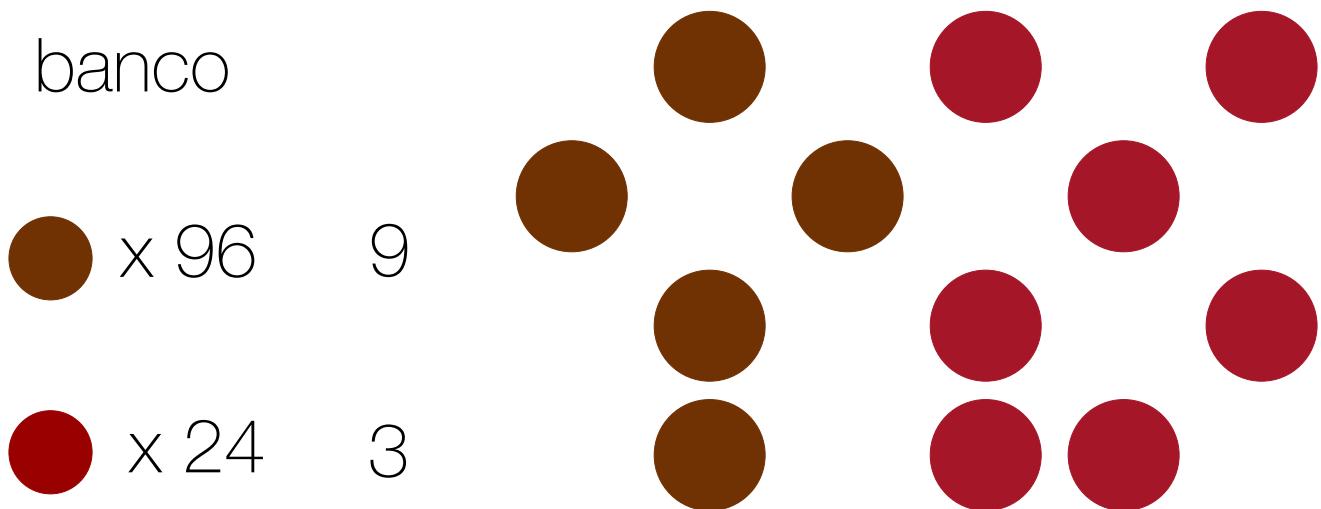
# seleção natural

- variação herdável
- componente da aptidão



# seleção natural

- variação herdável
- componente da aptidão



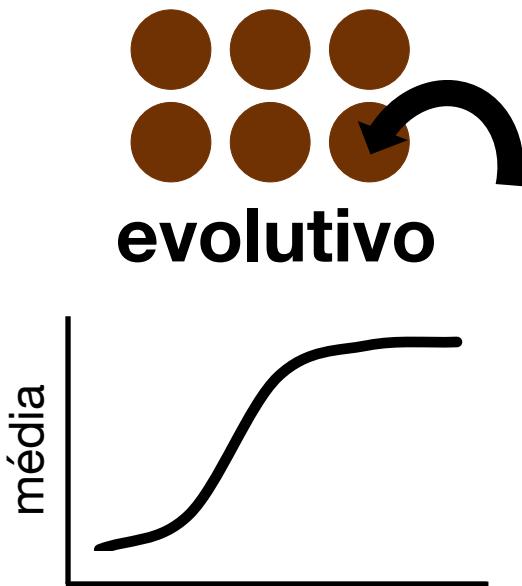
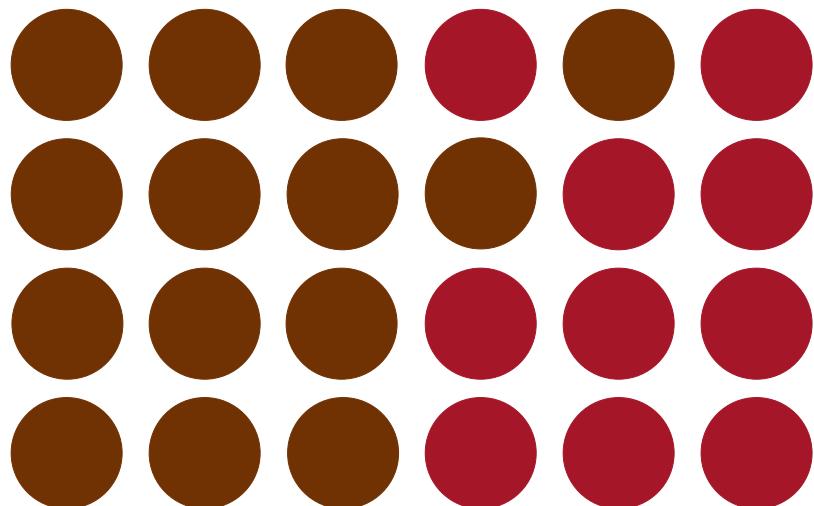
# seleção natural

- variação herdável
- componente da aptidão

banco

x 112

x 20



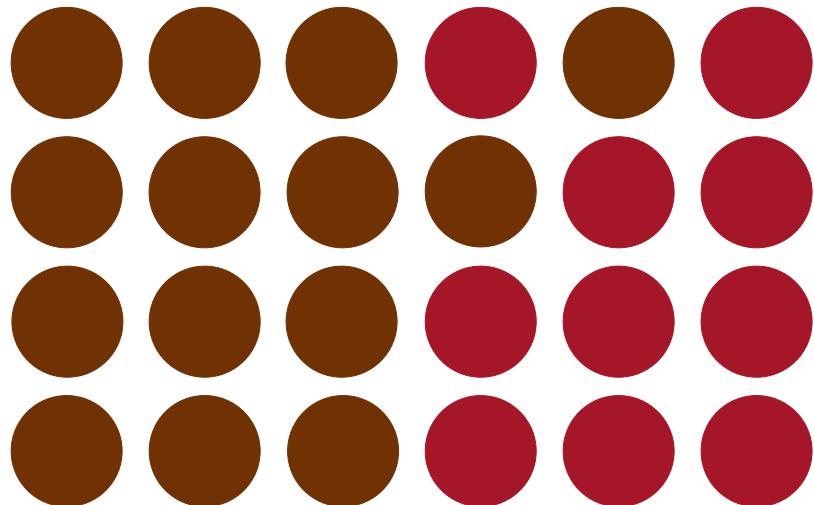
# seleção natural

- variação herdável
- componente da aptidão

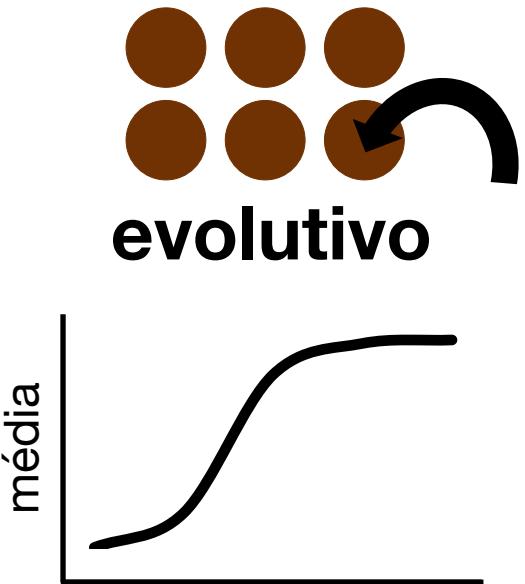
banco

x 112

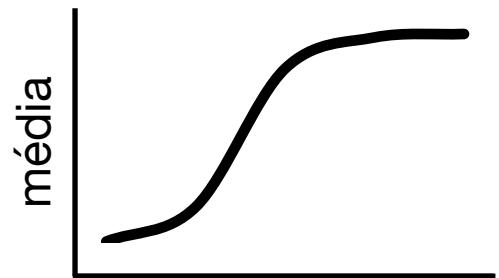
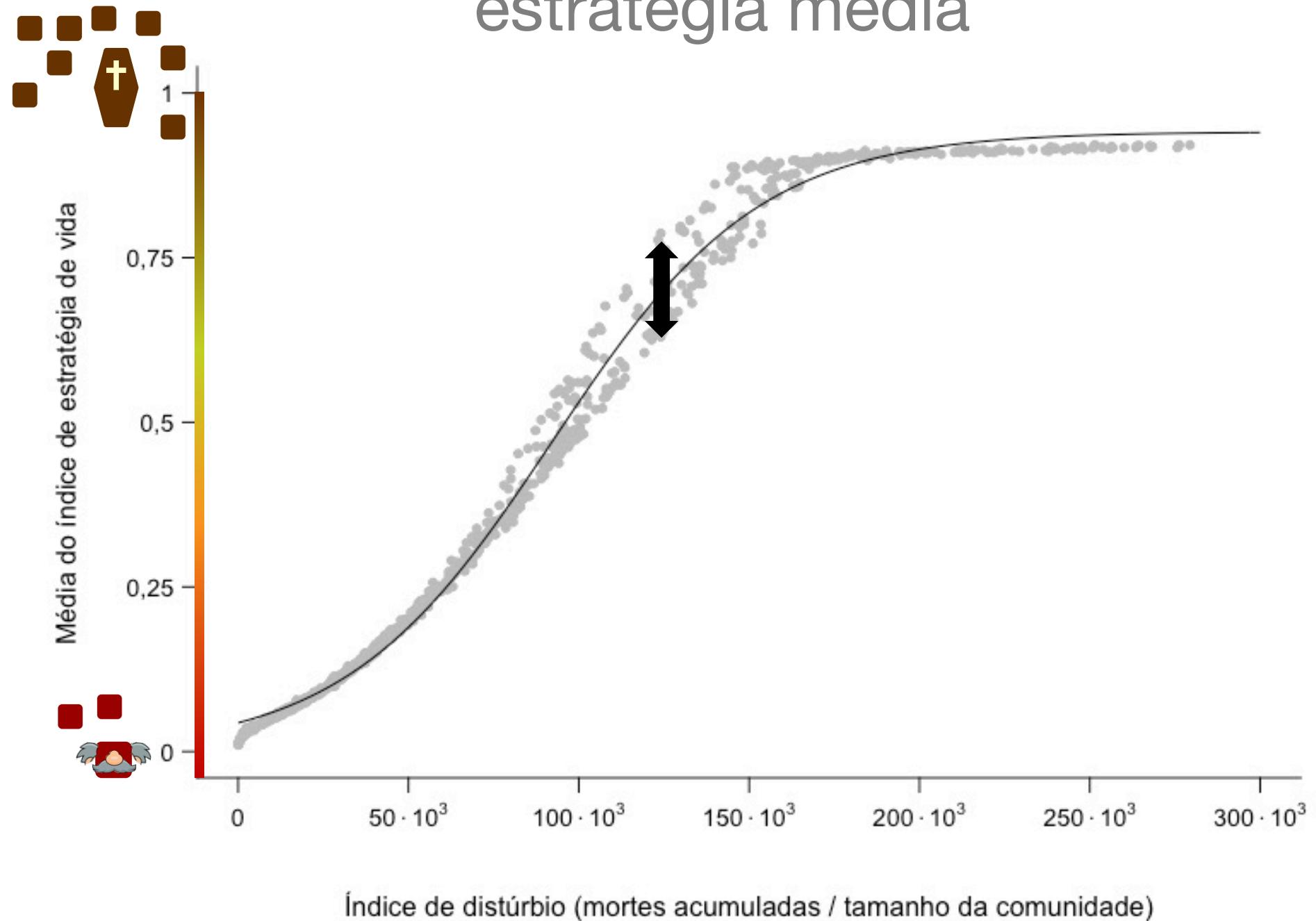
x 20



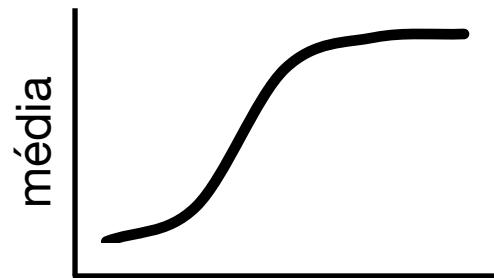
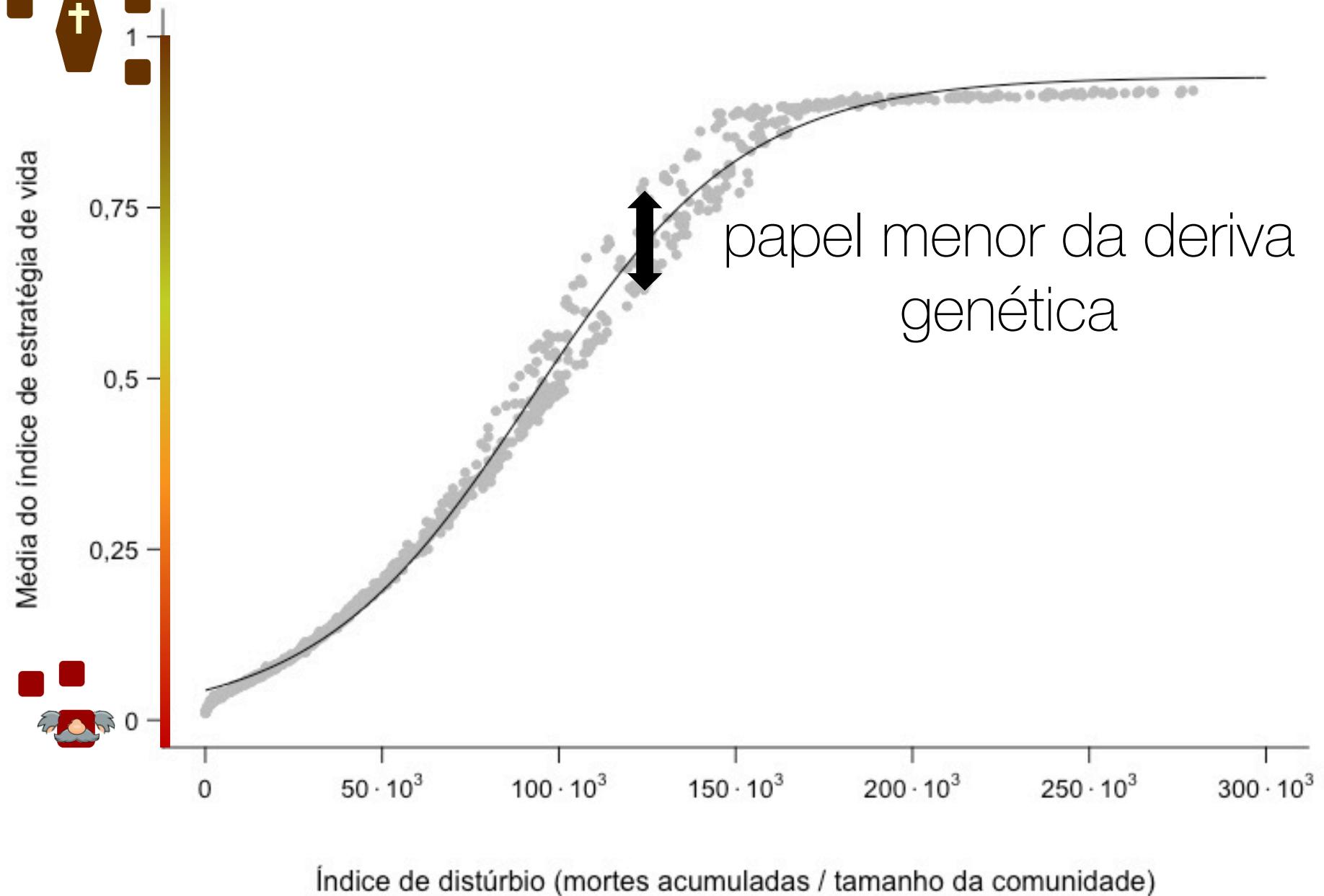
estratégia de maior fecundidade mais apta



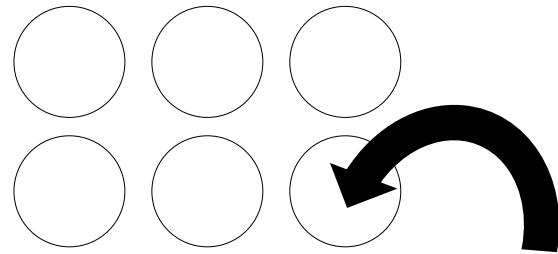
# estratégia média



# estratégia média



## evolutivo

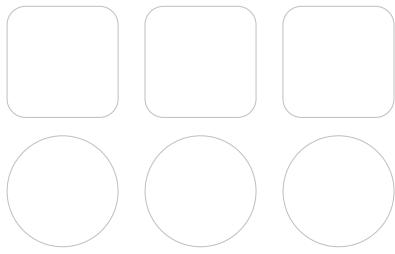


### estratégia média

diversidade  
de estratégias

-

## ecológico

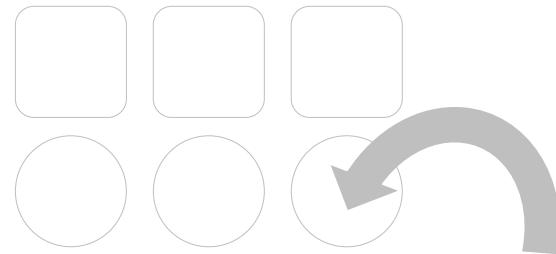


### estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

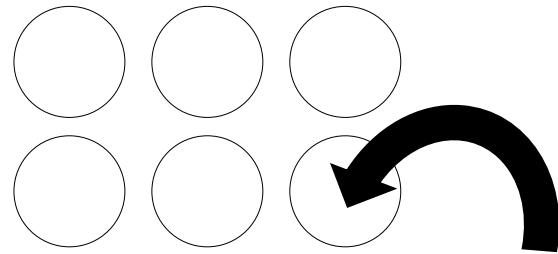


### estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

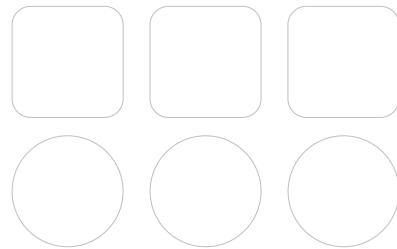


estratégia média

diversidade  
de estratégias

-

## ecológico

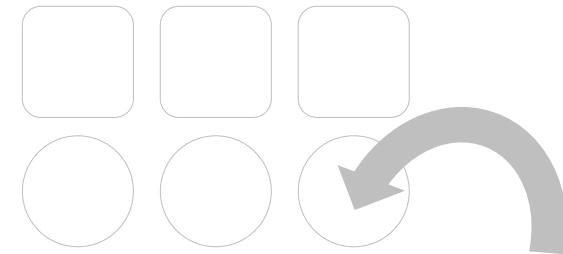


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

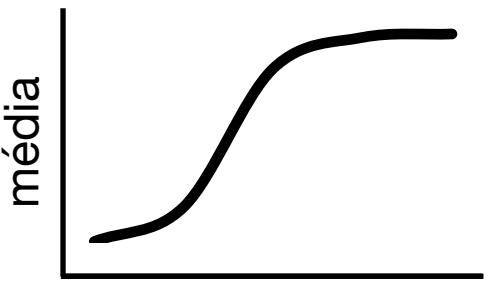
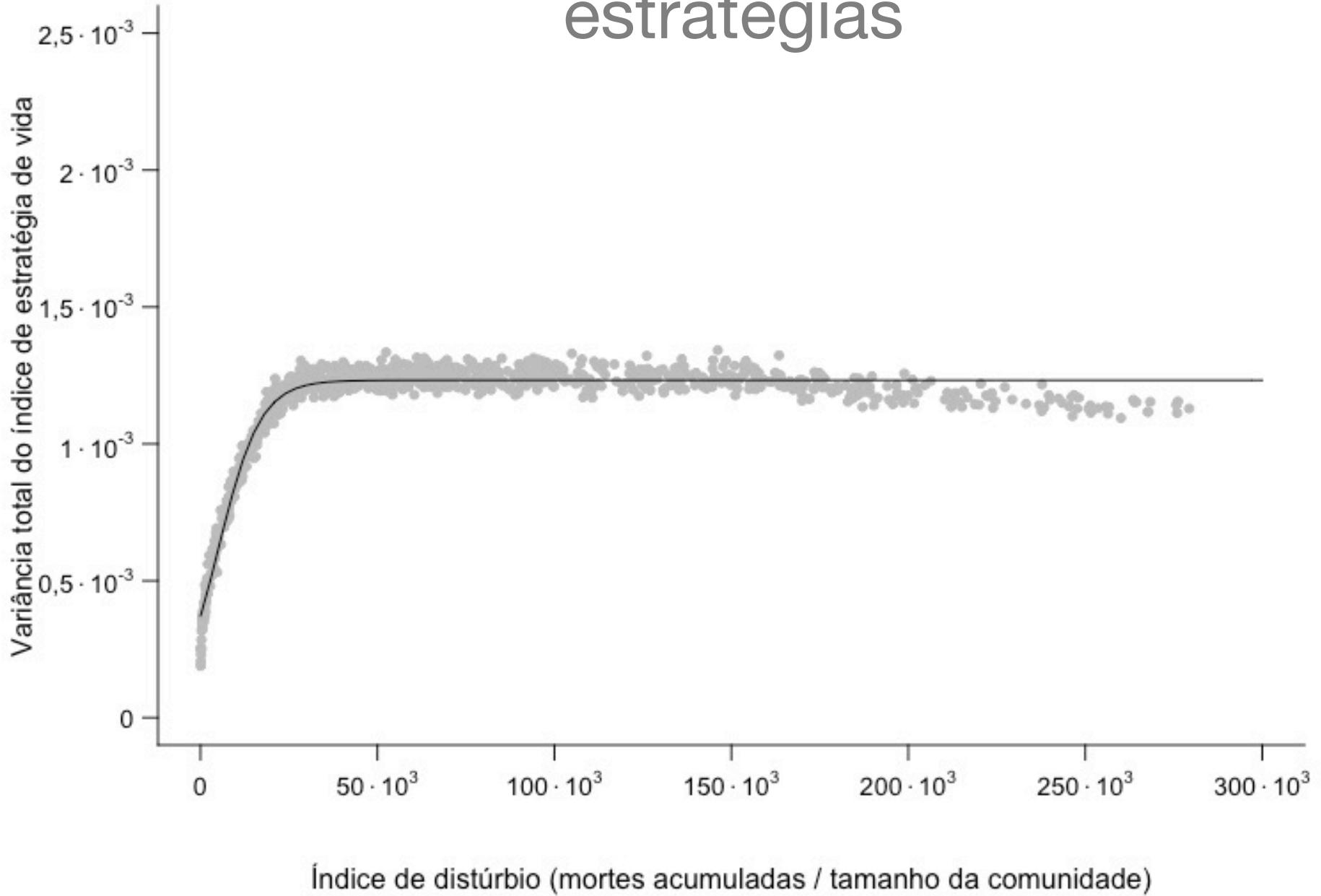


estratégia média

diversidade  
de estratégias

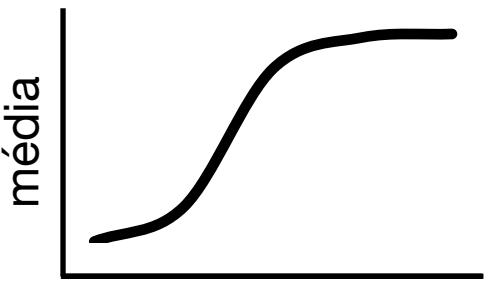
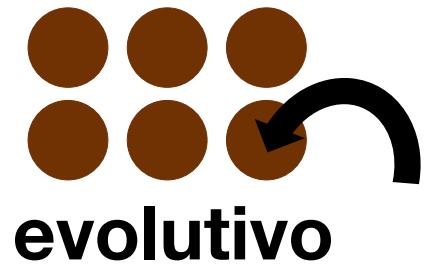
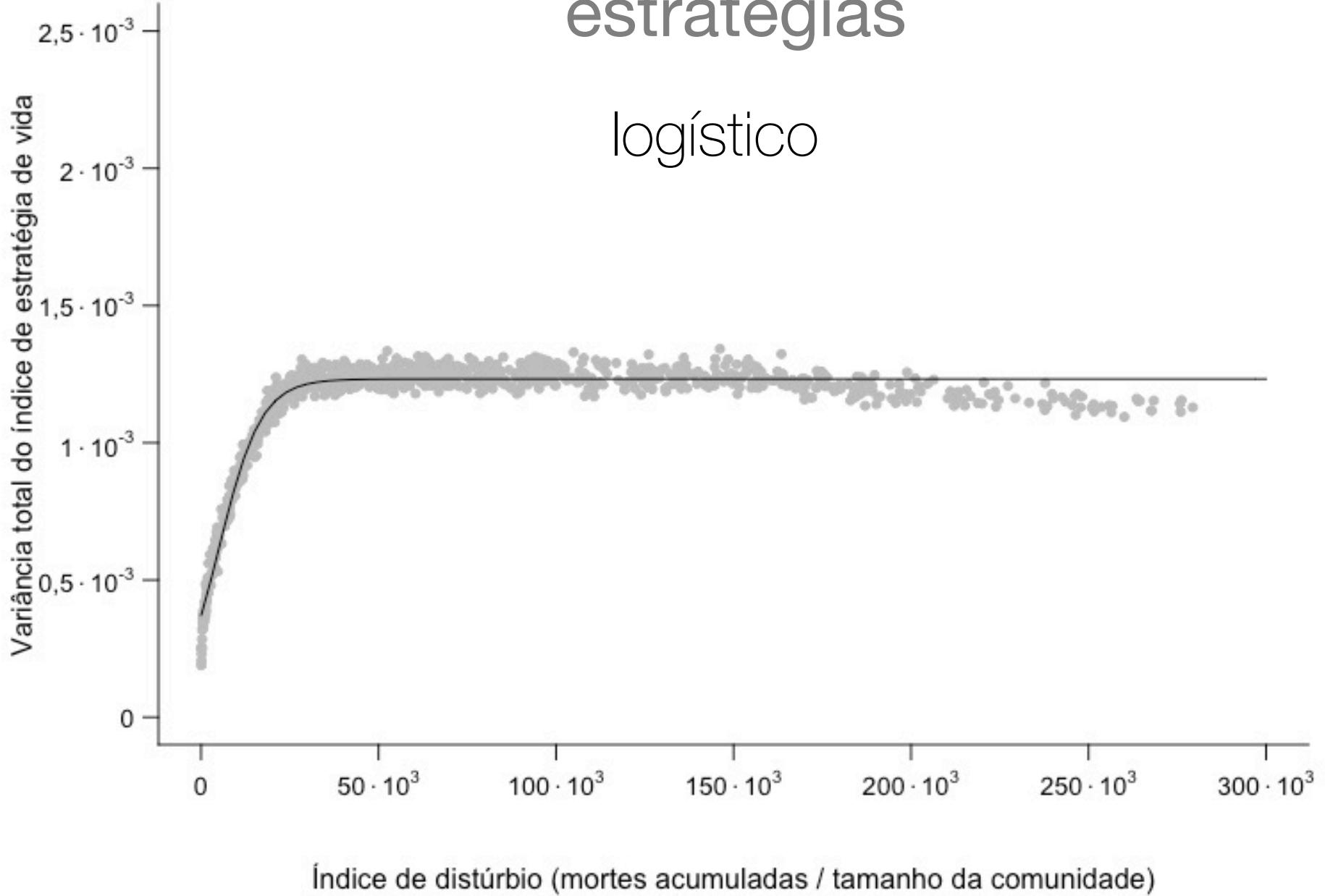
heterogeneidade  
interespecífica de  
estratégias

# diversidade de estratégias

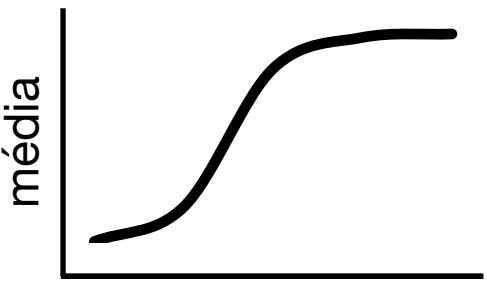
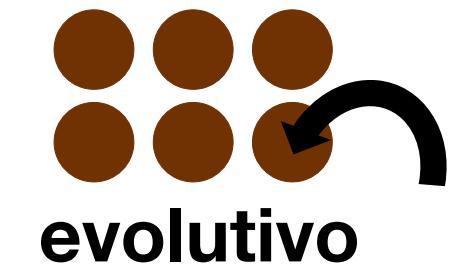
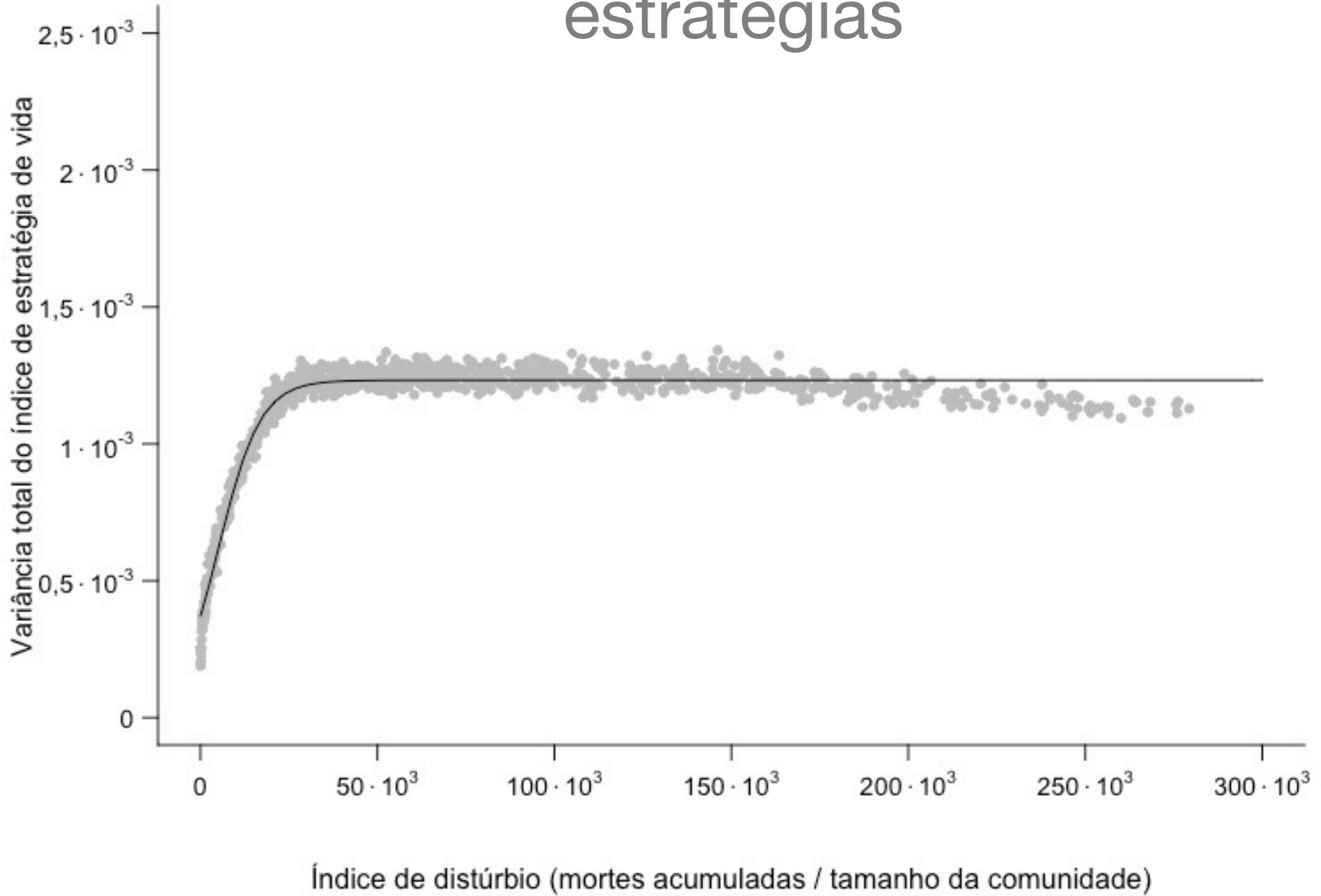


# diversidade de estratégias

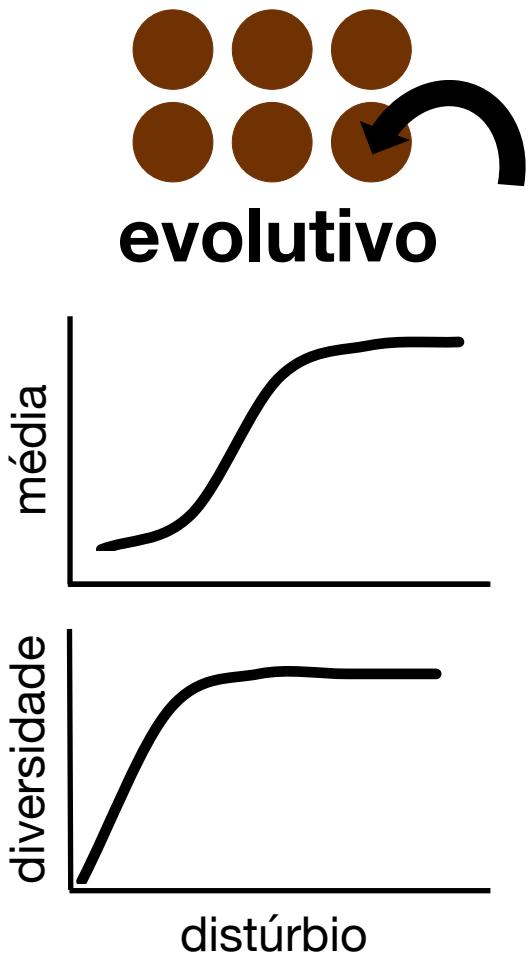
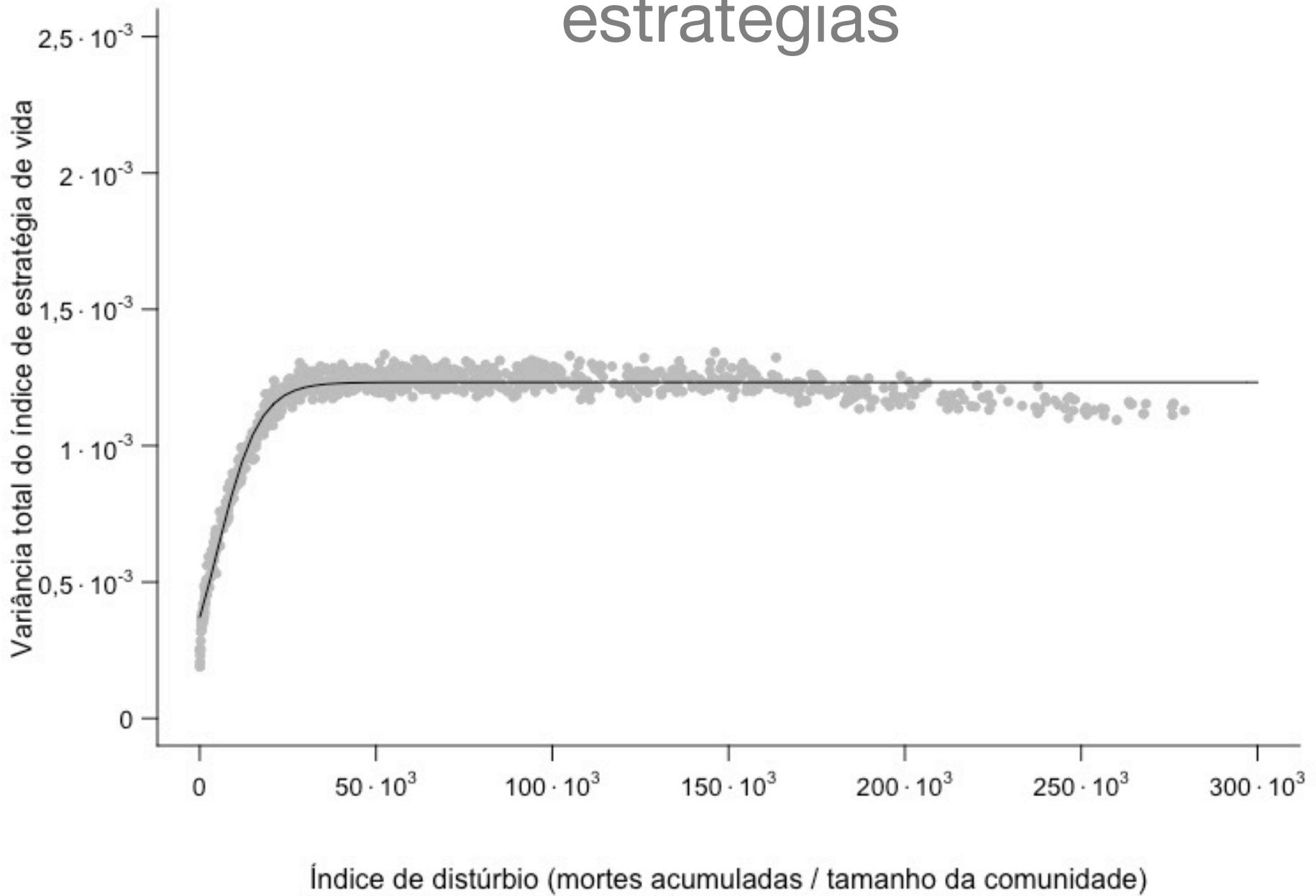
logístico



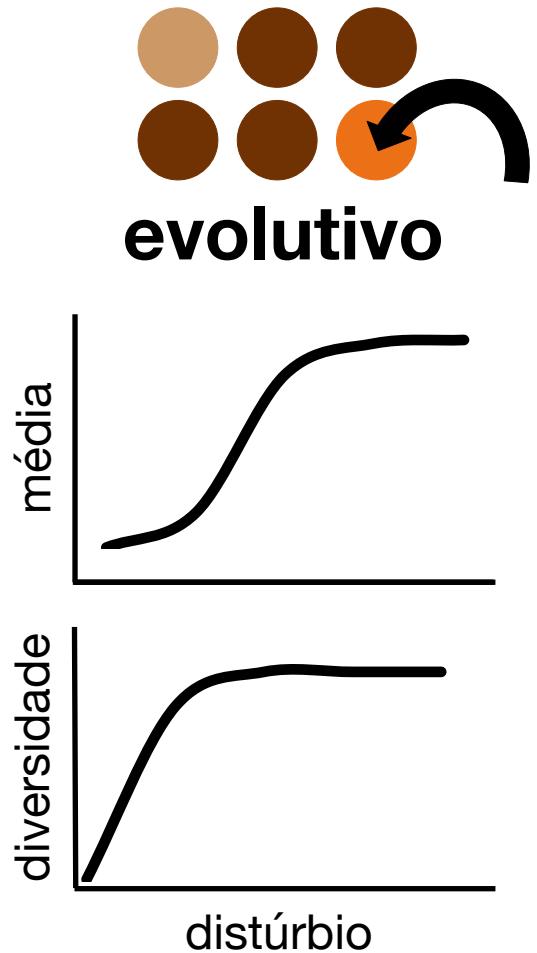
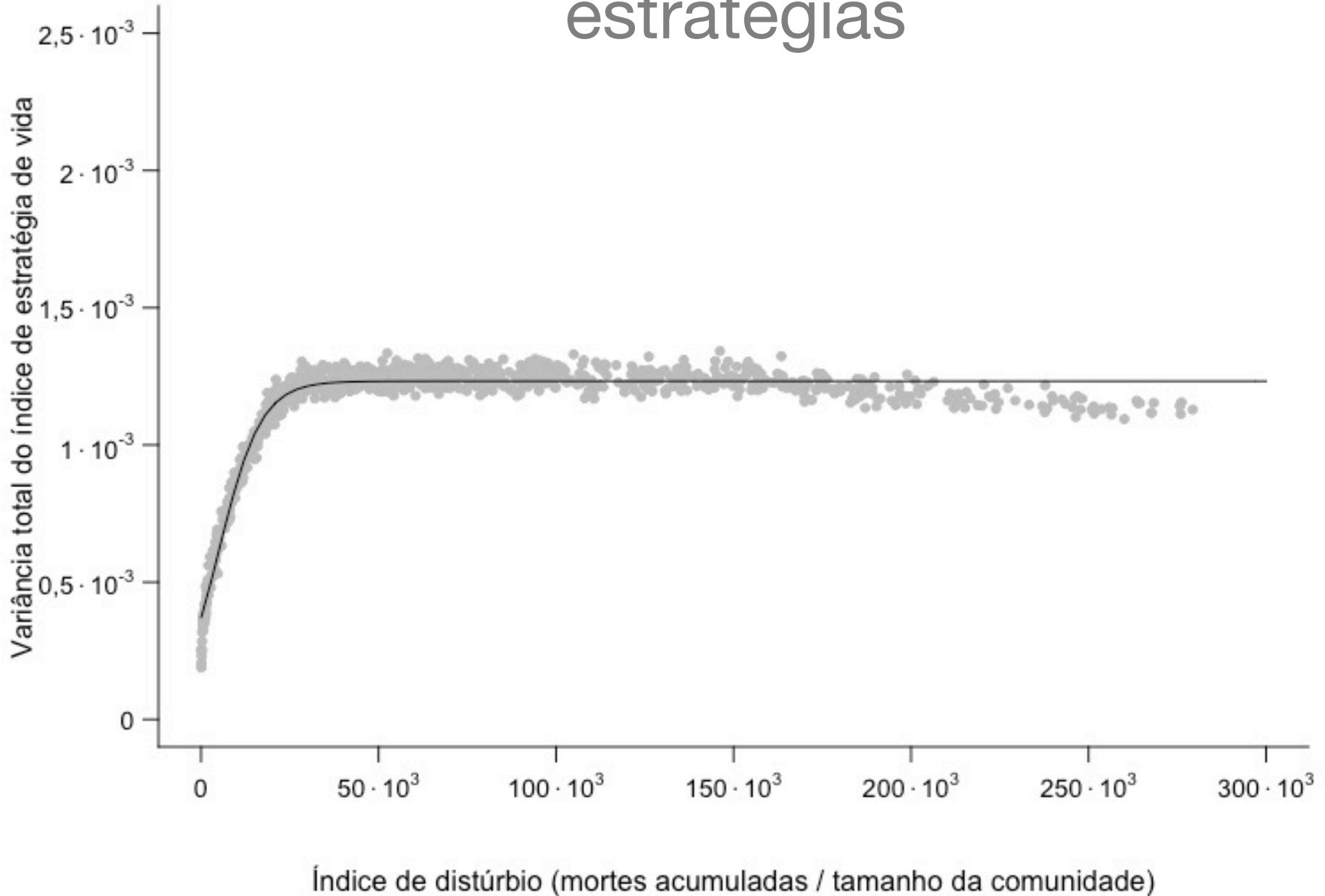
# diversidade de estratégias



# diversidade de estratégias



# diversidade de estratégias

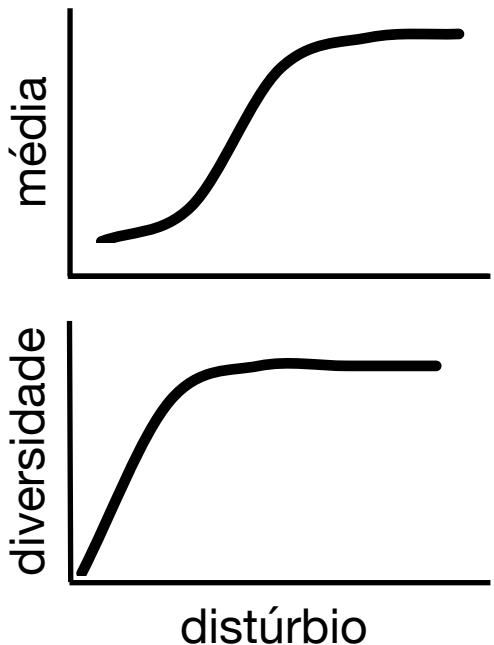
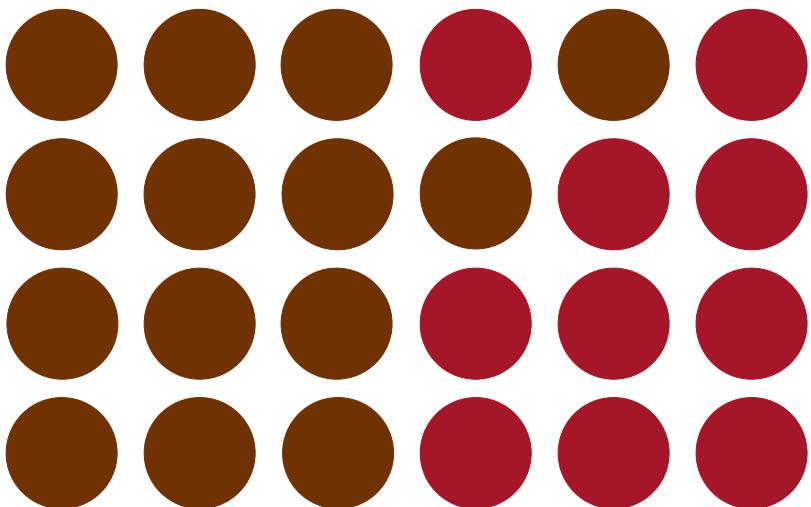


# mutação

banco

● x 112

● x 20

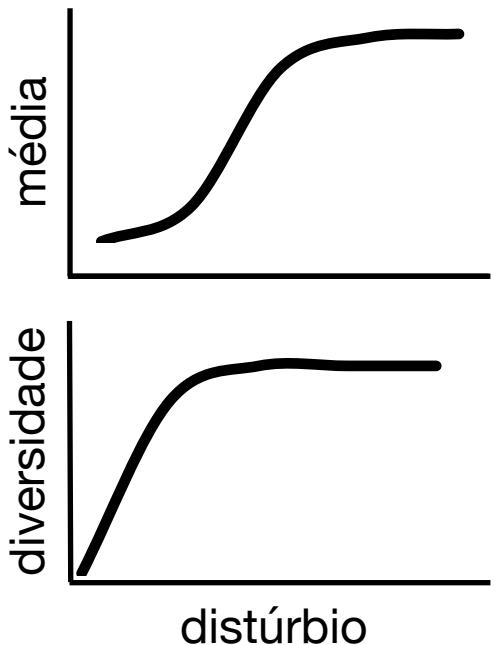
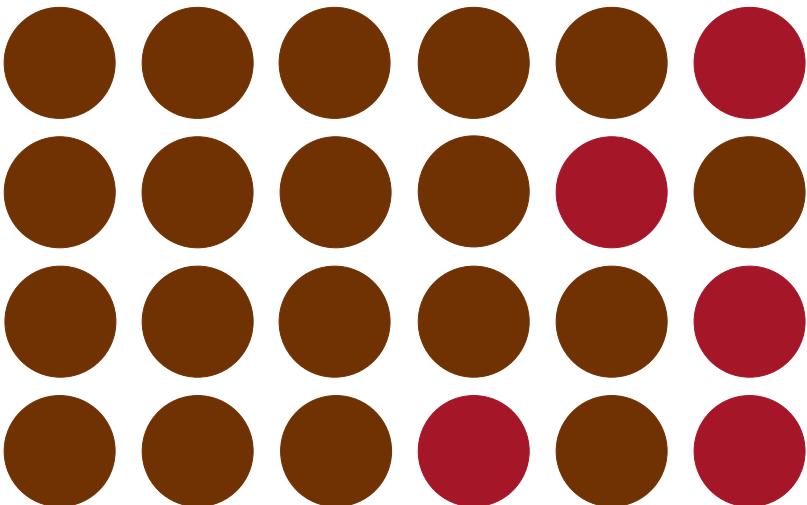


# mutação

banco

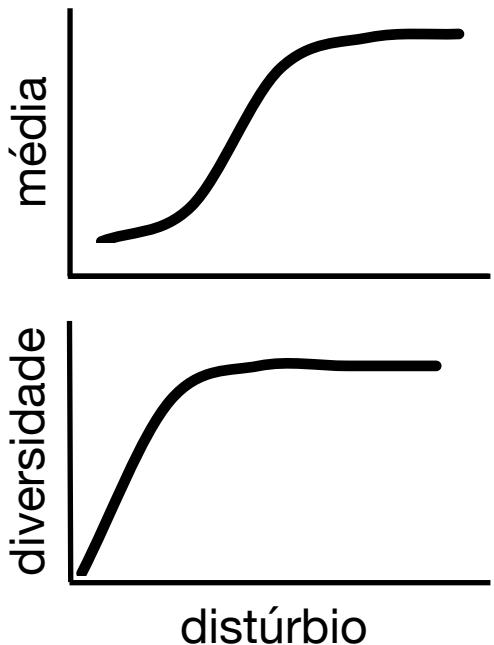
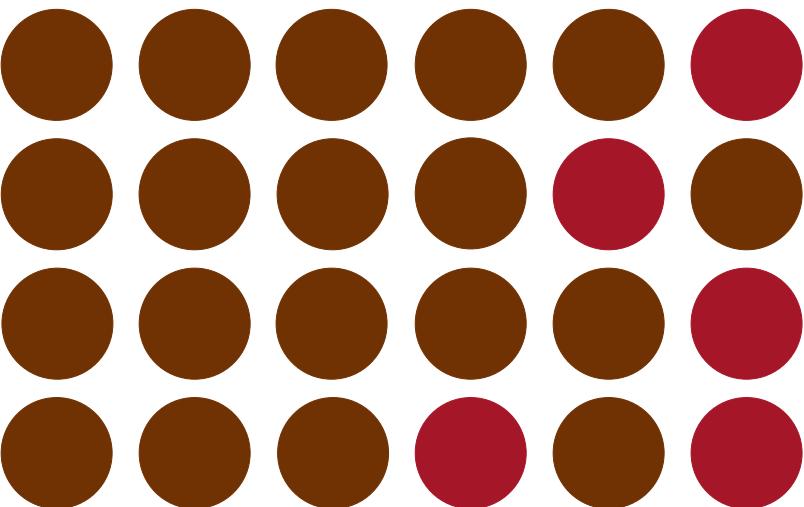
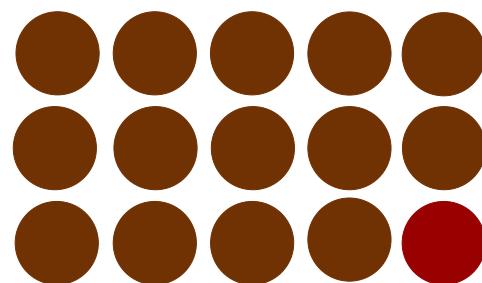
● x 152

● x 10

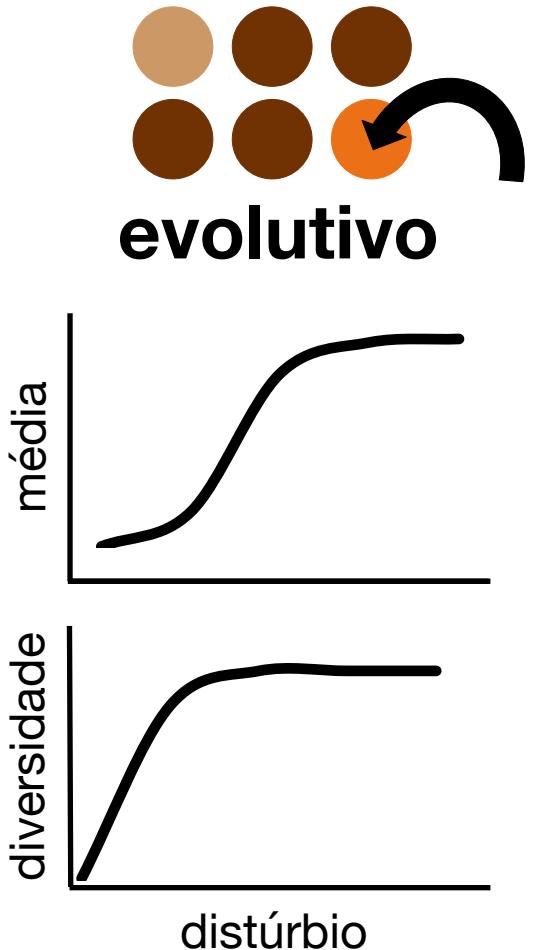
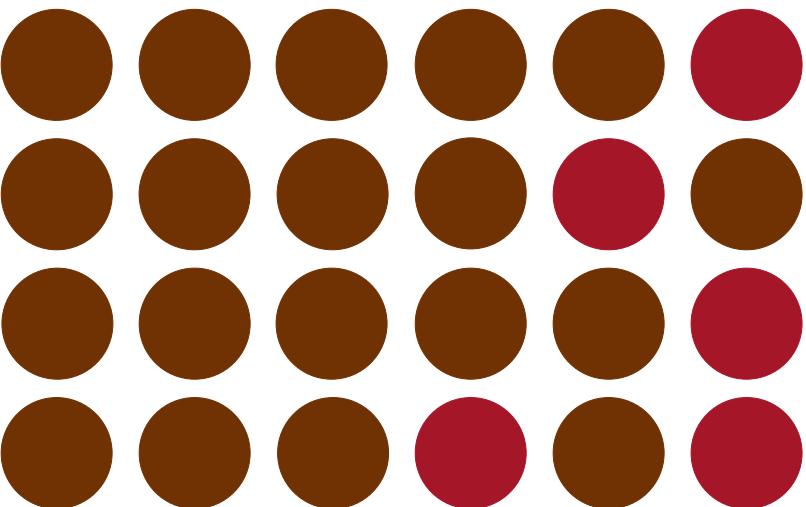
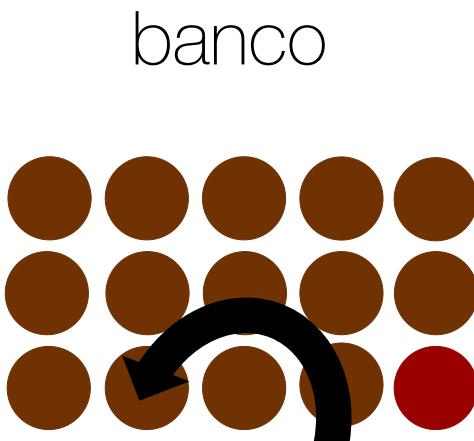


# mutação

banco

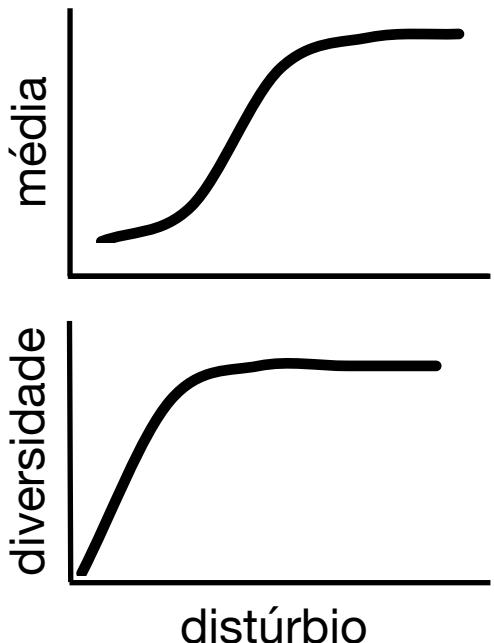
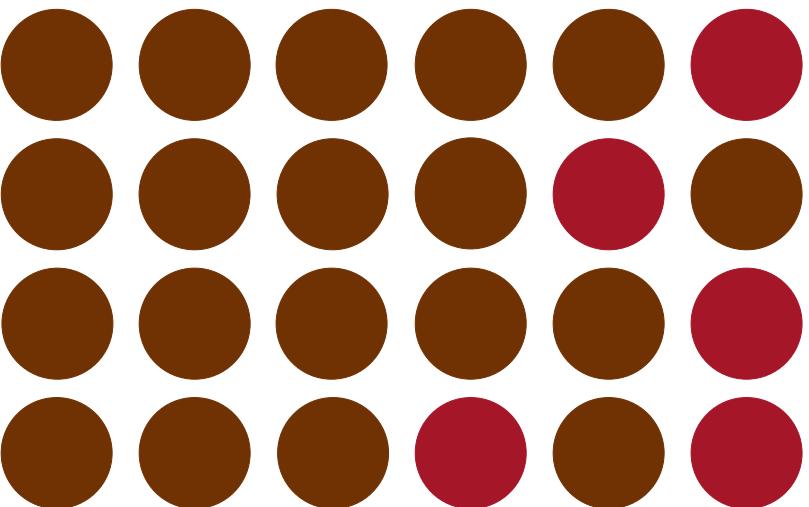
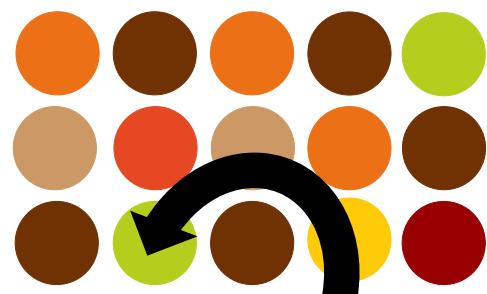


# mutação



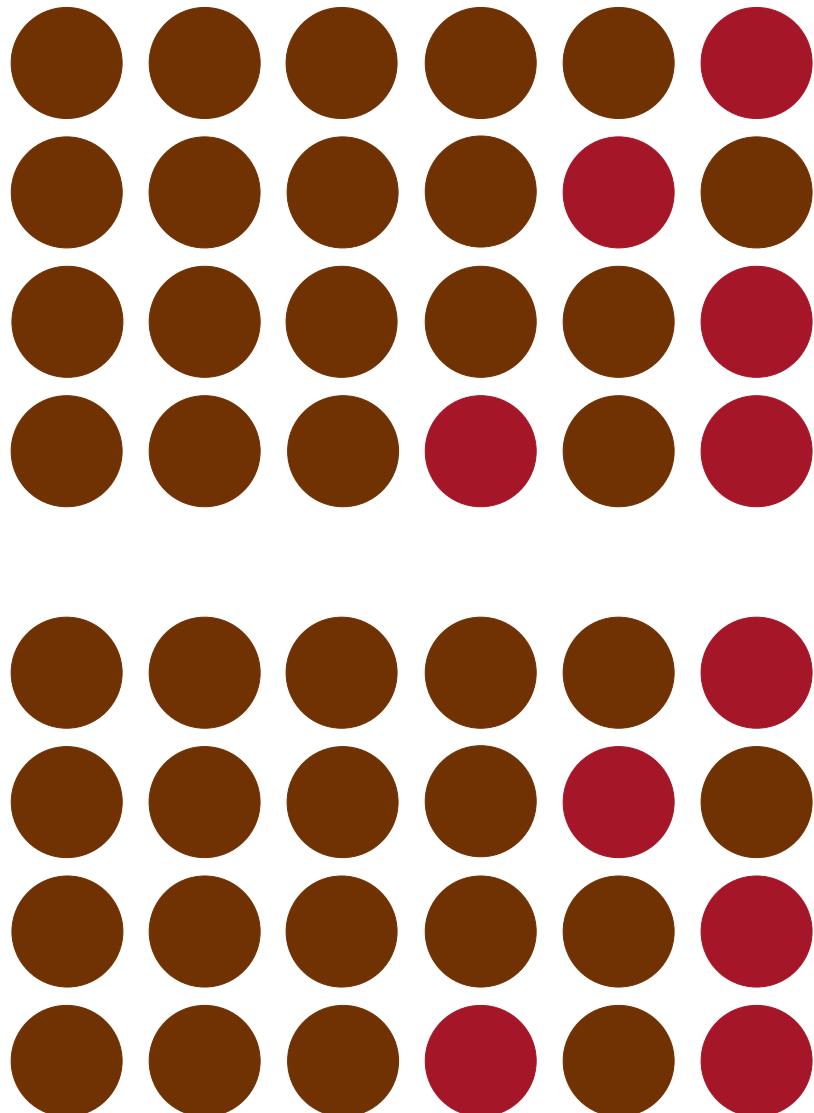
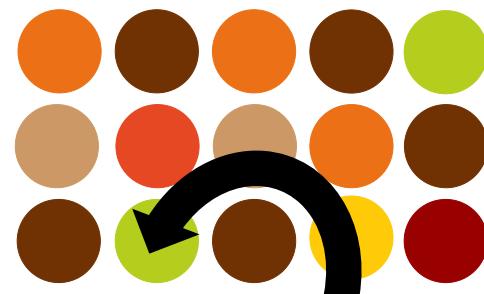
# mutação

banco



# mutação

banco

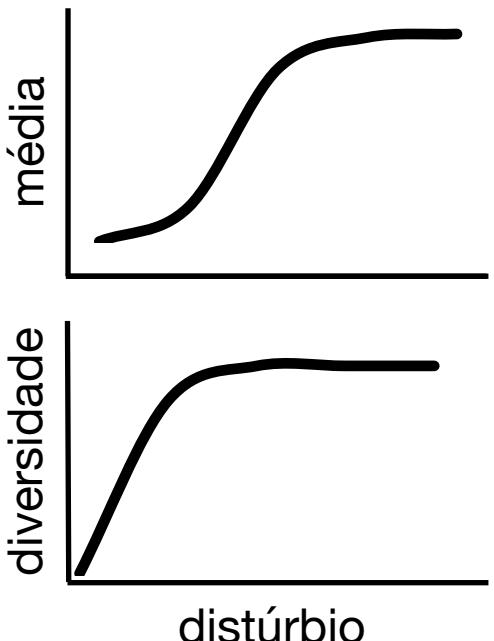


distúrbio

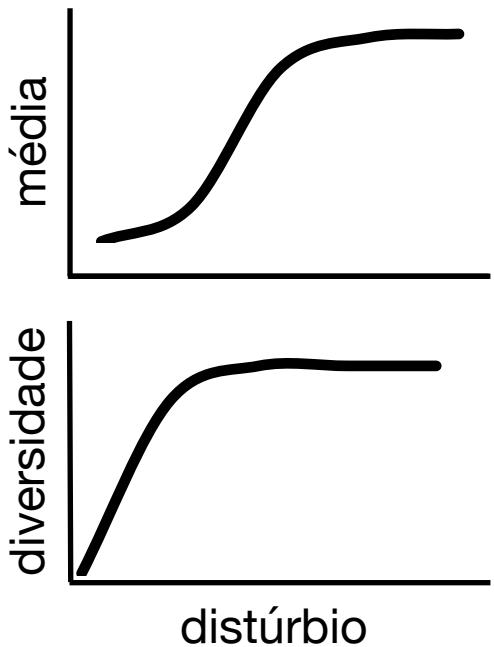
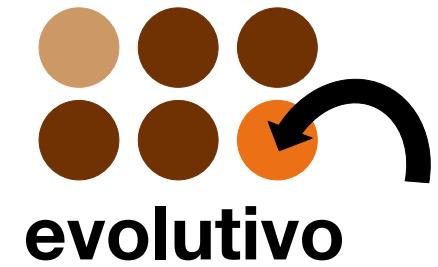
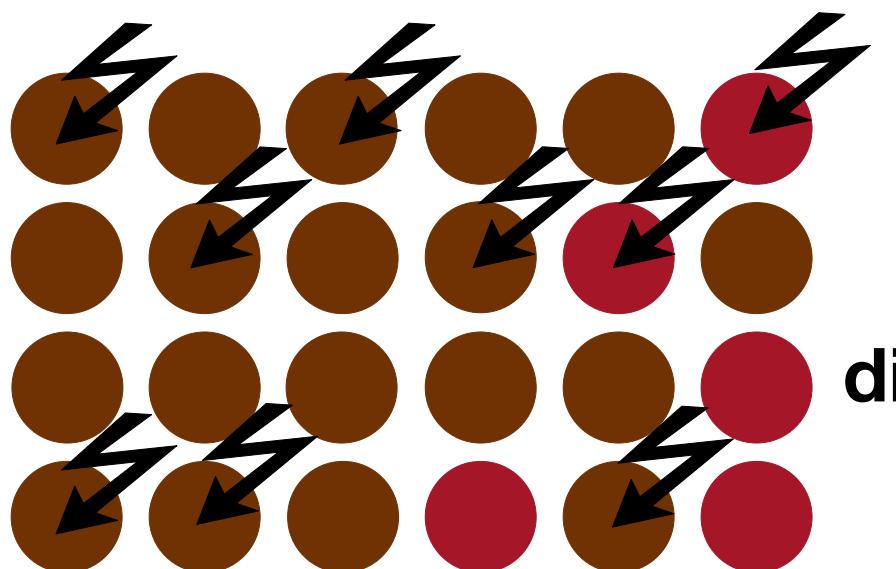
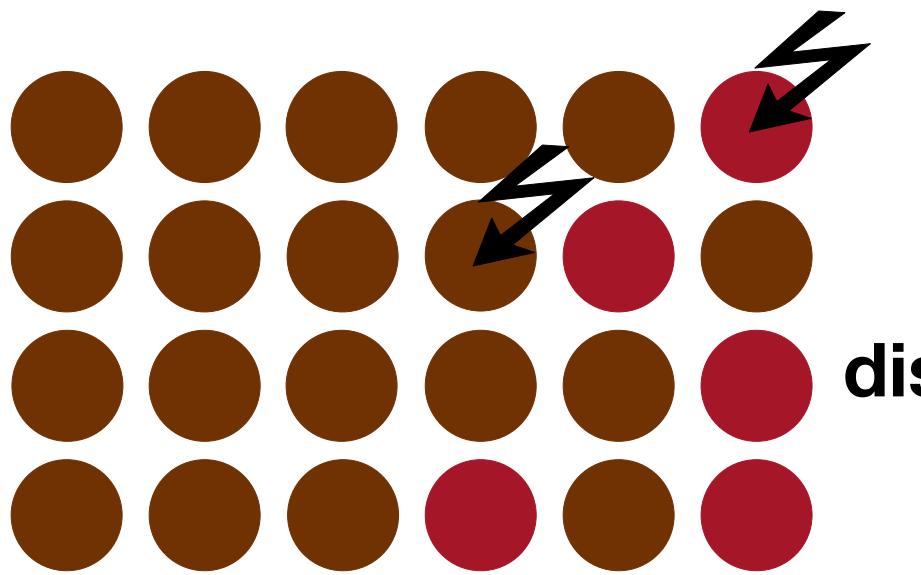
distúrbio



evolutivo

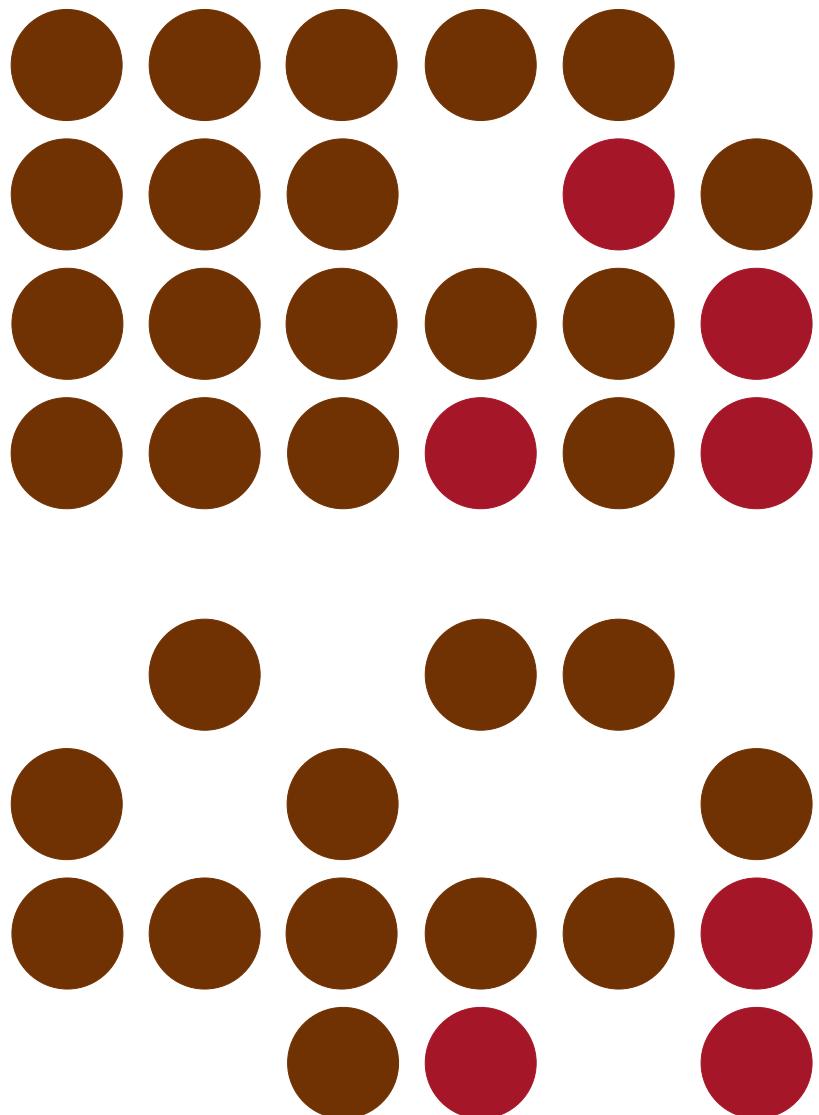
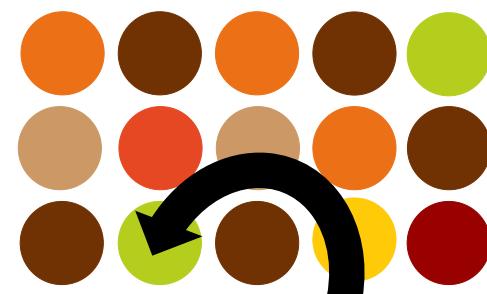


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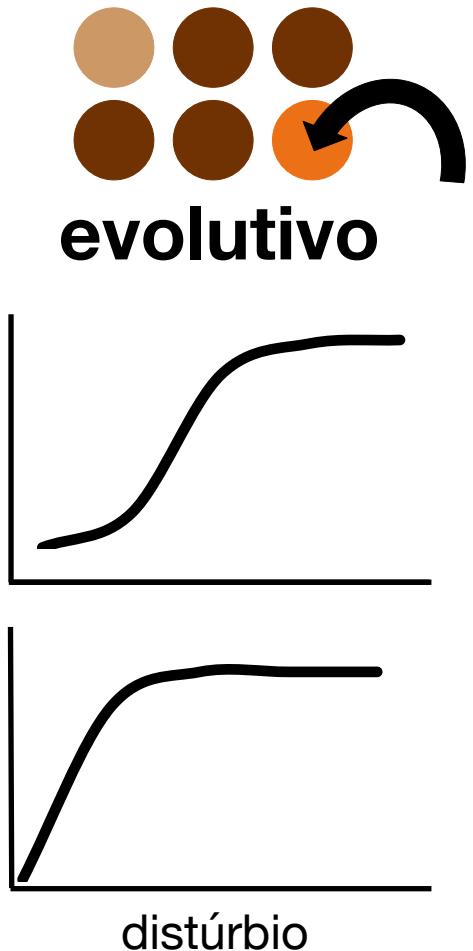
# mutação

banco

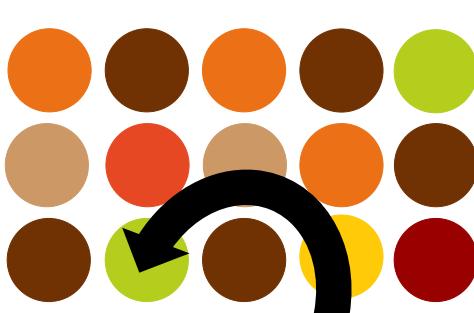


distúrbio

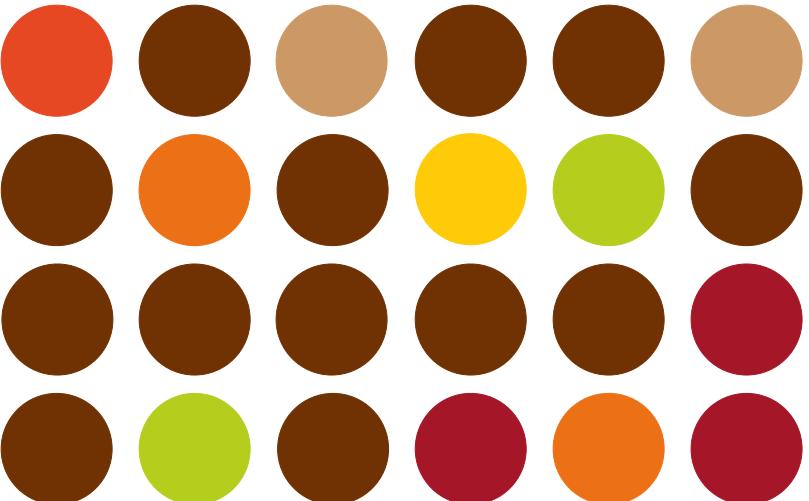
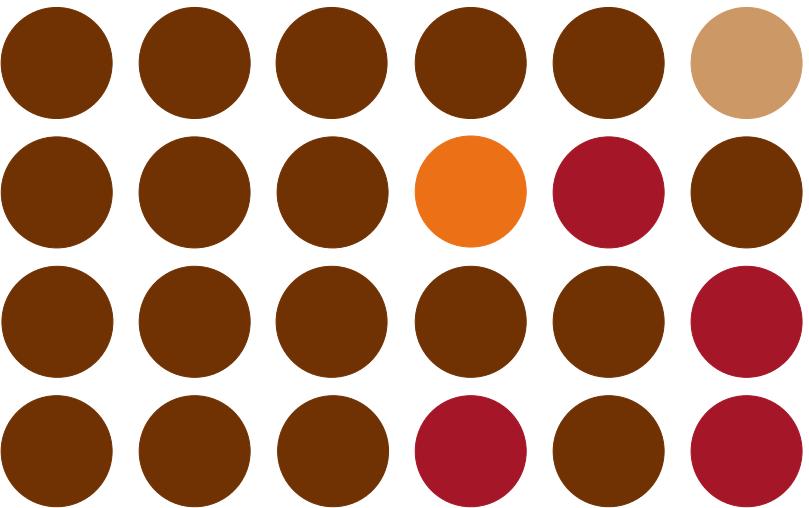
distúrbio



# mutação + amostragem

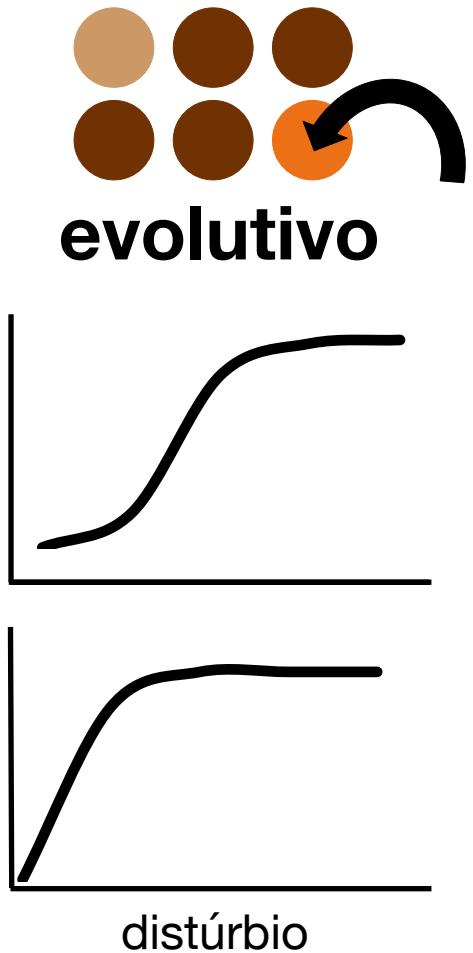


banco



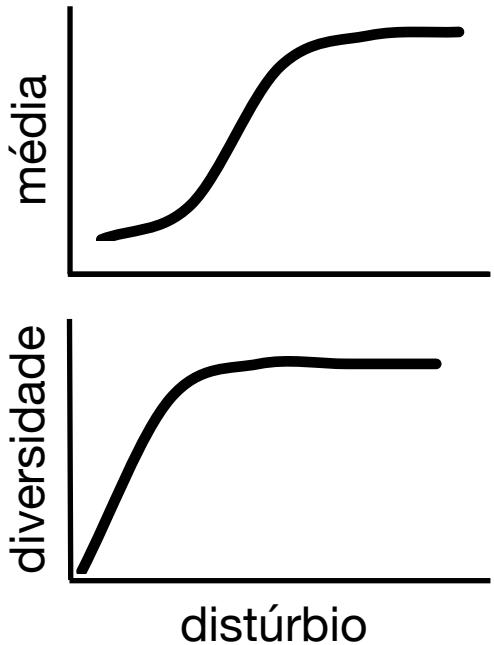
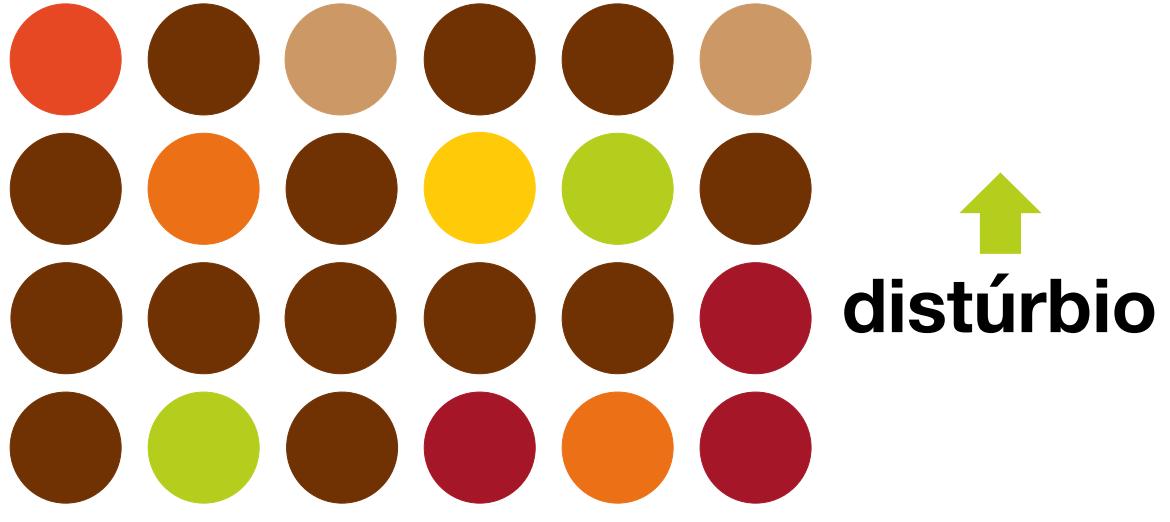
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distúrbio

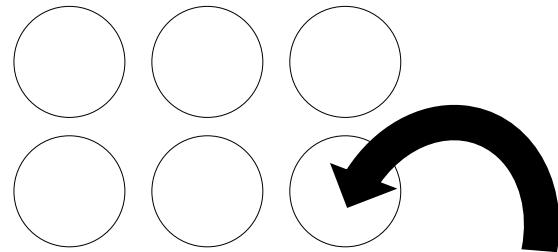


evolutivo

# mutação + amostragem



## evolutivo

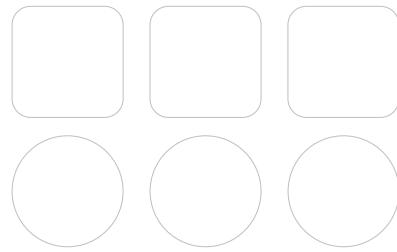


estratégia média

diversidade  
de estratégias

-

## ecológico

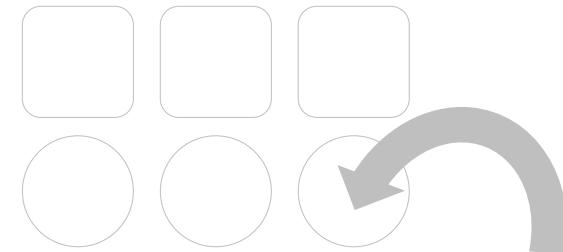


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

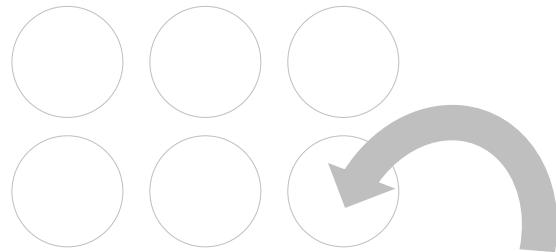


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

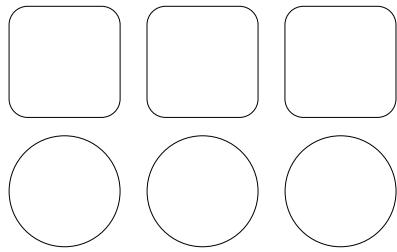


estratégia média

diversidade  
de estratégias

-

## ecológico

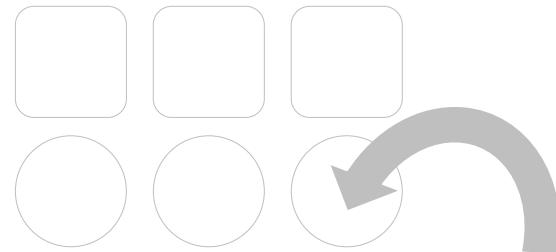


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

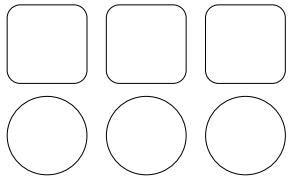
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estratégia média

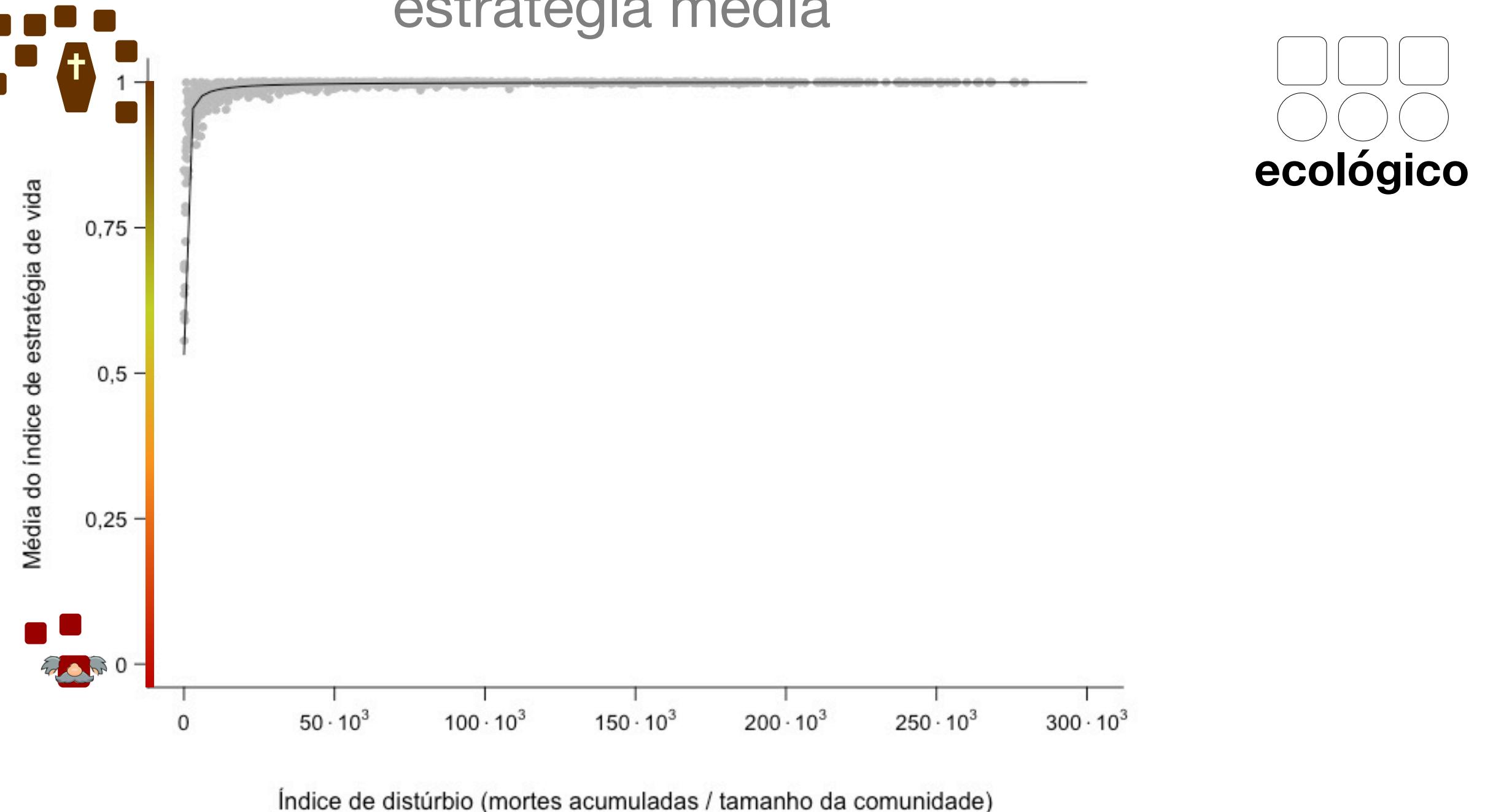
diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias



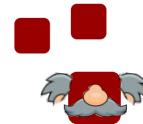
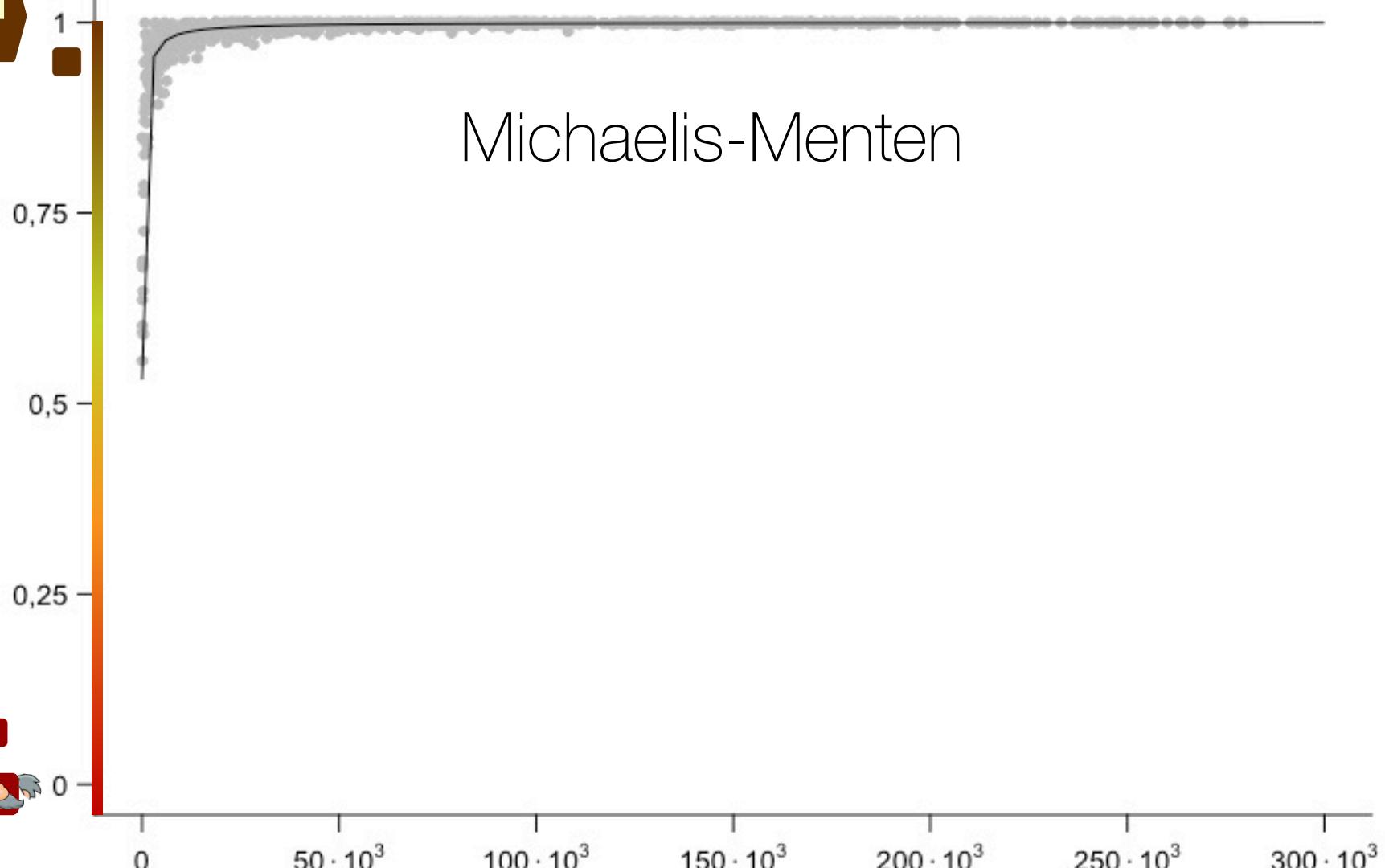
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# estratégia média

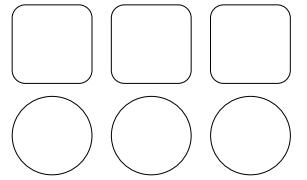


# estratégia média

Média do índice de estratégia de vida



Média do índice de estratégia de vida



**ecológico**

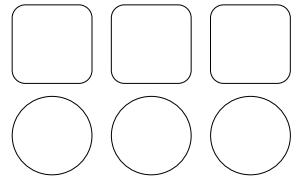
# estratégia média



Média do índice de estratégia de vida

1  
0,75  
0,5  
0,25  
00 50 · 10<sup>3</sup> 100 · 10<sup>3</sup> 150 · 10<sup>3</sup> 200 · 10<sup>3</sup> 250 · 10<sup>3</sup> 300 · 10<sup>3</sup>

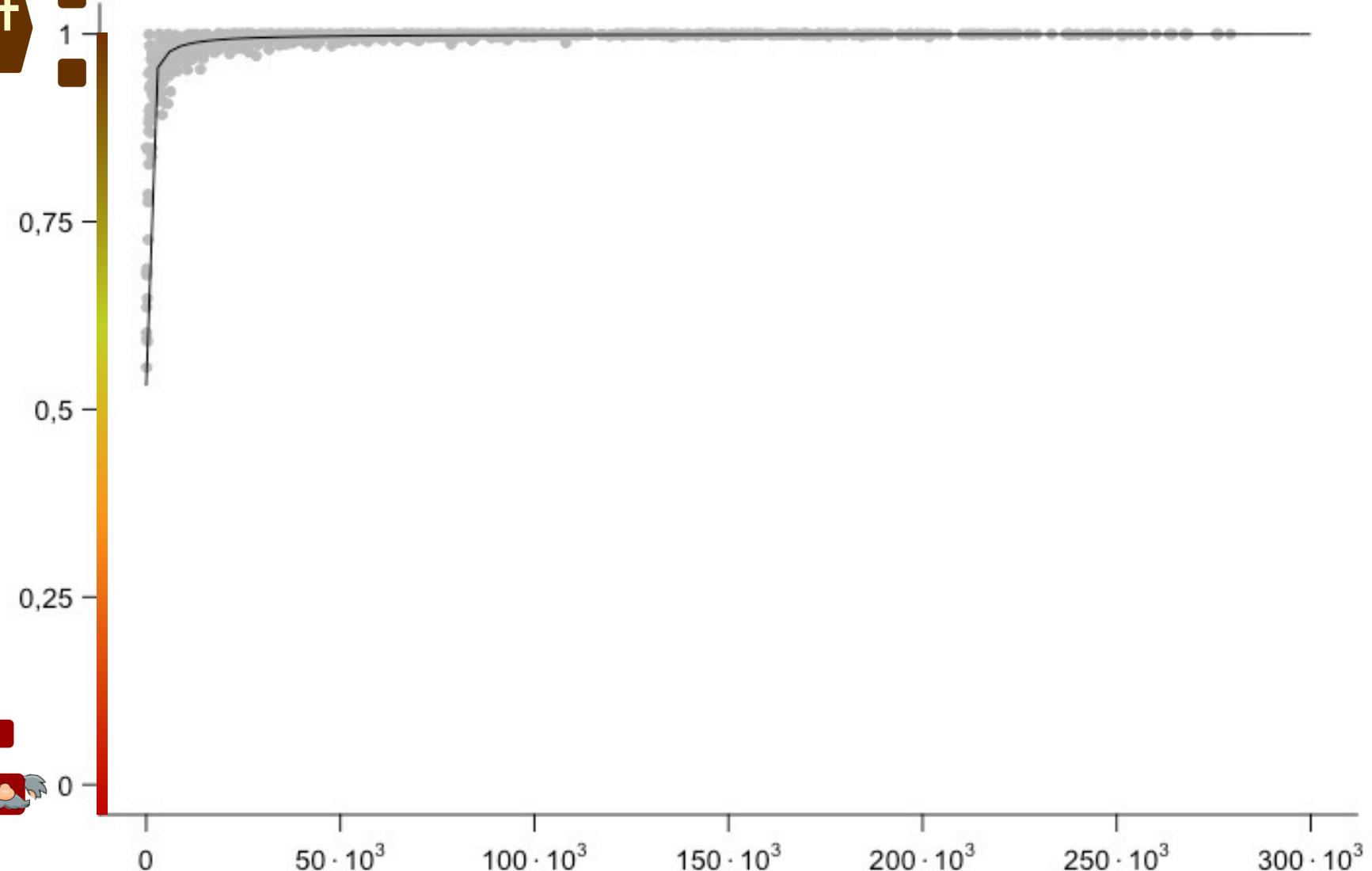
Índice de distúrbio (mortes acumuladas / tamanho da comunidade)

**ecológico**

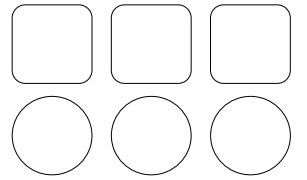
# estratégia média



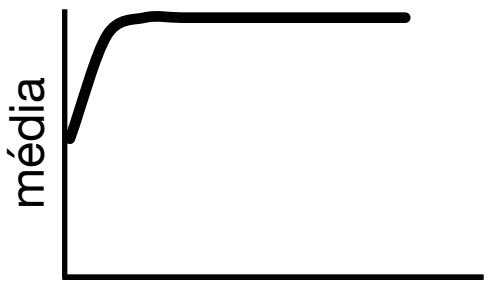
Média do índice de estratégia de vida



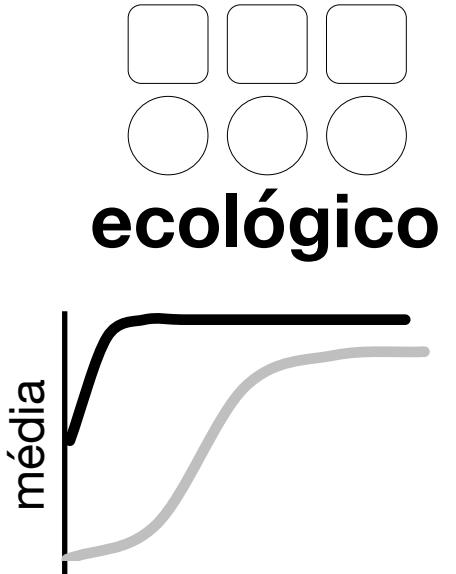
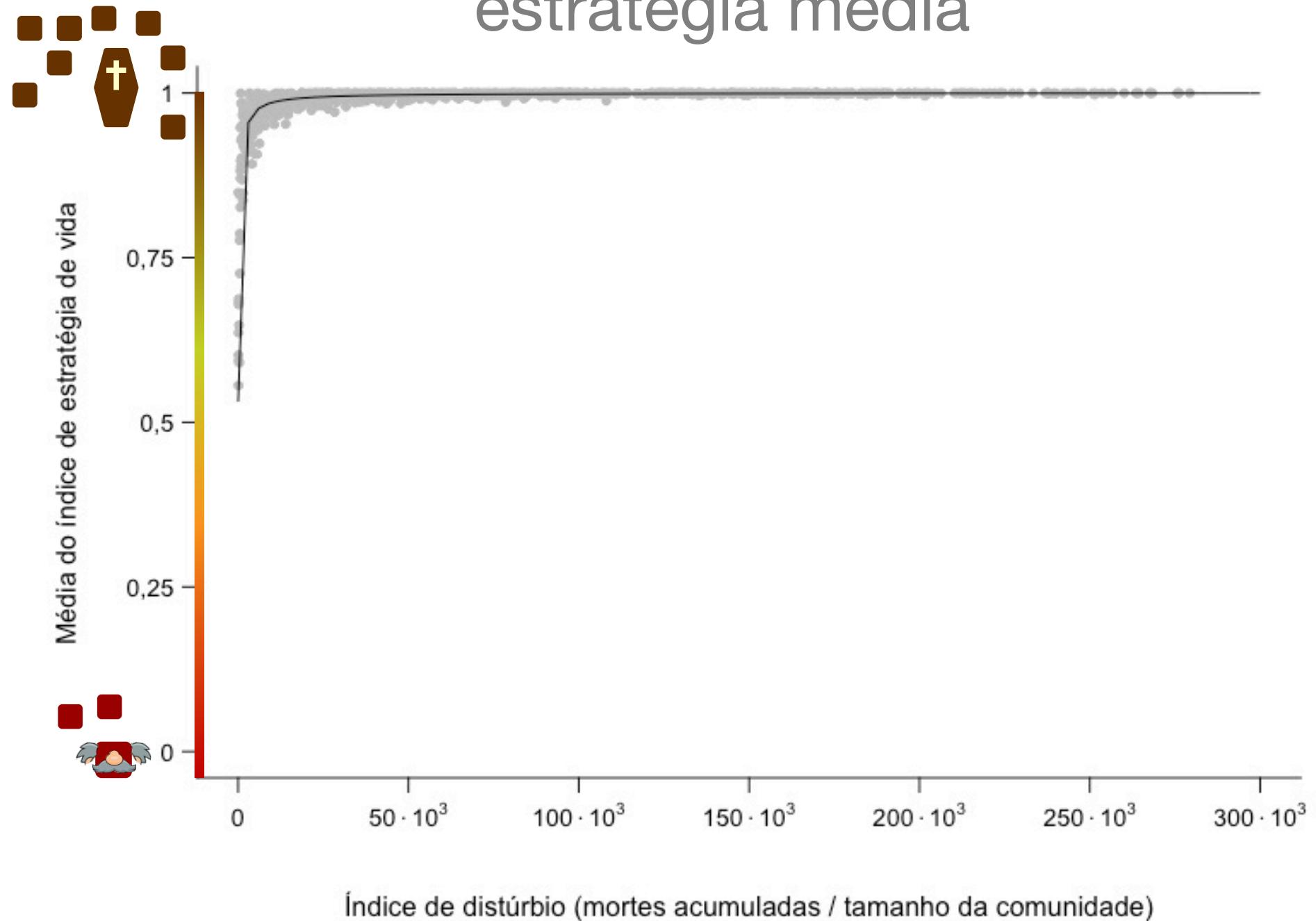
Índice de distúrbio (mortes acumuladas / tamanho da comunidade)



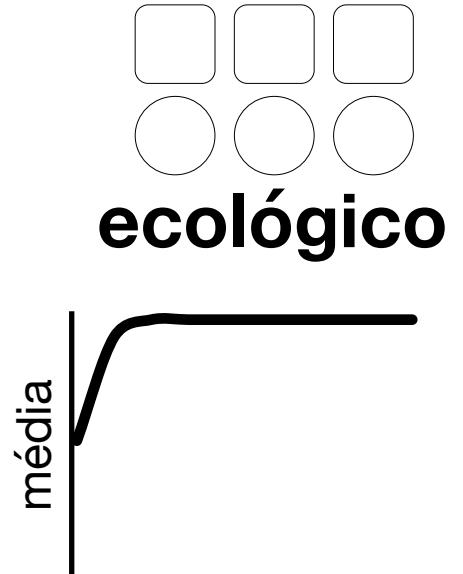
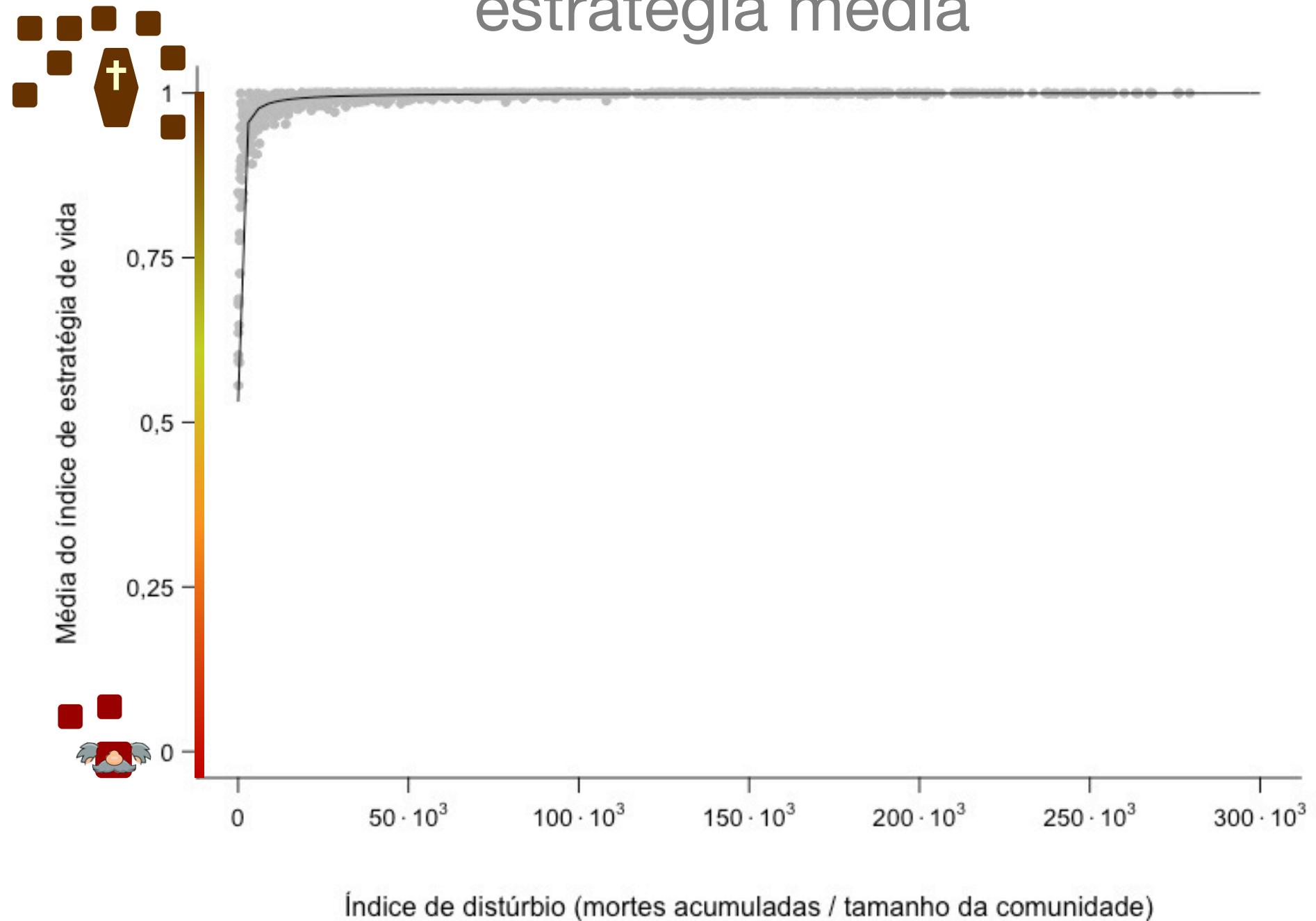
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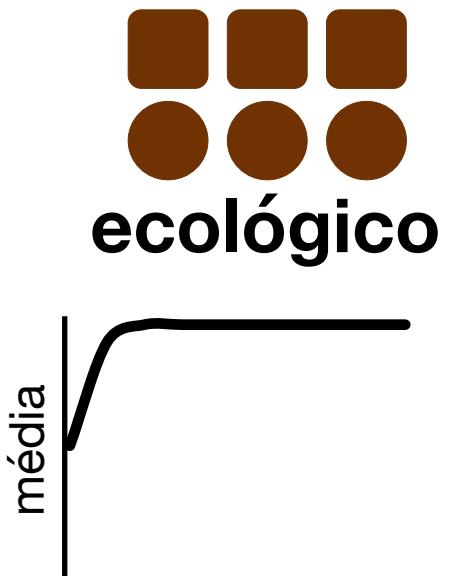
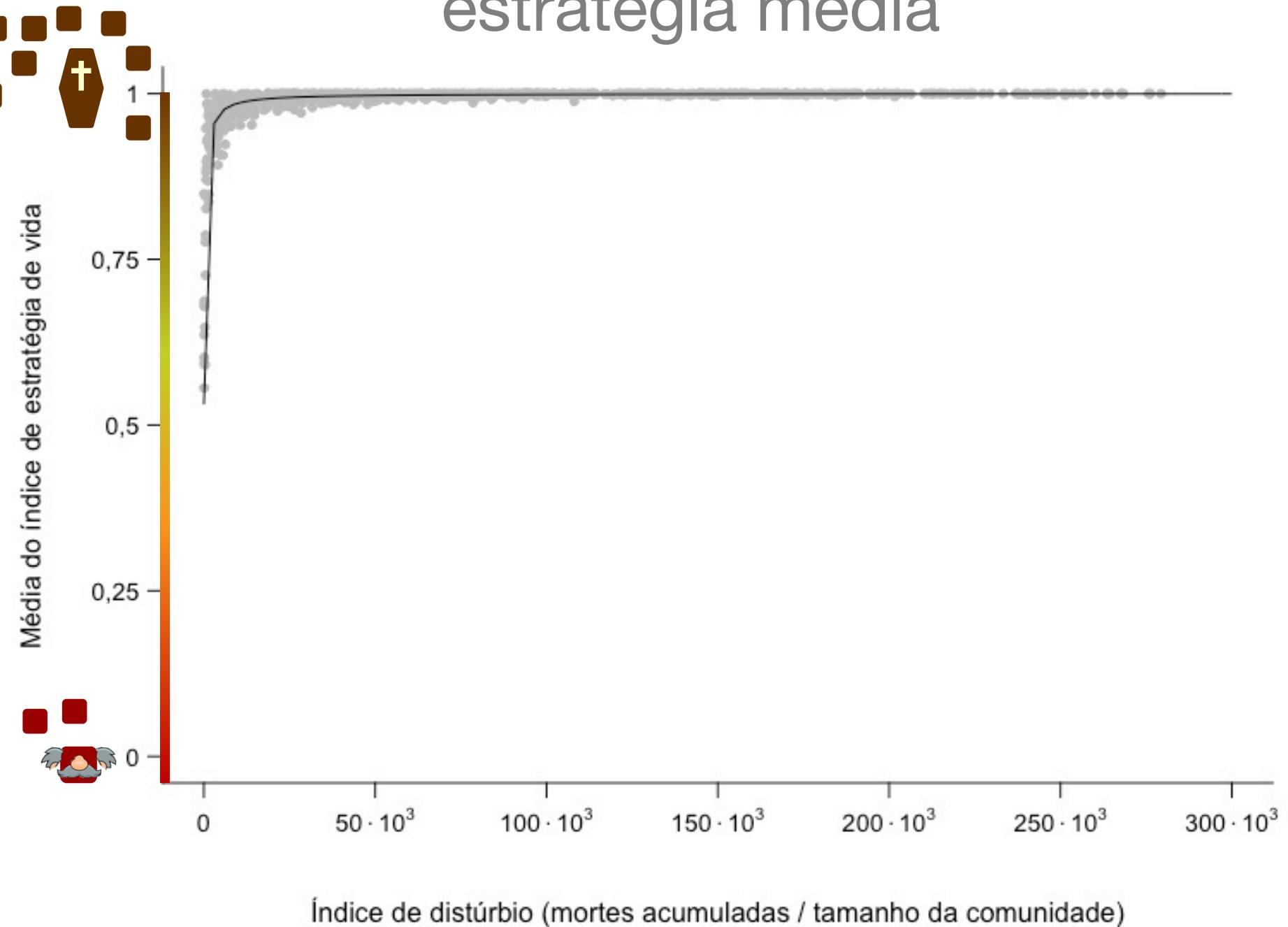
# estratégia média



# estratégia média



# estratégia média

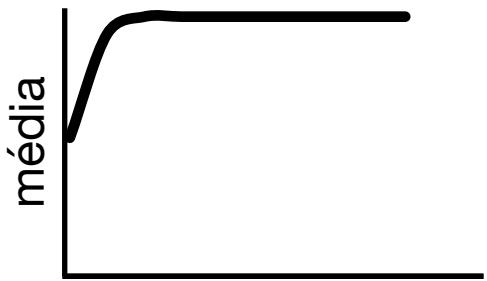
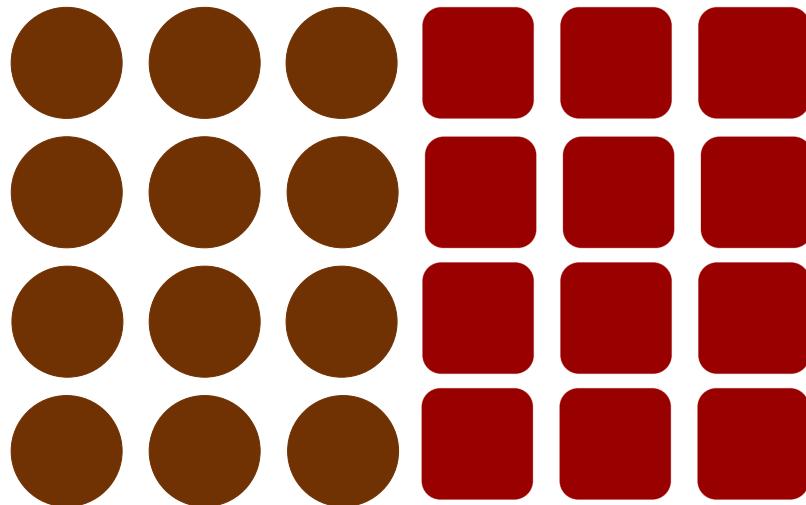


# exclusão competitiva de espécies

banco

x 96

x 24

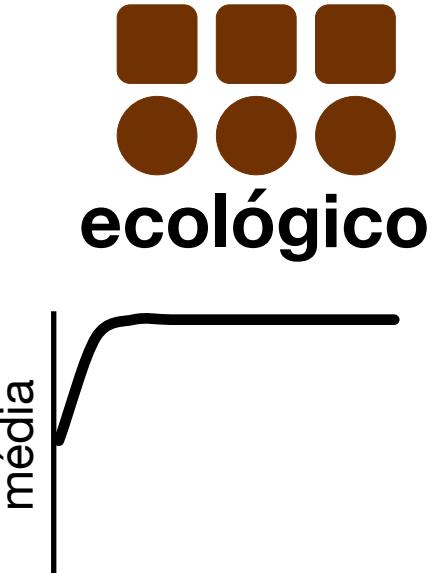
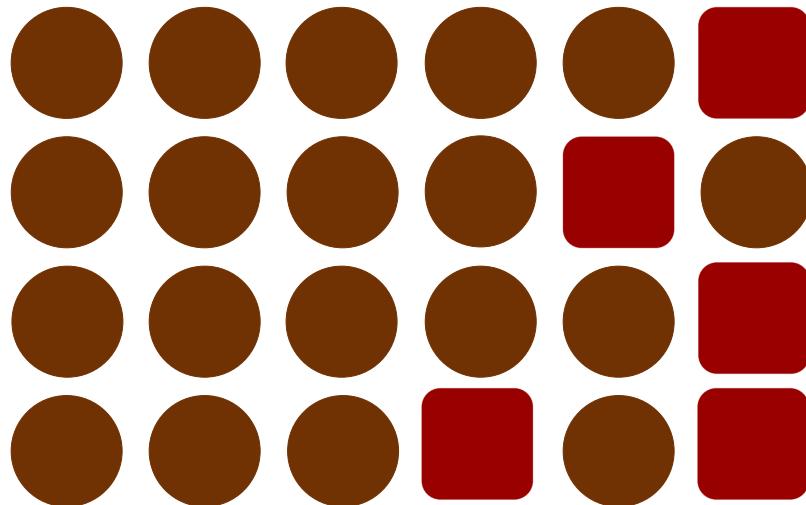


# exclusão competitiva de espécies

banco

● x 152

■ x 10



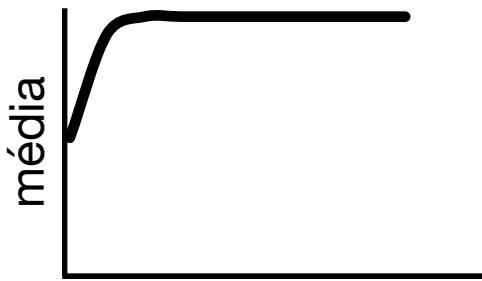
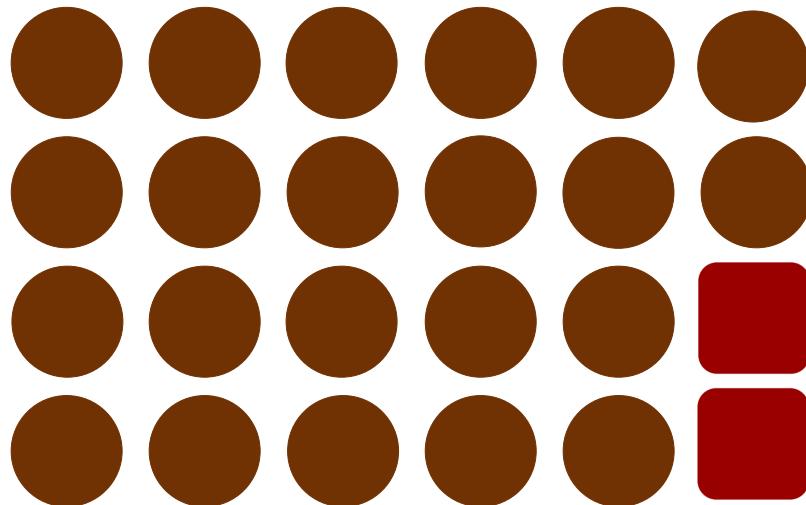
ecológico

# exclusão competitiva de espécies

banco

● x 176

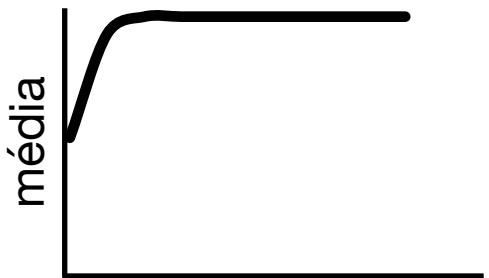
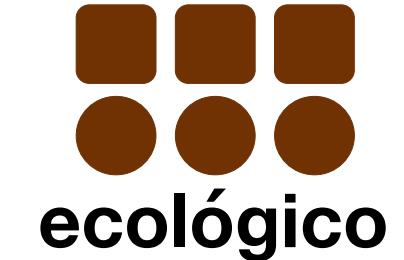
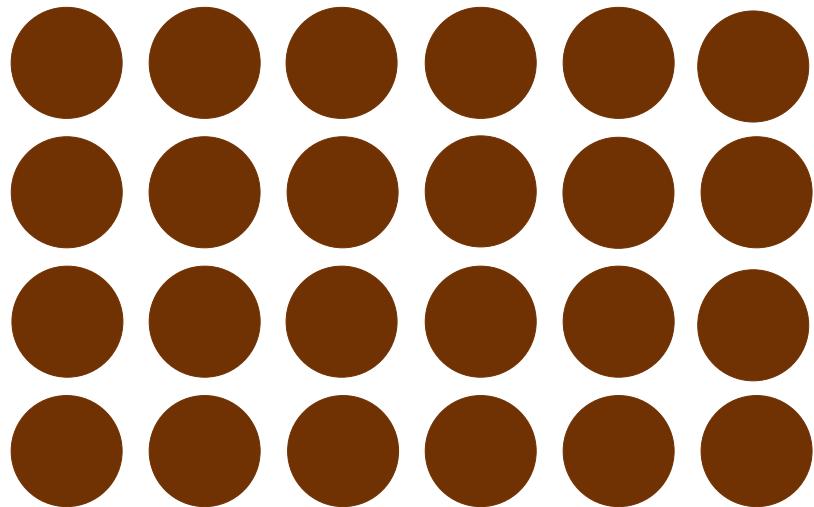
■ x 4



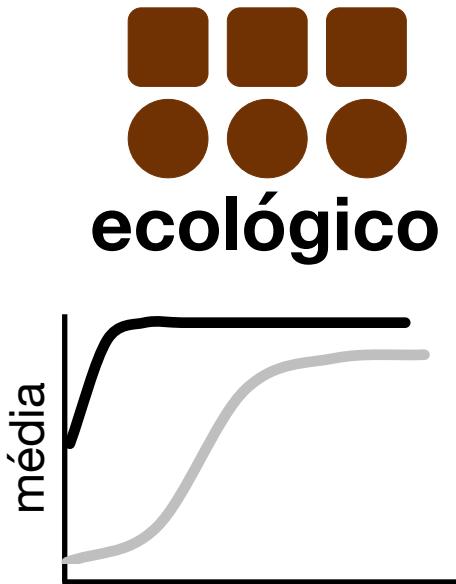
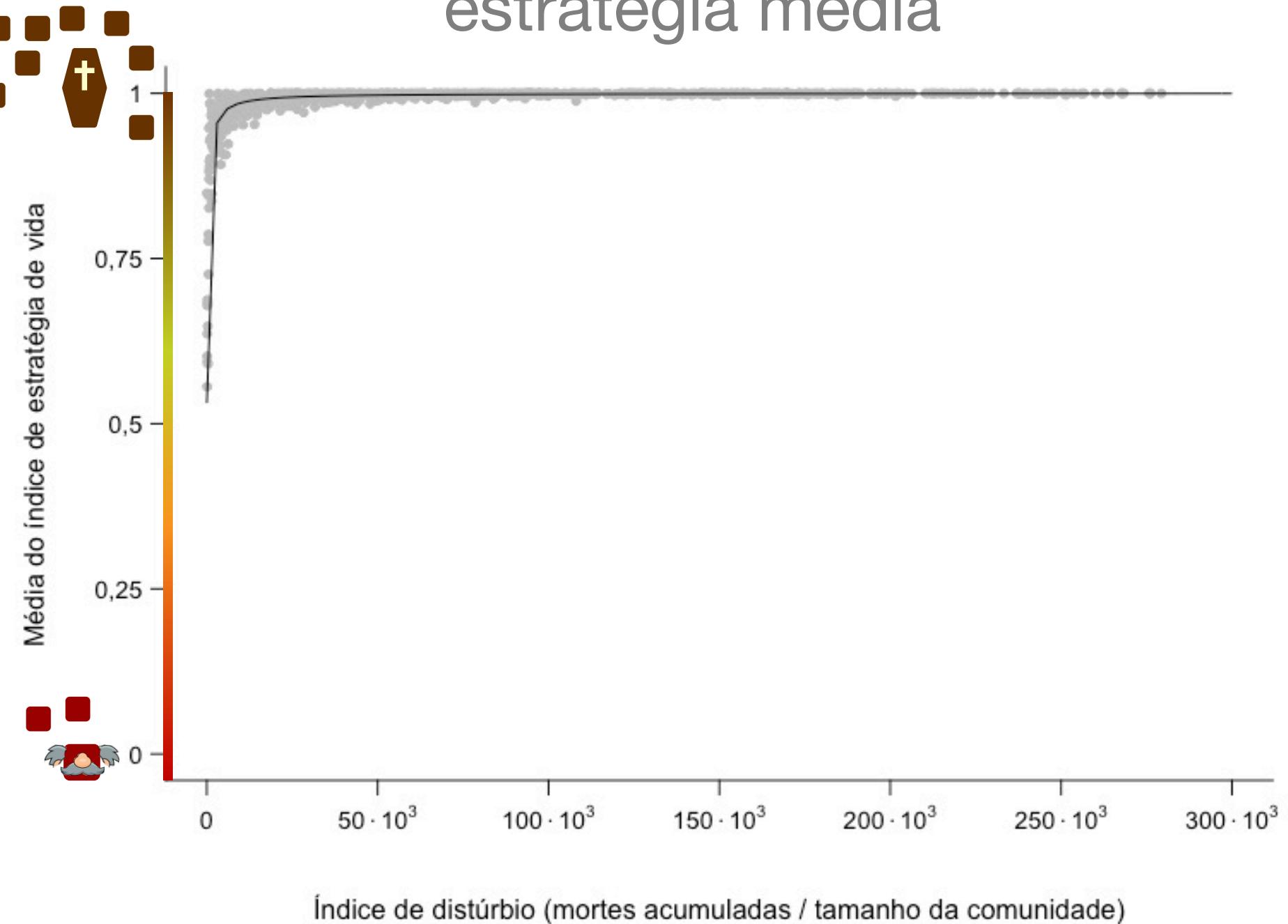
# exclusão competitiva de espécies

banco

● x 176

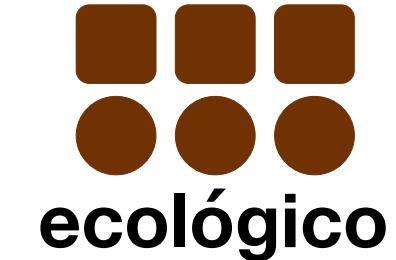
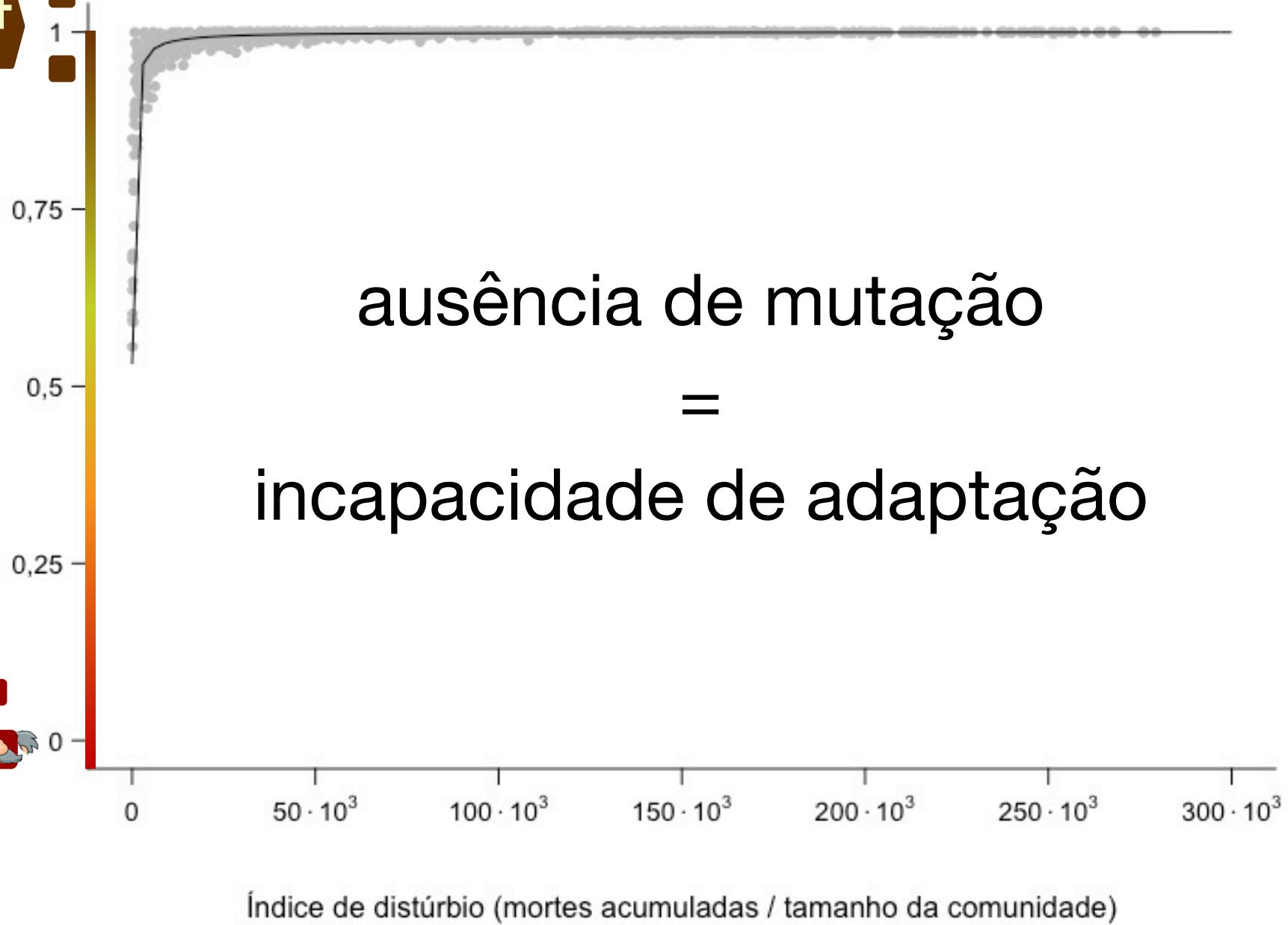


# estratégia média

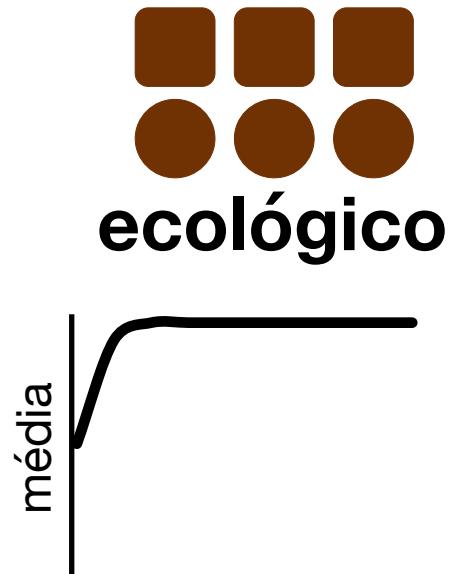
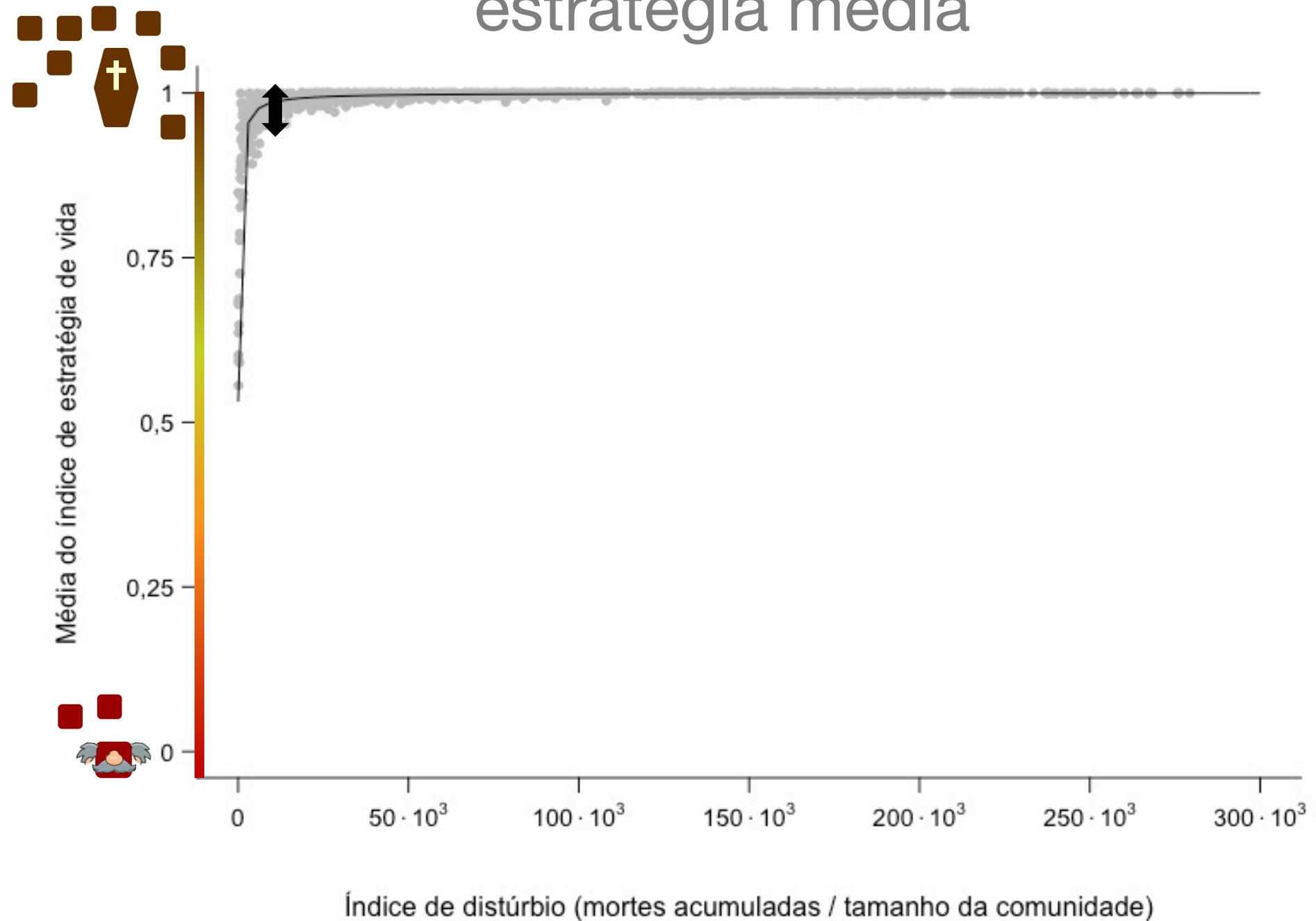


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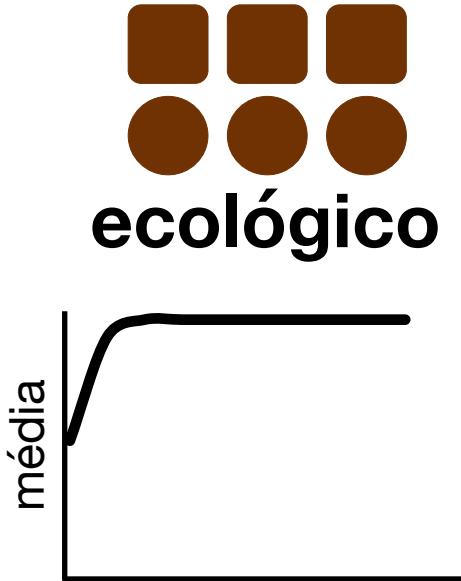
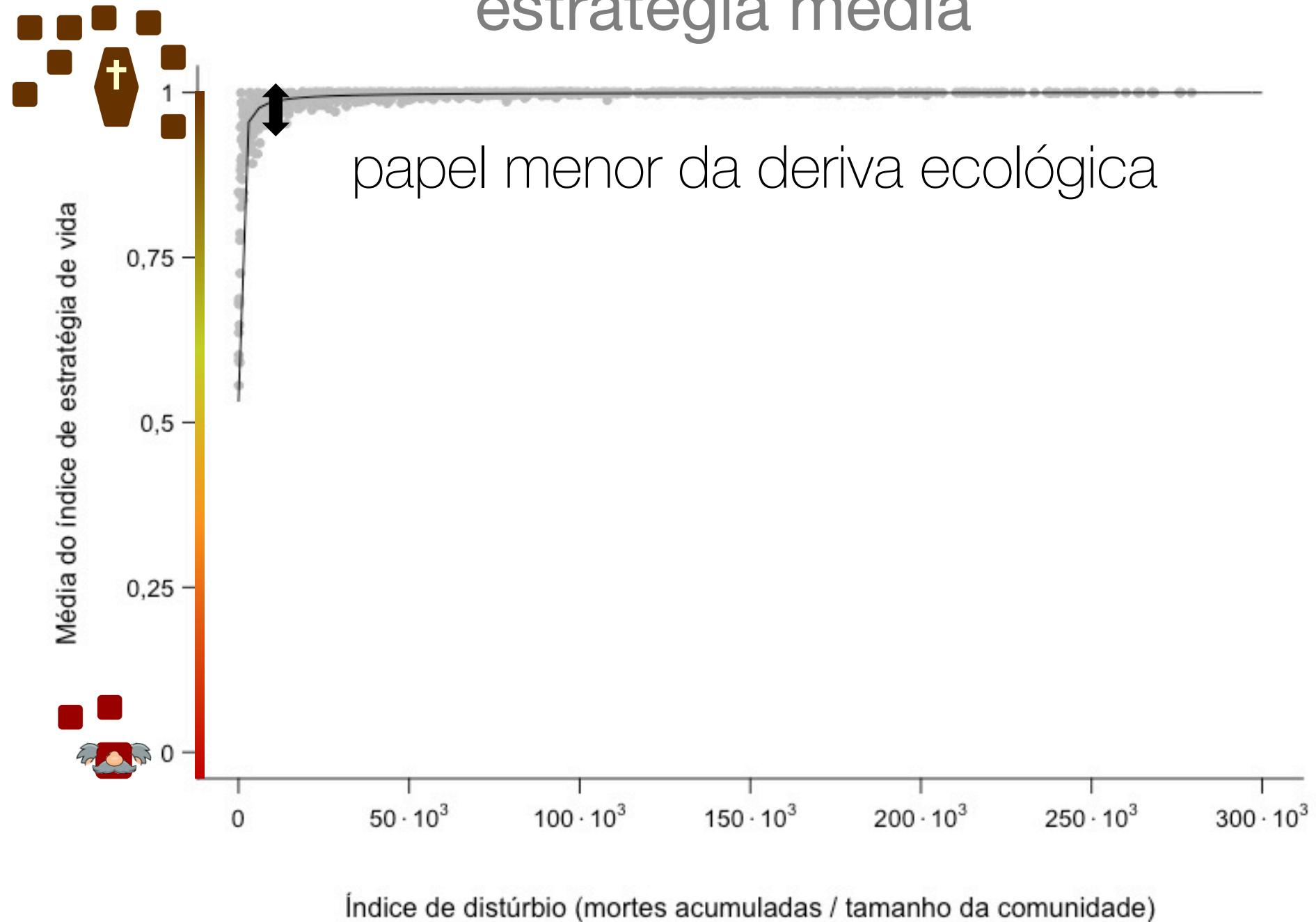
Média do índice de estratégia de vida



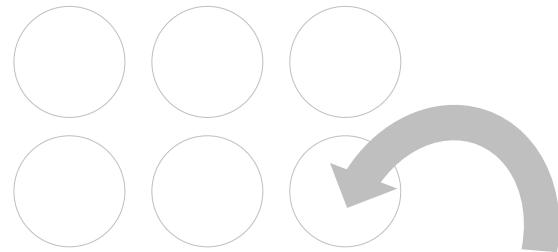
# estratégia média



# estratégia média



## evolutivo

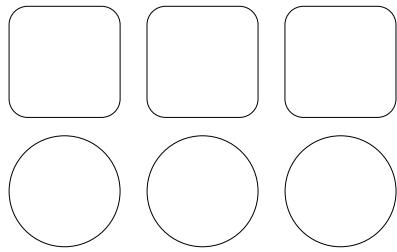


estratégia média

diversidade  
de estratégias

-

## ecológico

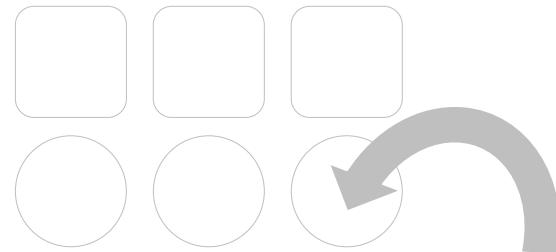


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

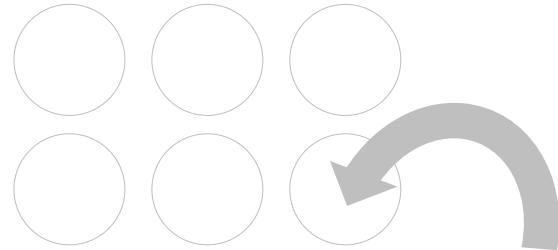


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

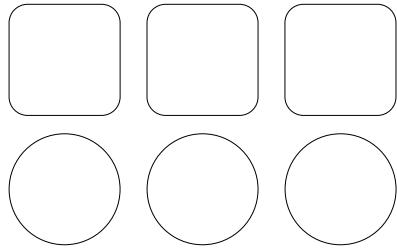


estratégia média

diversidade  
de estratégias

-

## ecológico

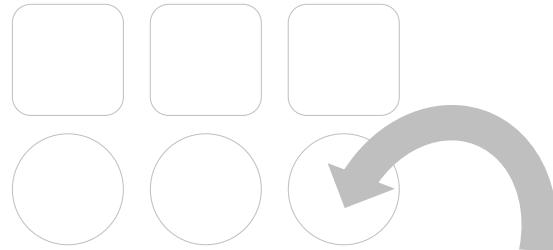


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

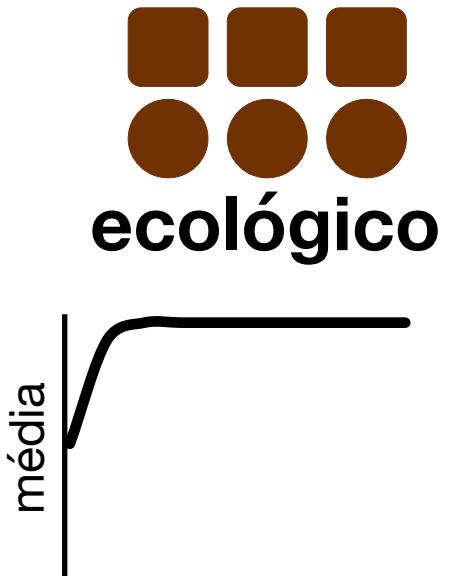
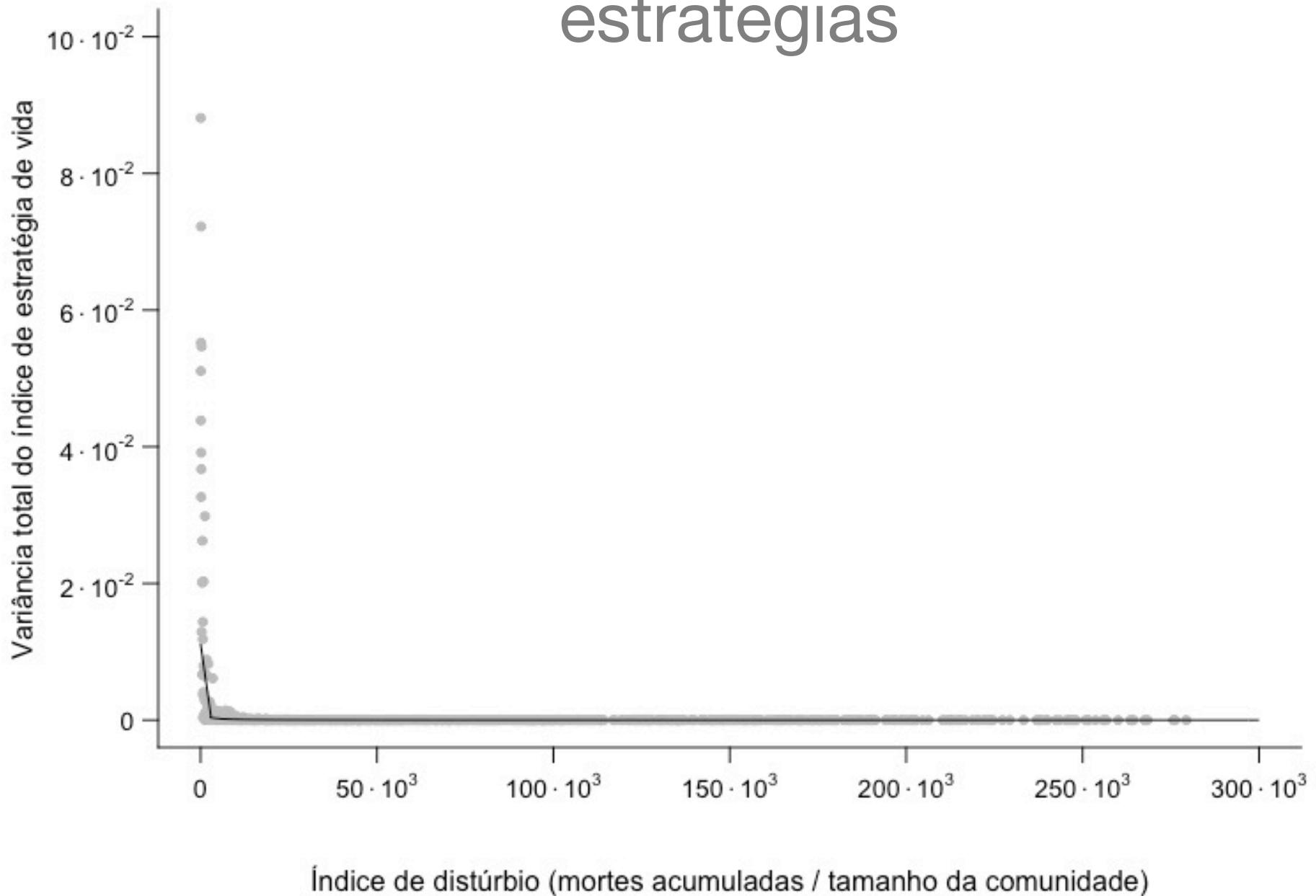


estratégia média

diversidade  
de estratégias

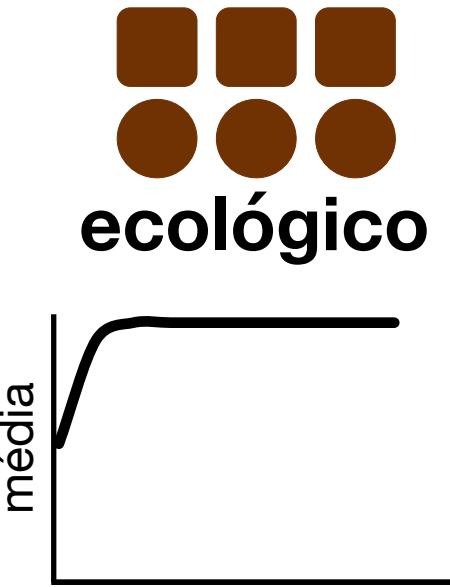
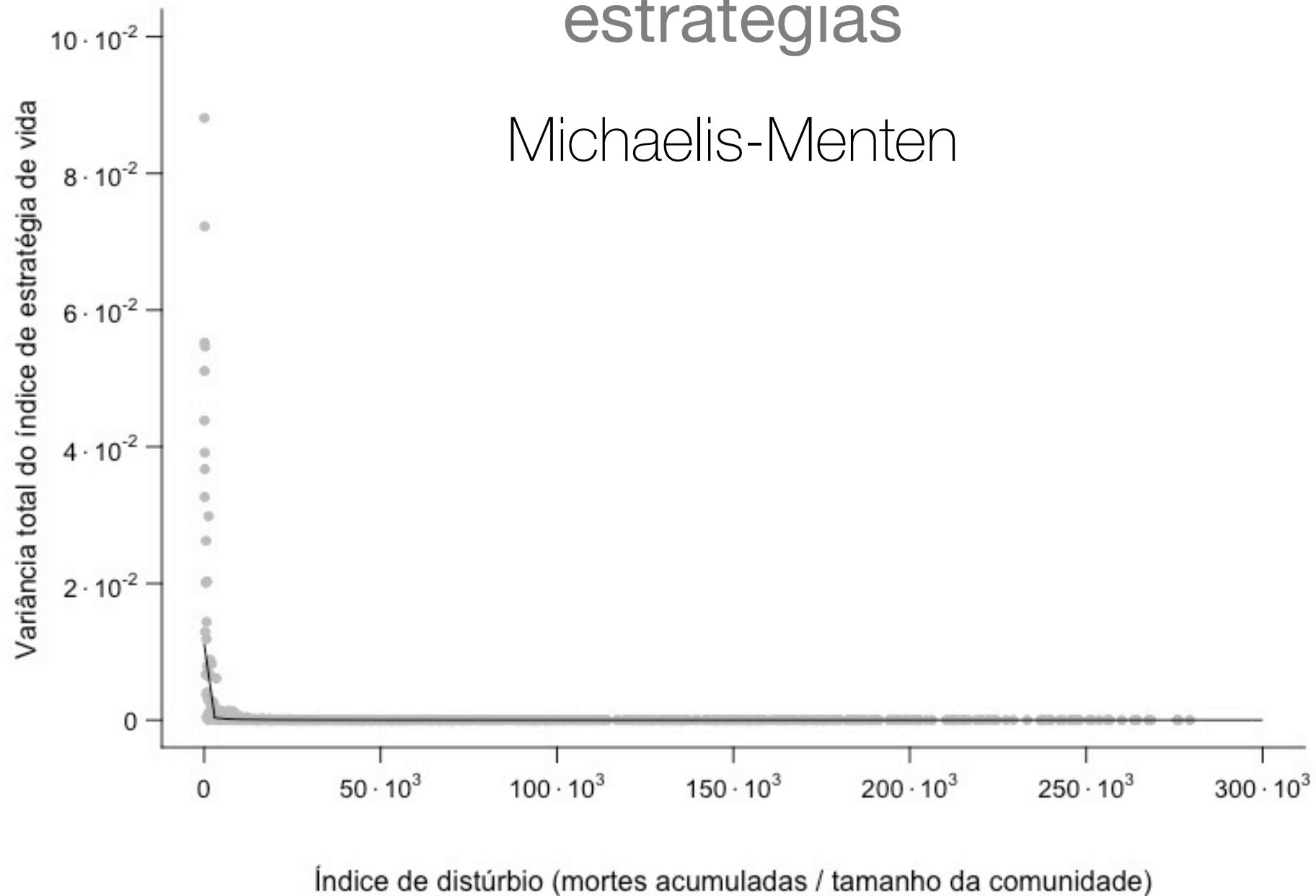
heterogeneidade  
interespecífica de  
estratégias

# diversidade de estratégias



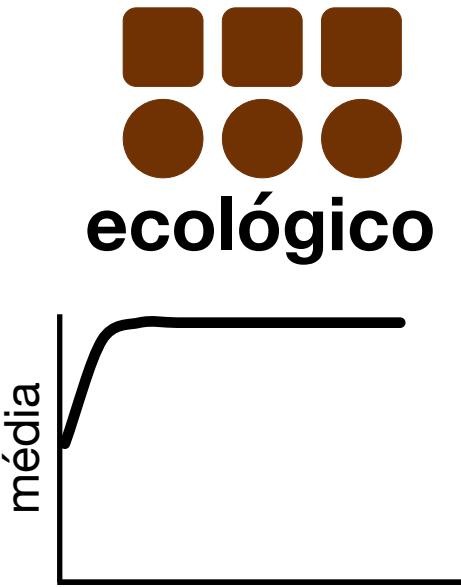
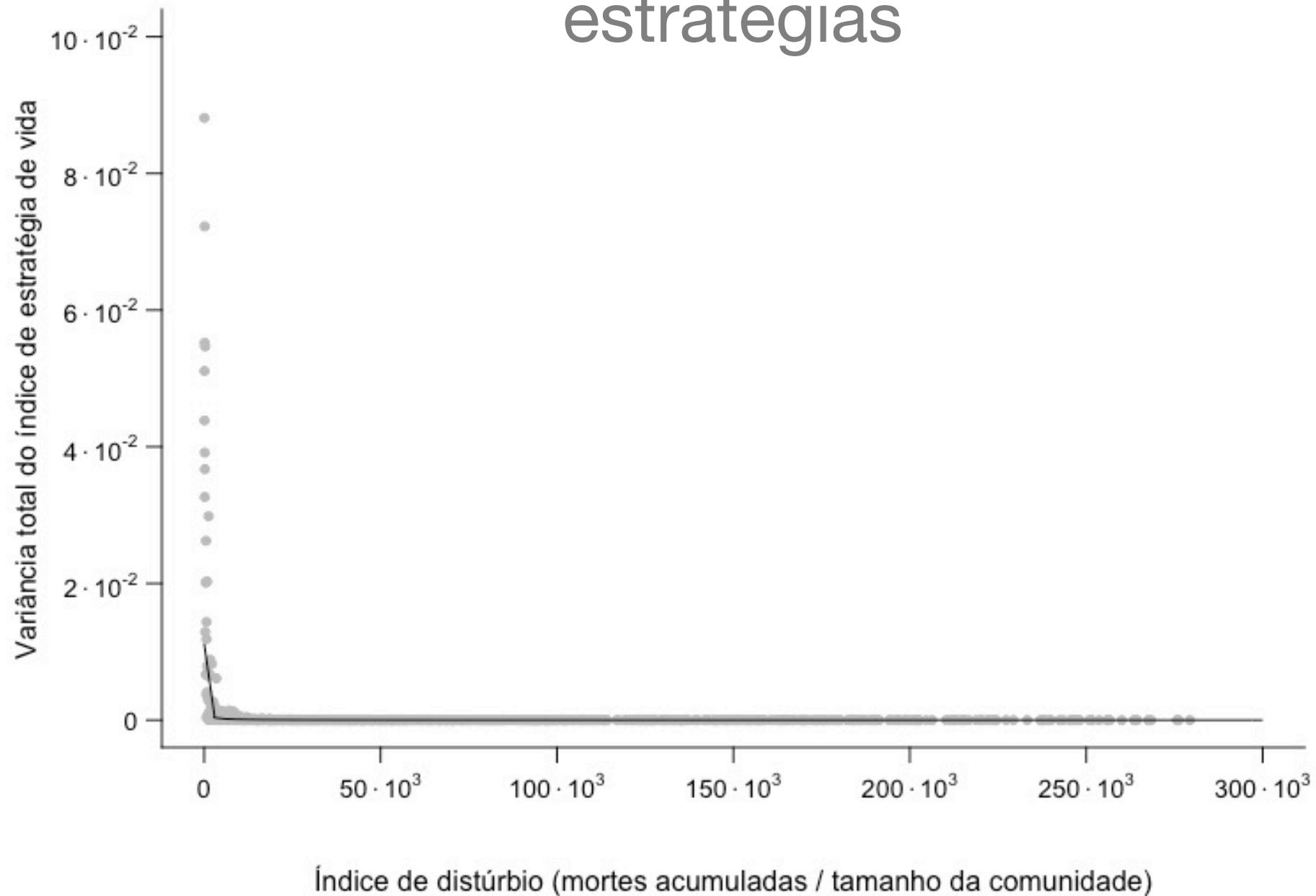
# diversidade de estratégias

## resultados e discussão

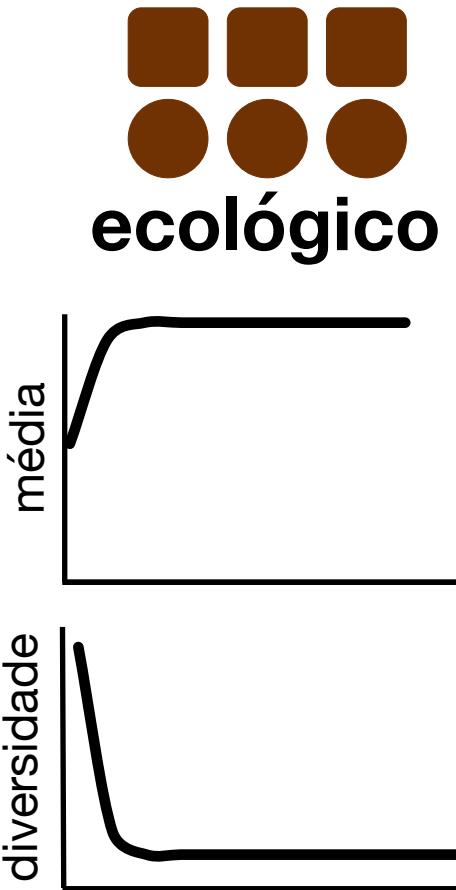
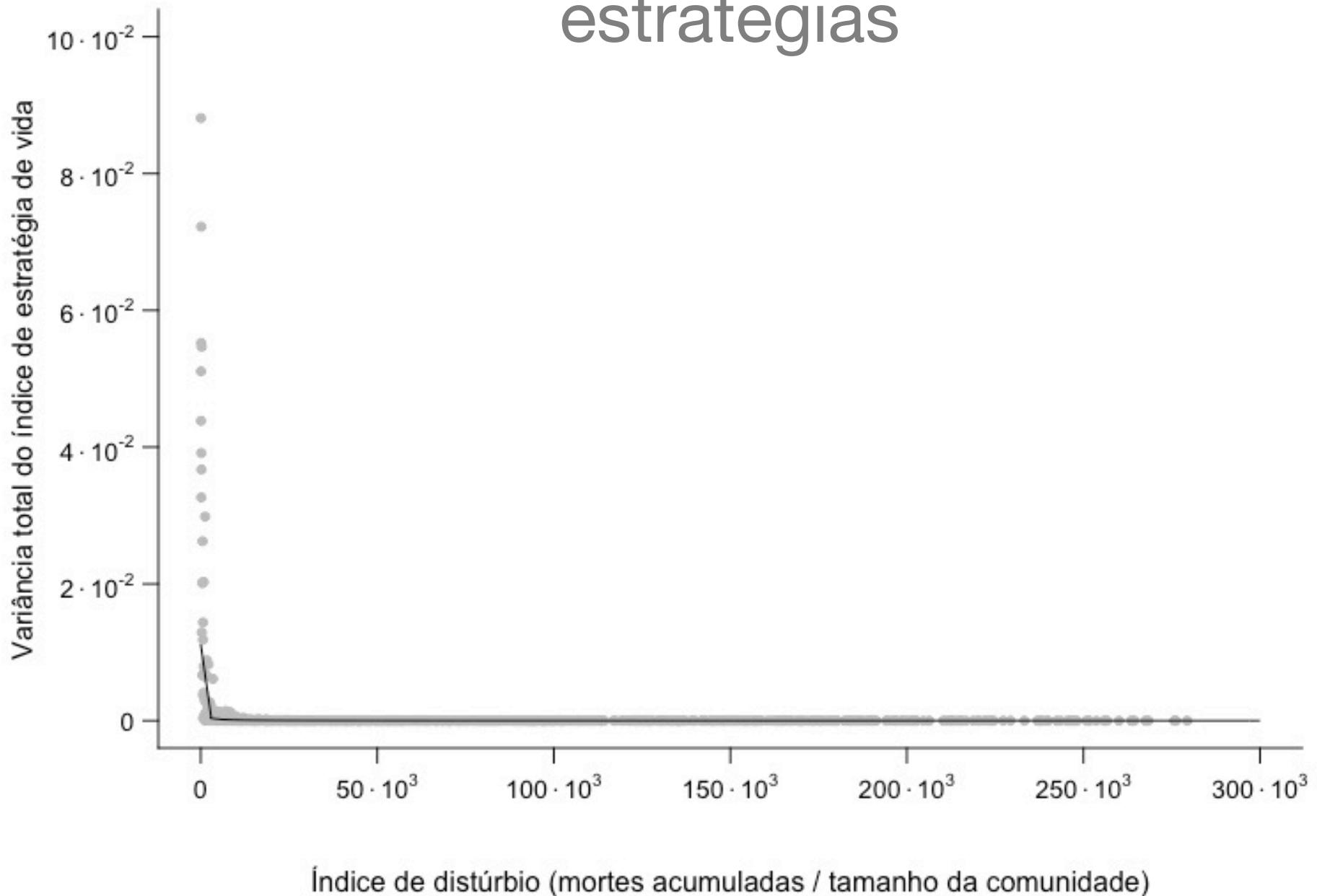


# diversidade de estratégias

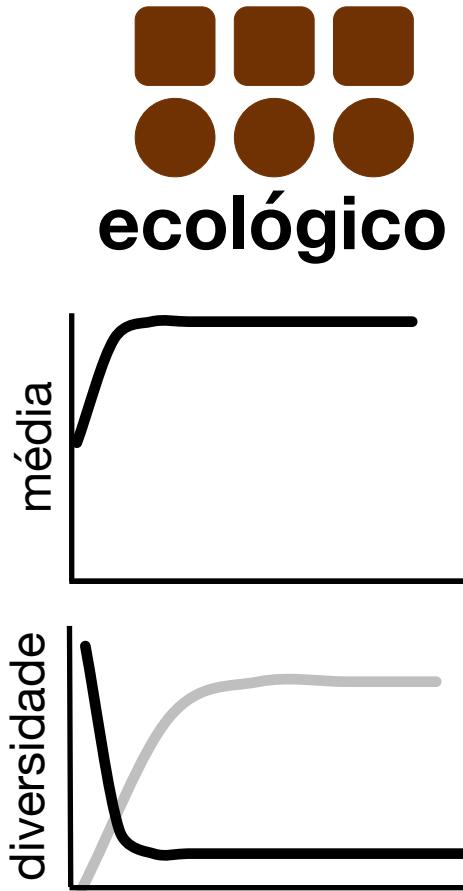
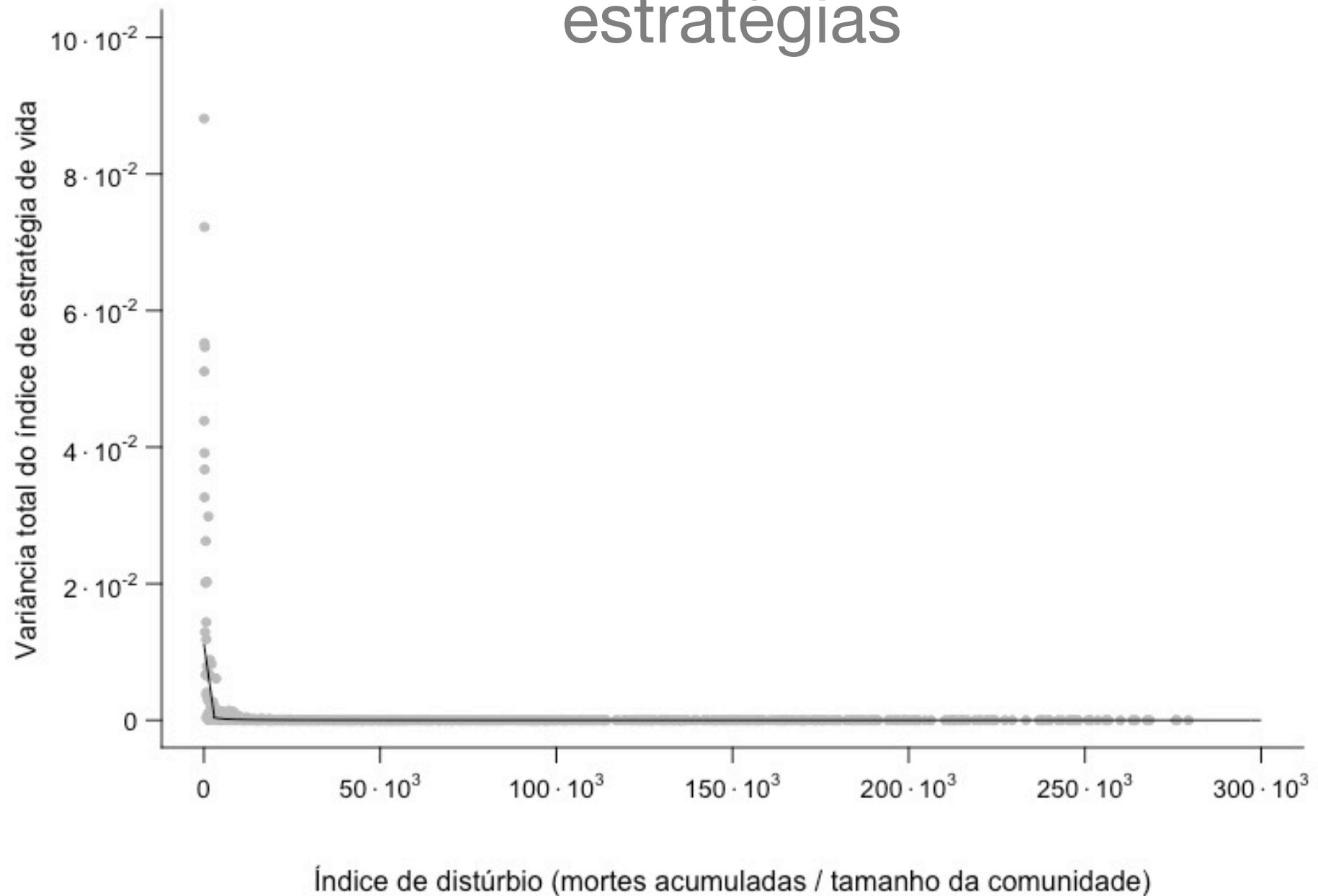
resultados e discussão



# diversidade de estratégias

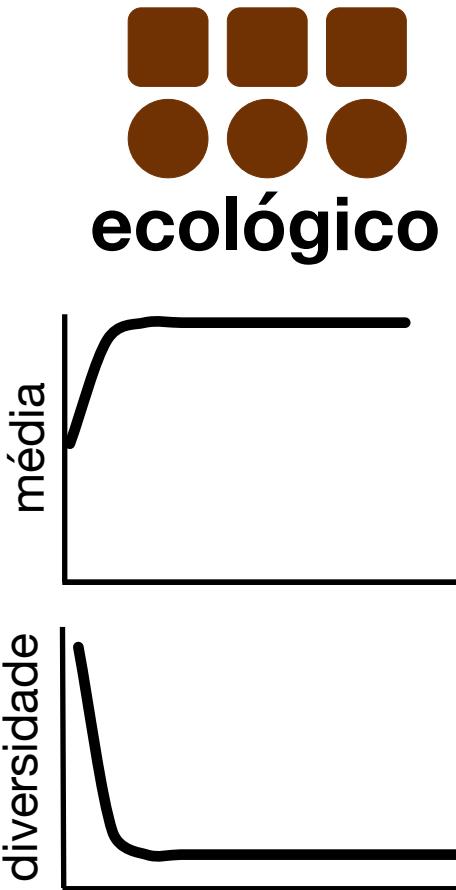
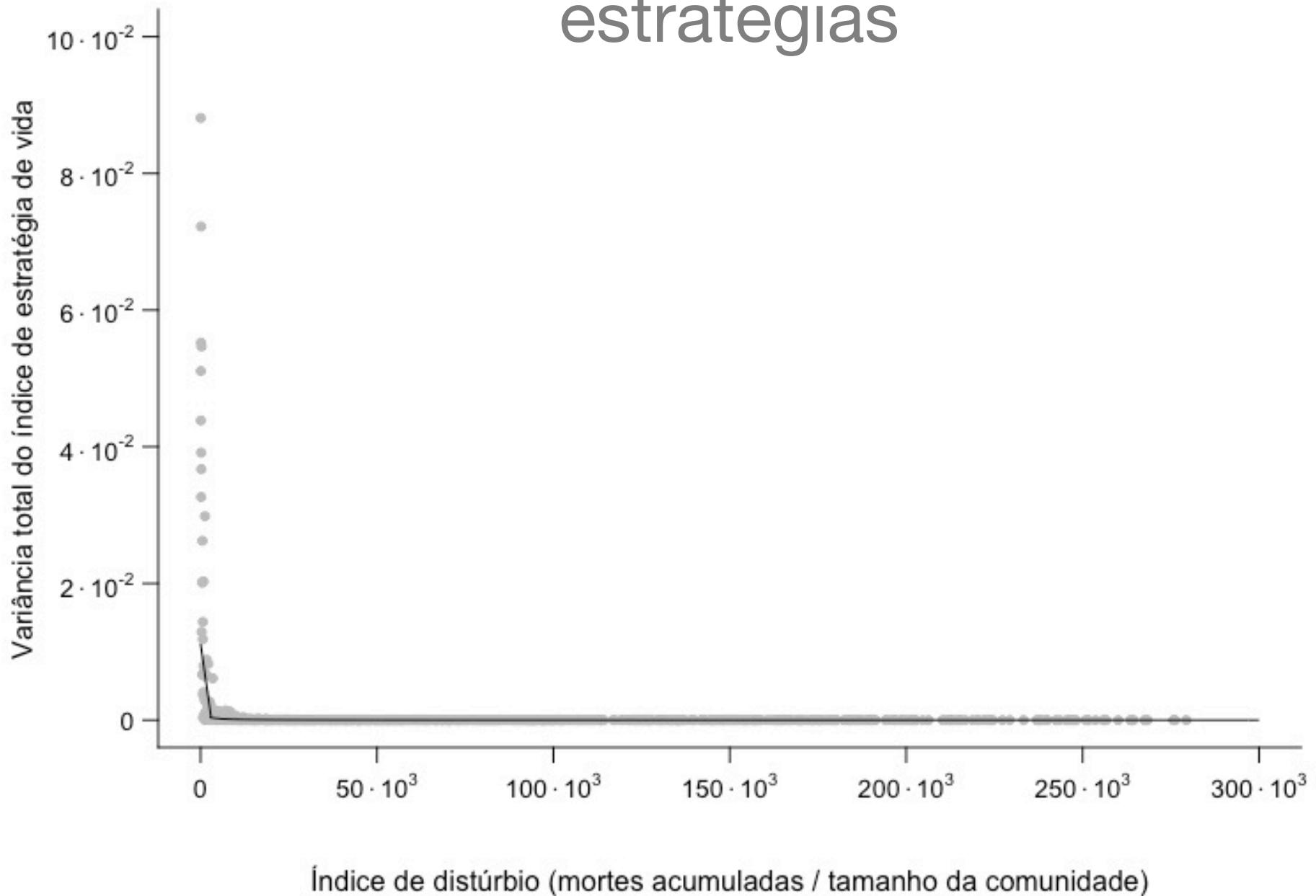


# diversidade de estratégias

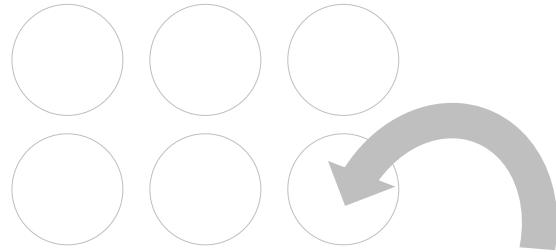


**ecológico**

# diversidade de estratégias



## evolutivo

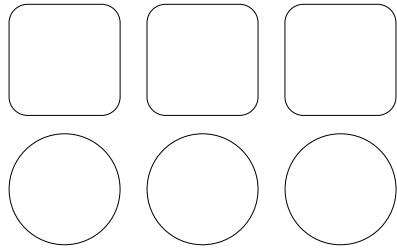


estratégia média

diversidade  
de estratégias

-

## ecológico

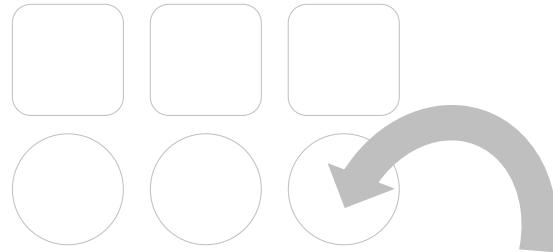


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

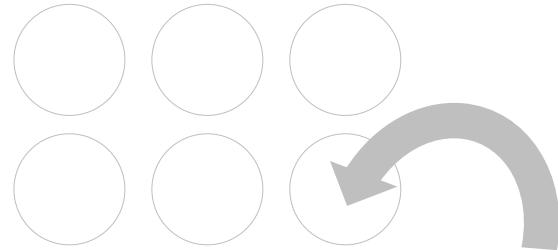


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

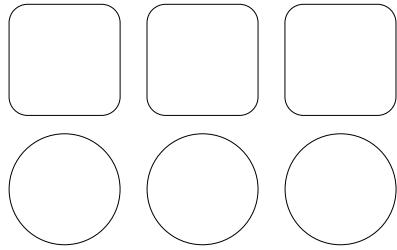


estratégia média

diversidade  
de estratégias

-

## ecológico

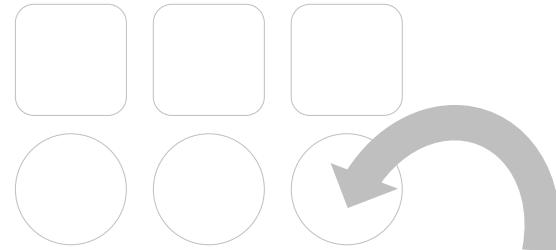


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

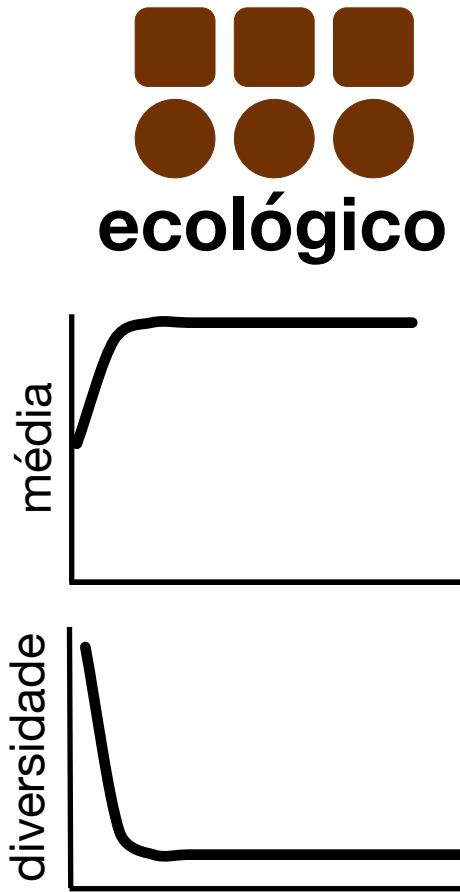
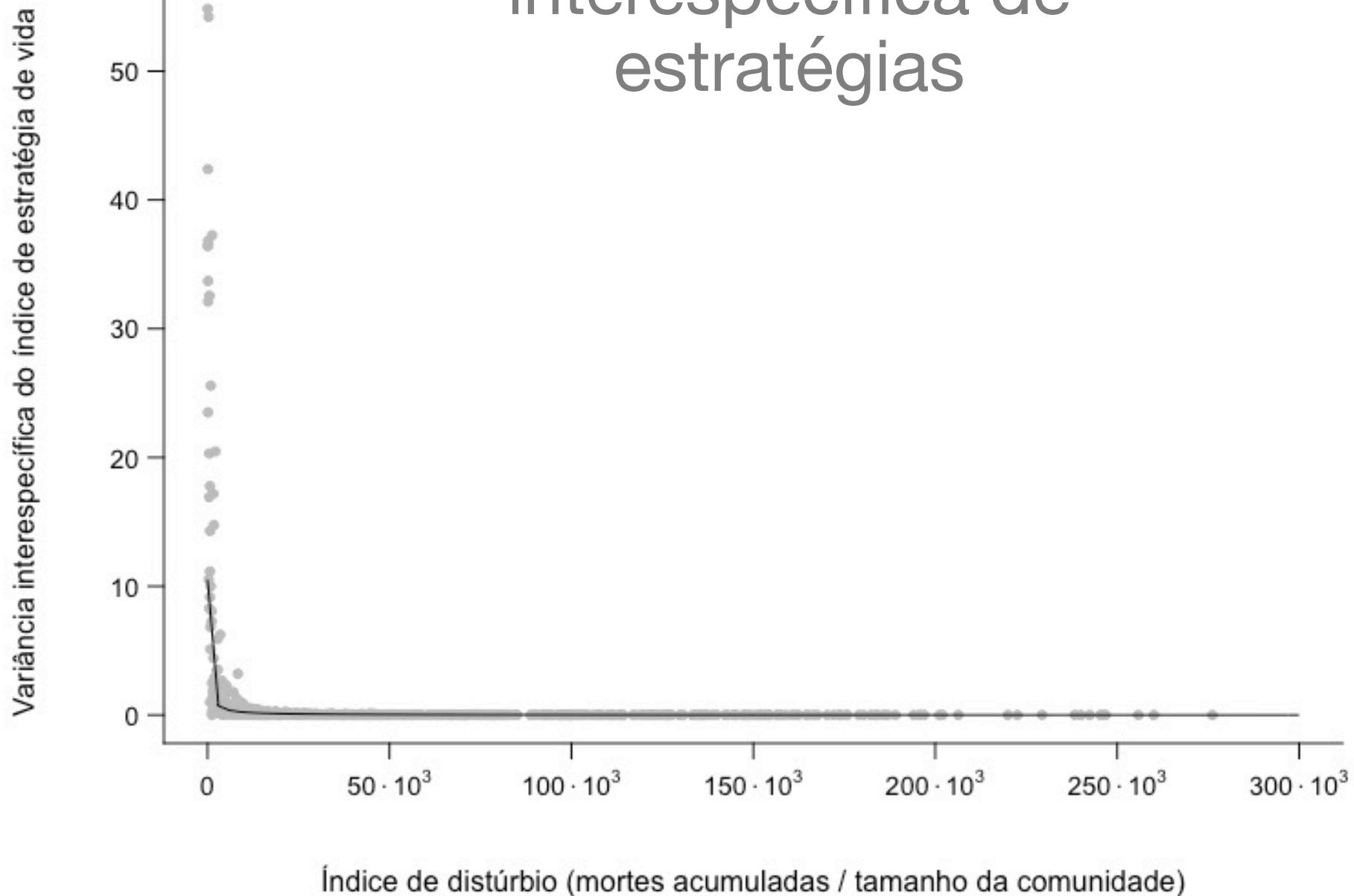


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

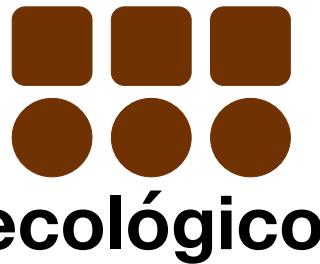
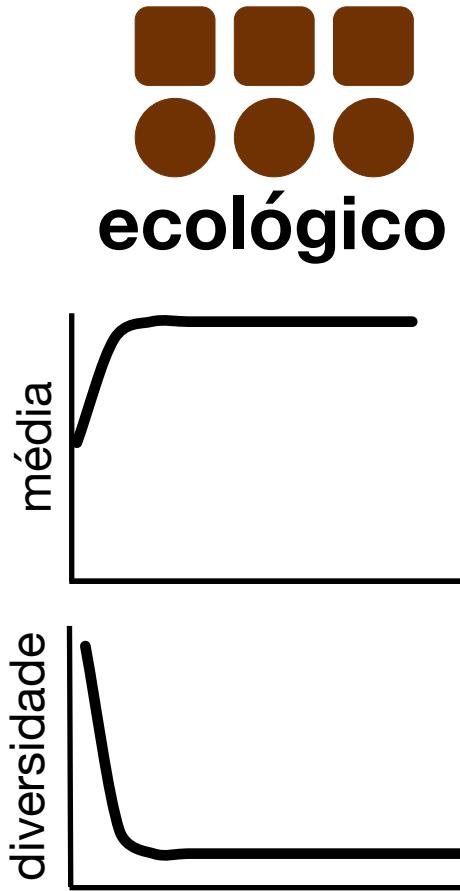
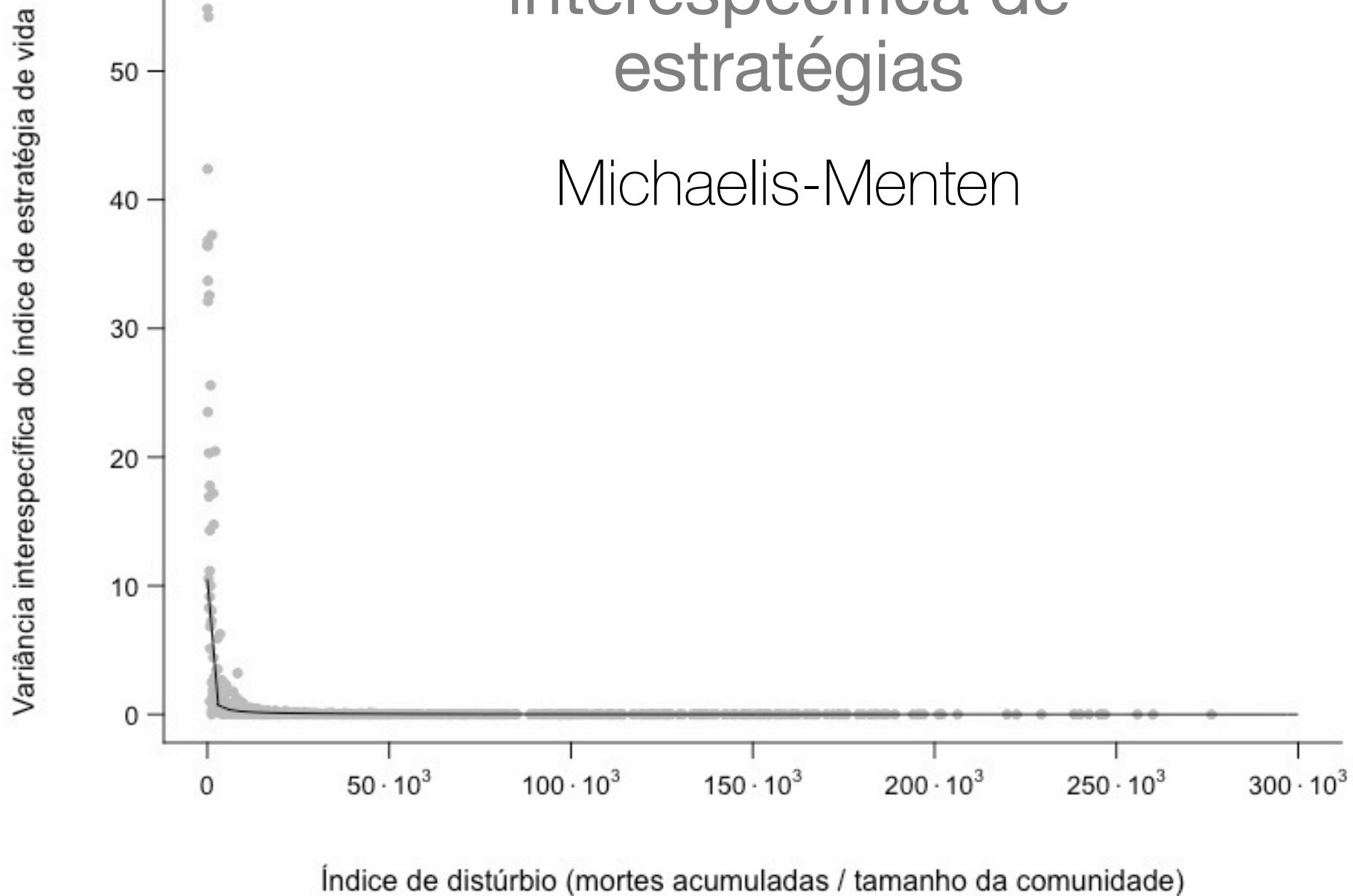
# heterogeneidade interespecífica de estratégias



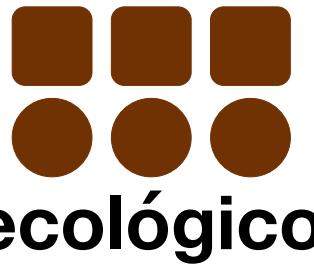
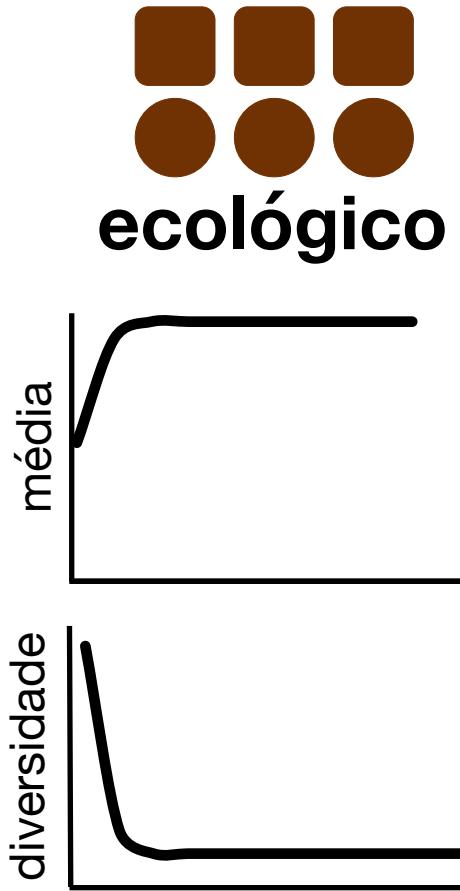
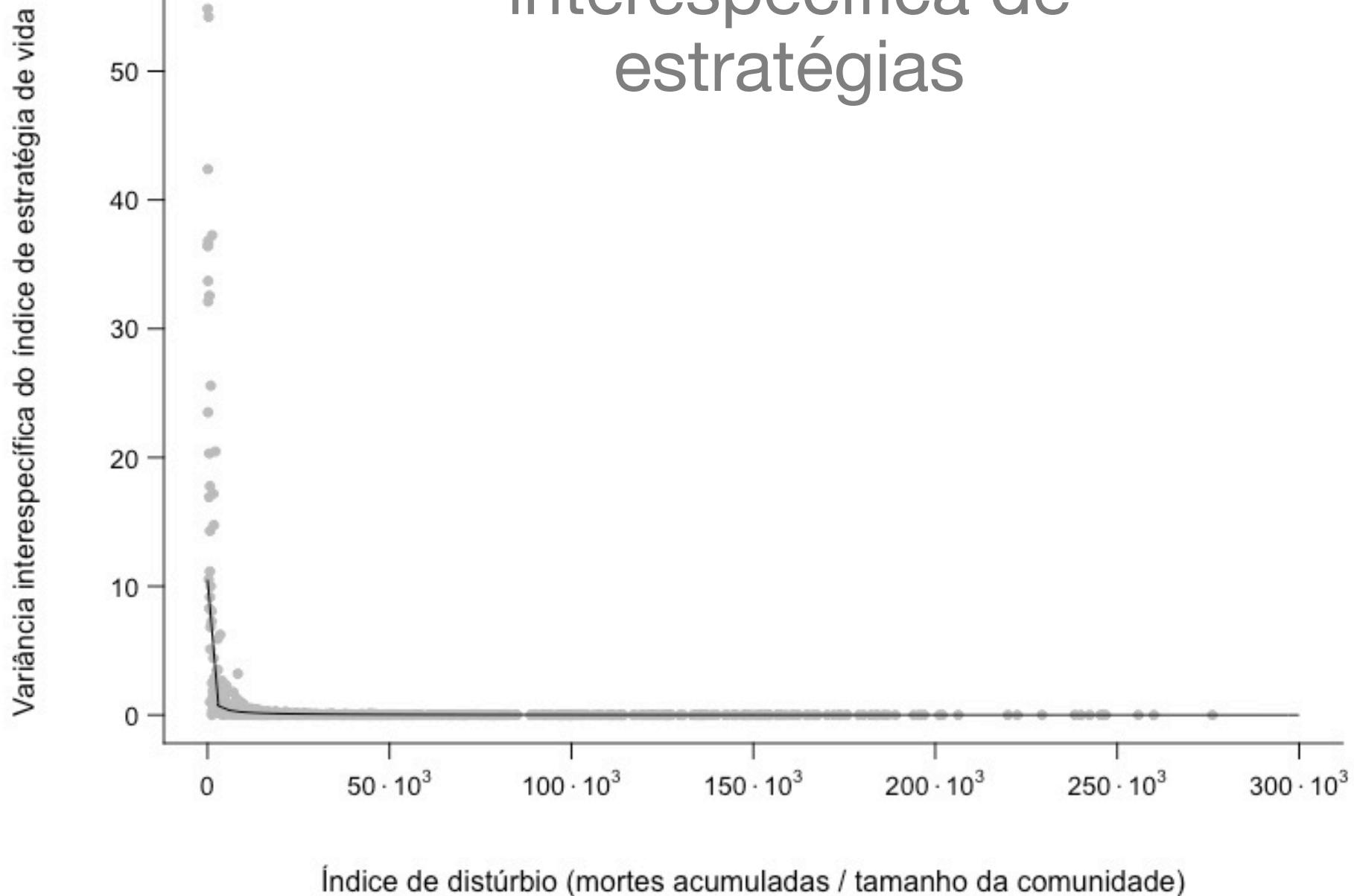
**ecológico**

# heterogeneidade interespecífica de estratégias

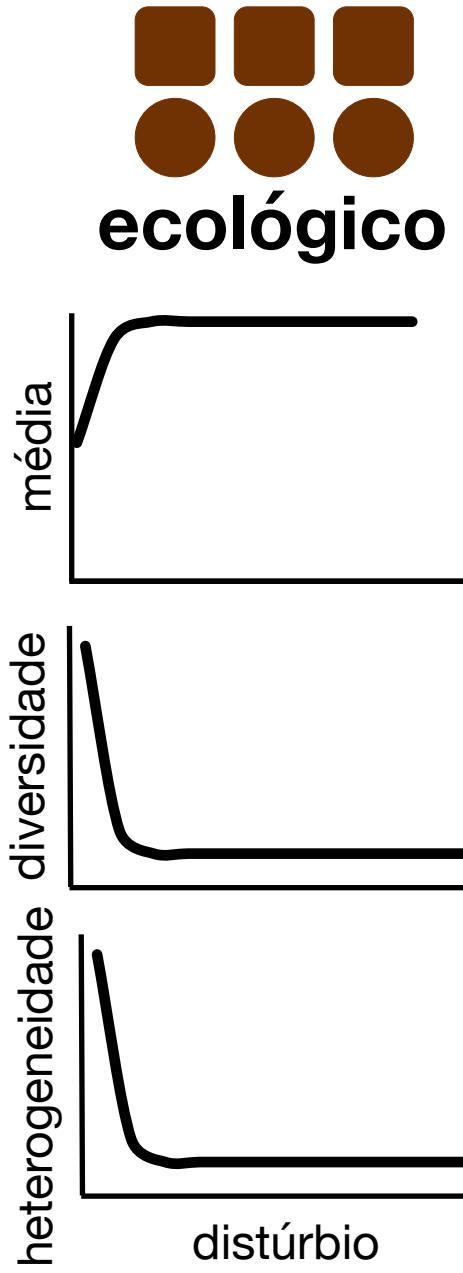
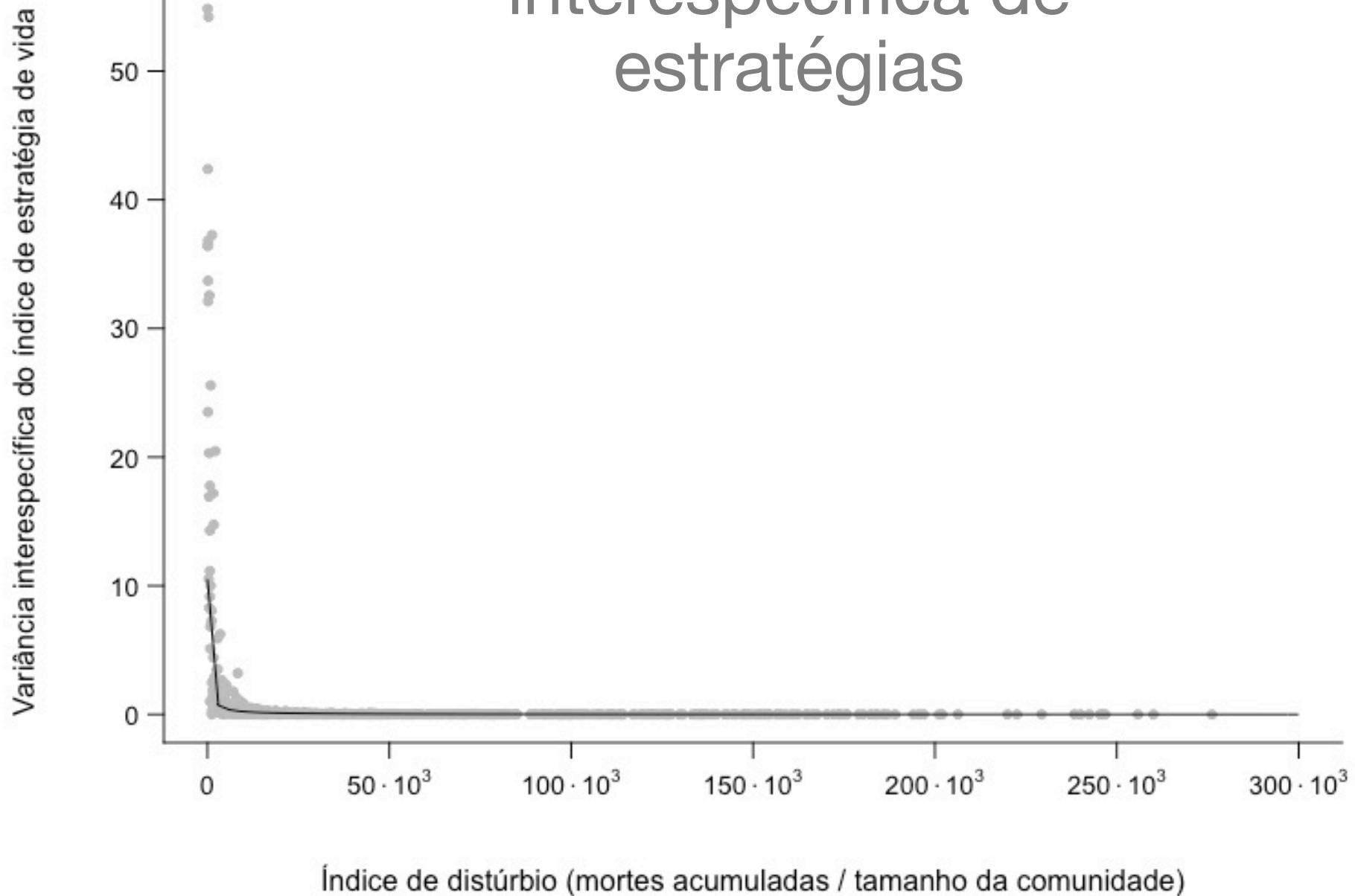
Michaelis-Menten

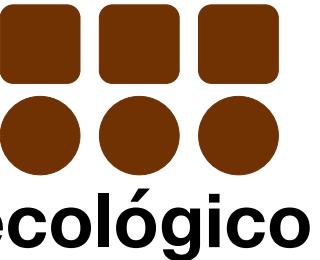


# heterogeneidade interespecífica de estratégias

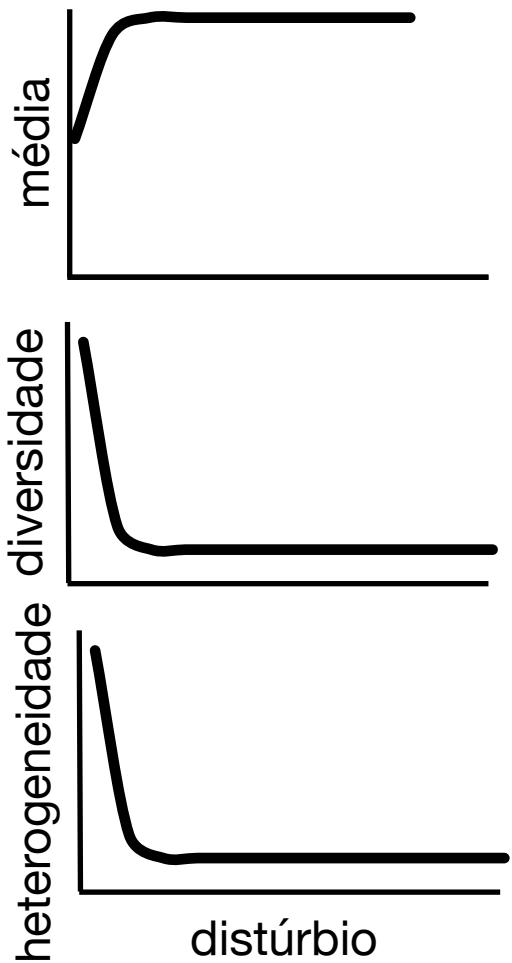


# heterogeneidade interespecífica de estratégias

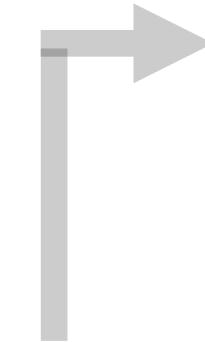




  
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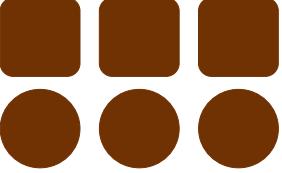


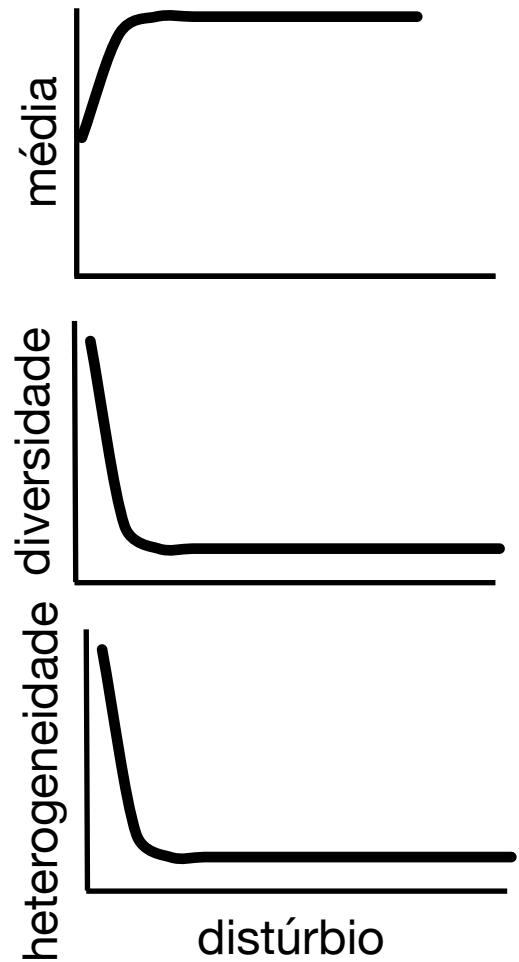
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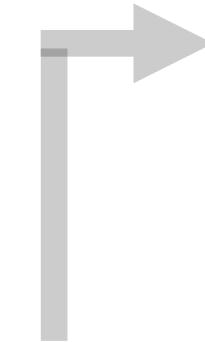
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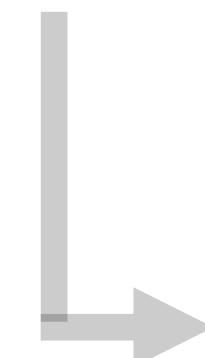
  
**ecológico**



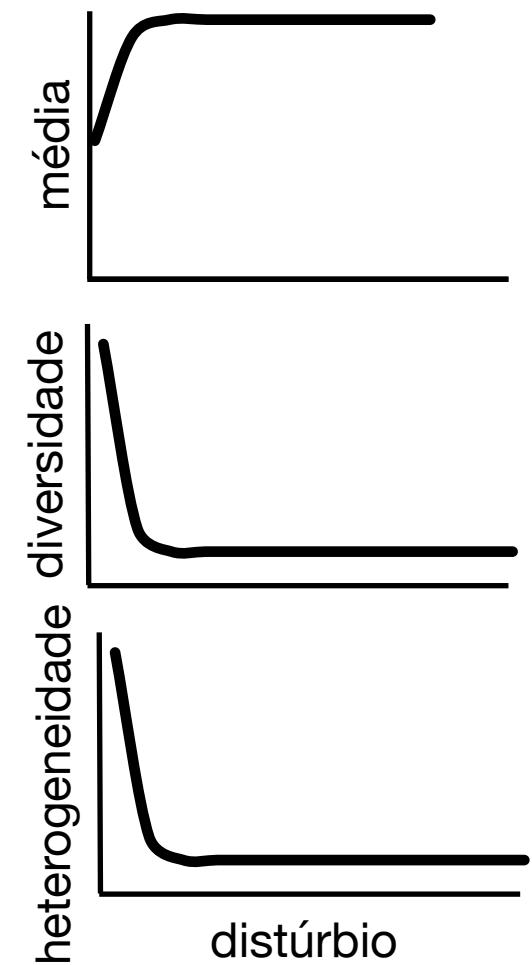
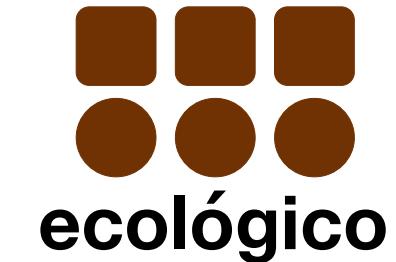
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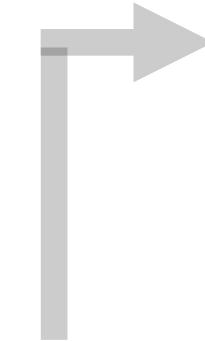
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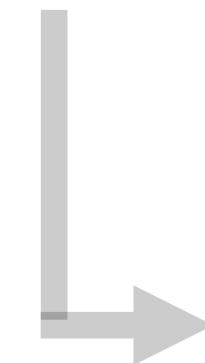
**redução**



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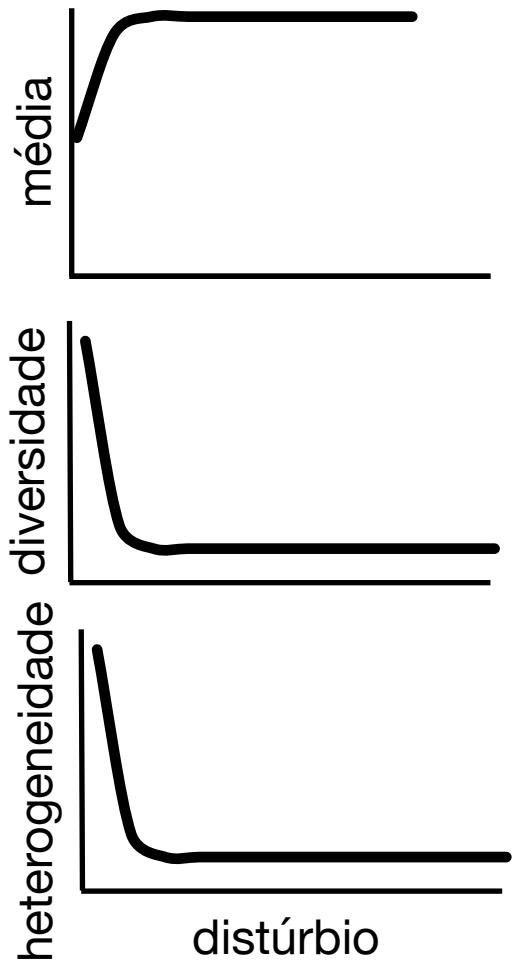
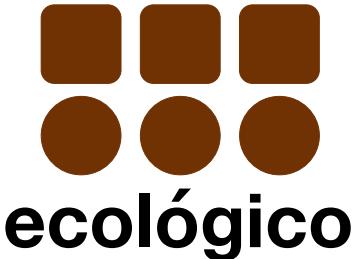


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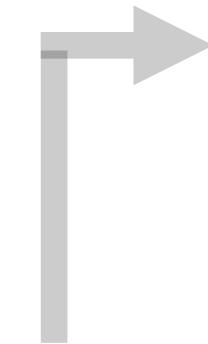


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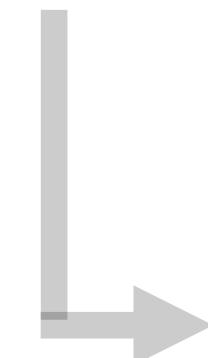
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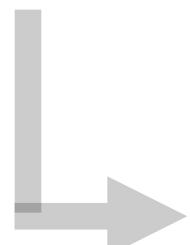
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**distúrbio**



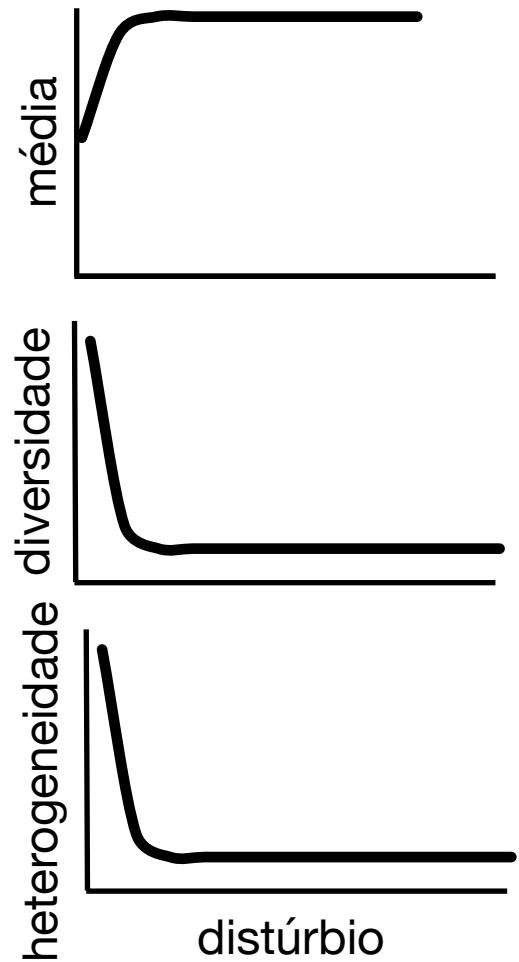
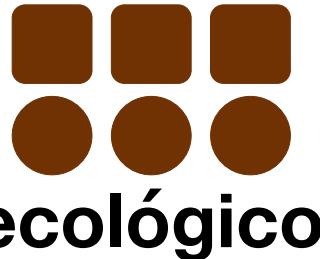
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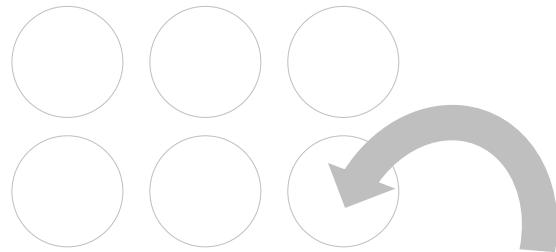
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**exclusão competitiva**

**exclusão competitiva**



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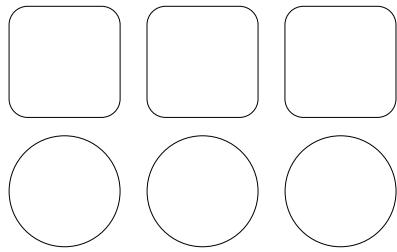


estratégia média

diversidade  
de estratégias

-

## ecológico

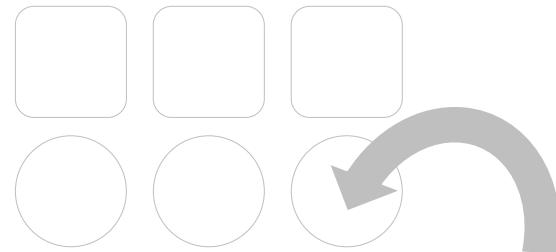


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

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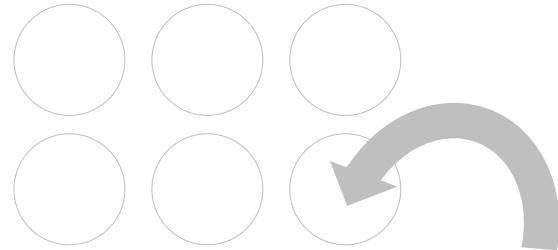


estratégia média

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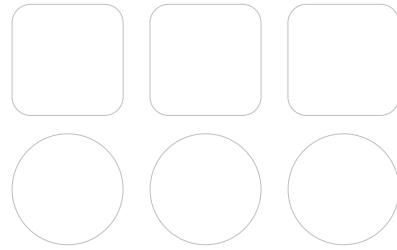


estratégia média

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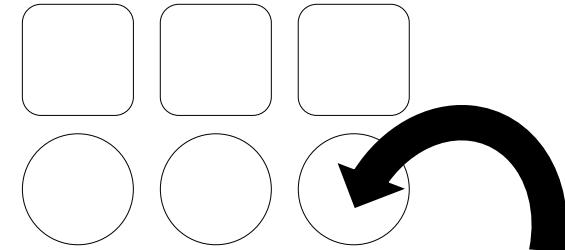


estratégia média

diversidade  
de estratégias

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estratégias

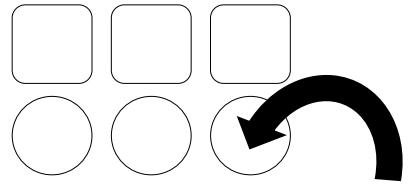
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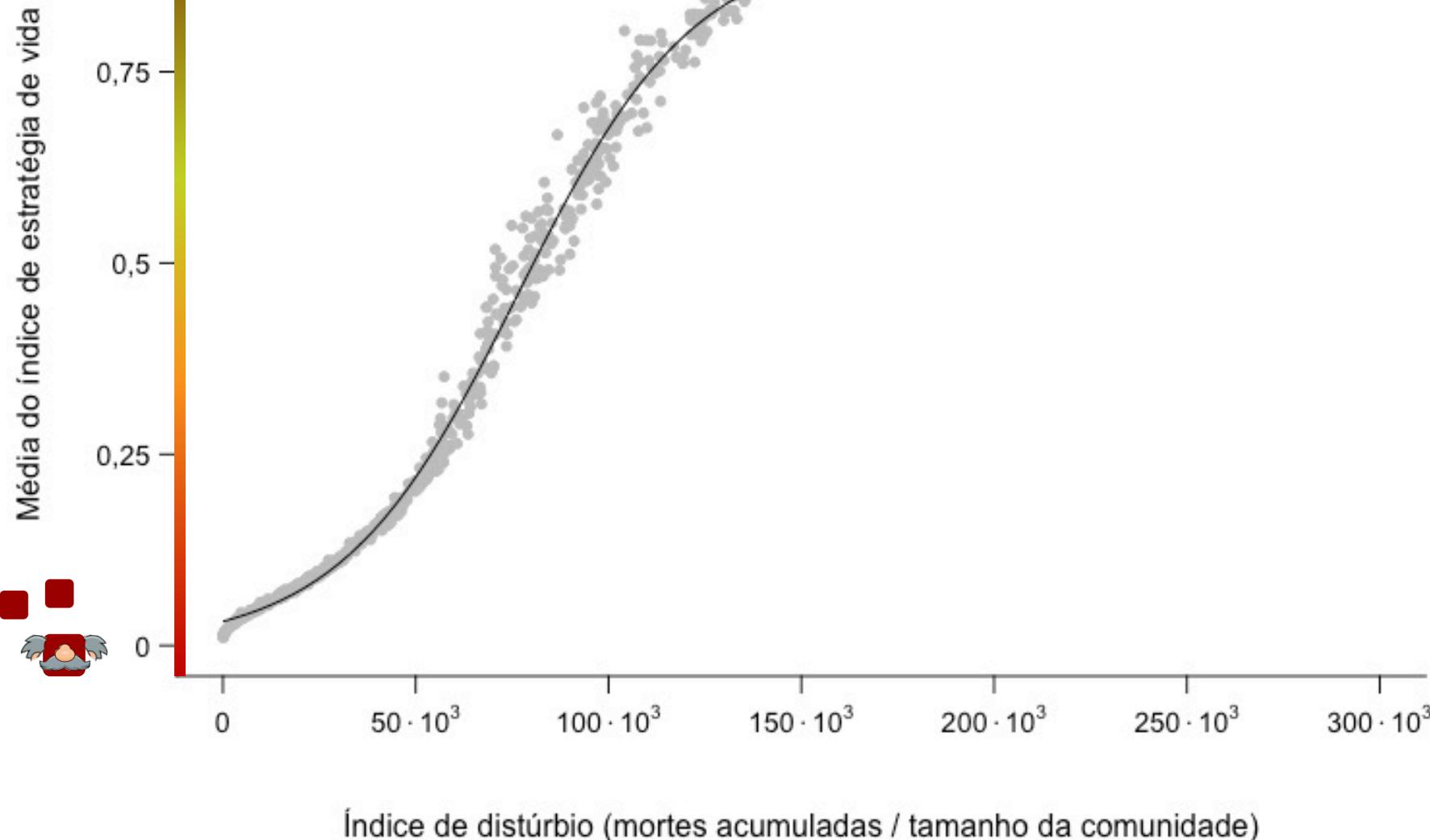
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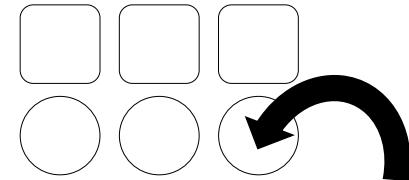


**eco-evolutivo**

# estratégia média



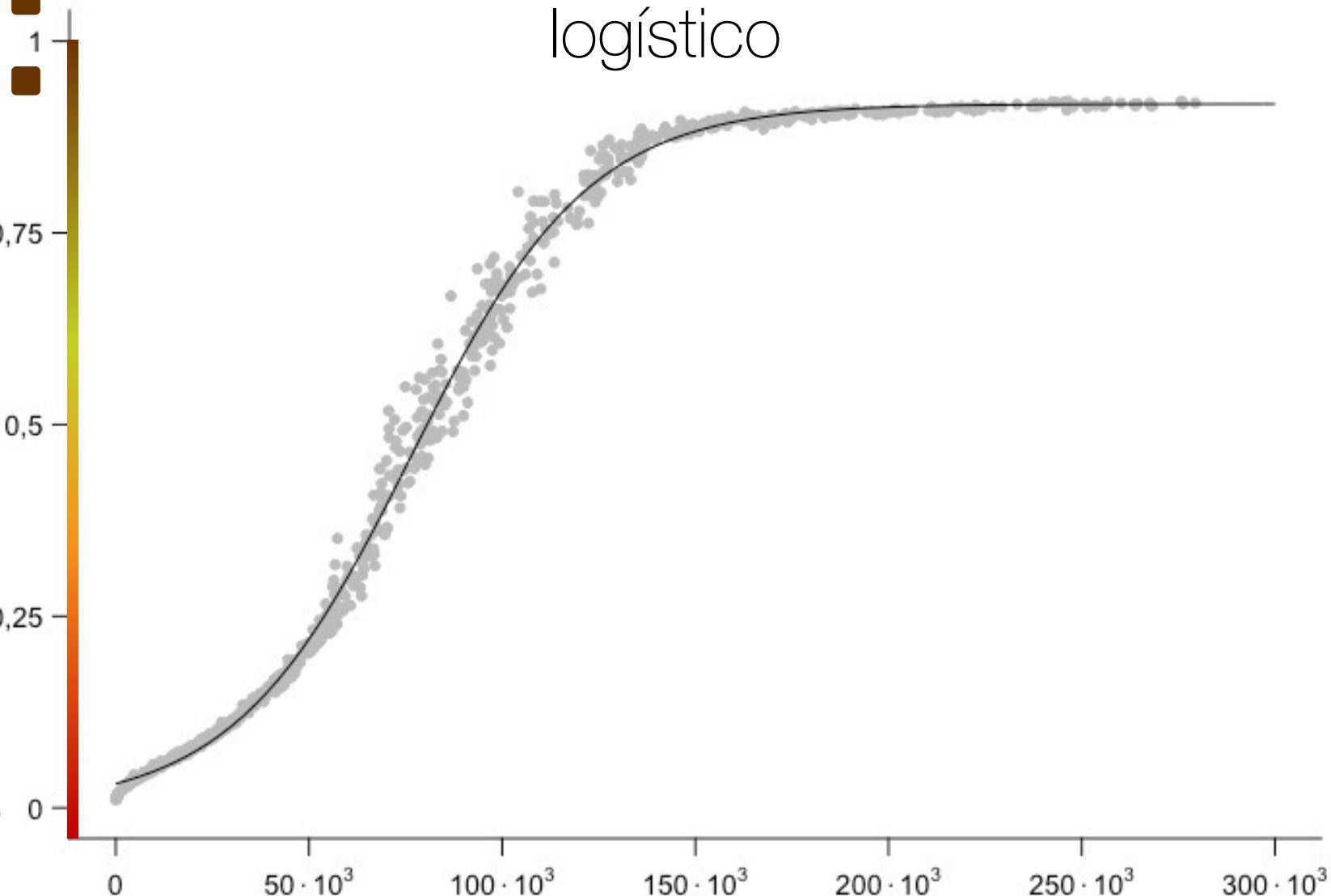
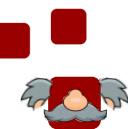
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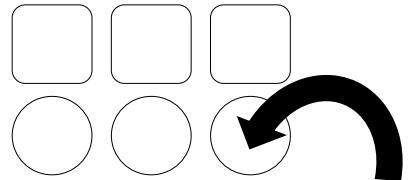
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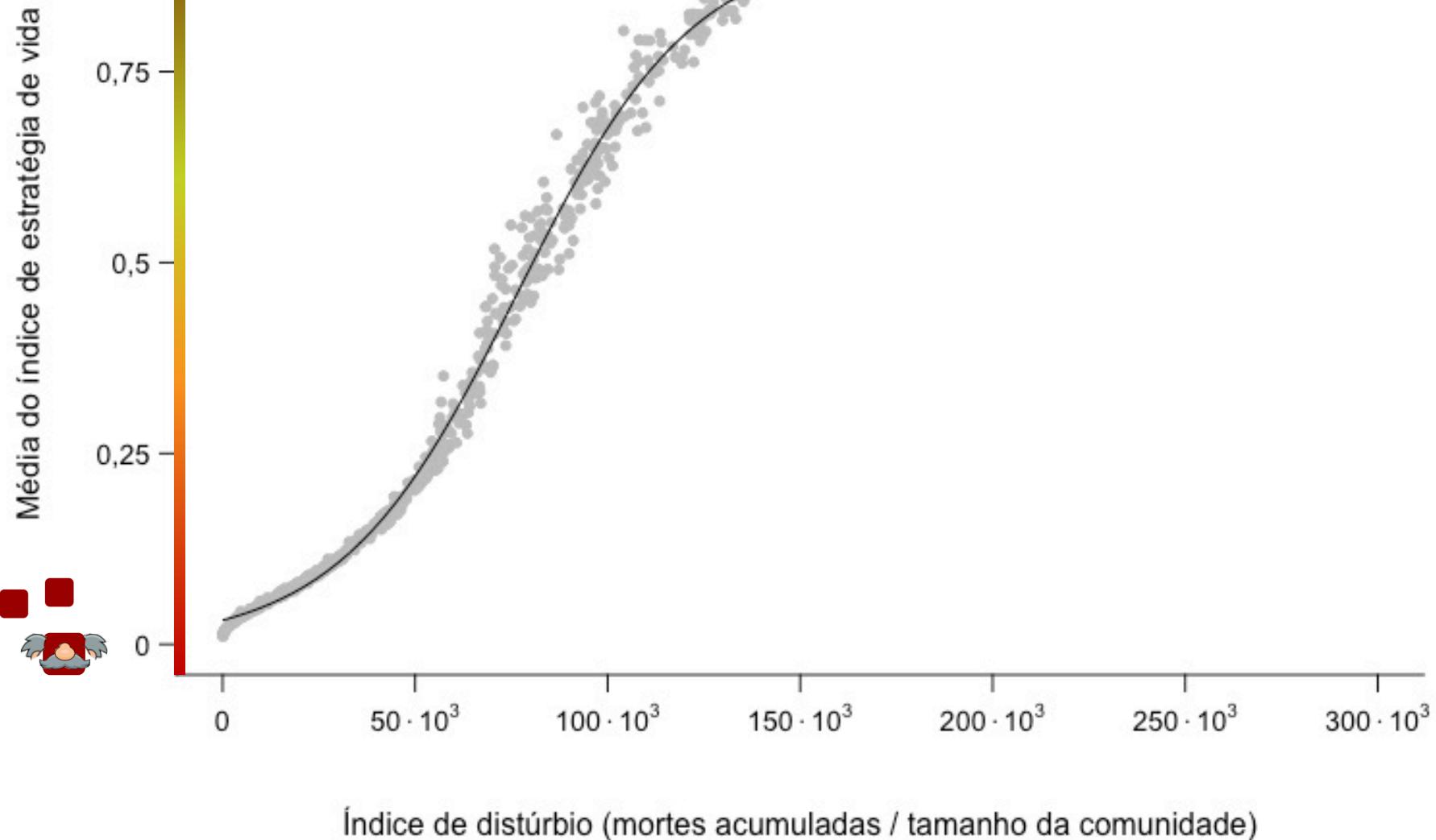
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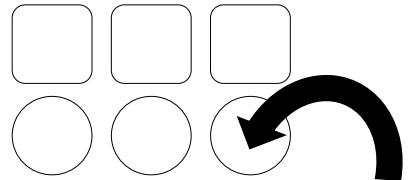
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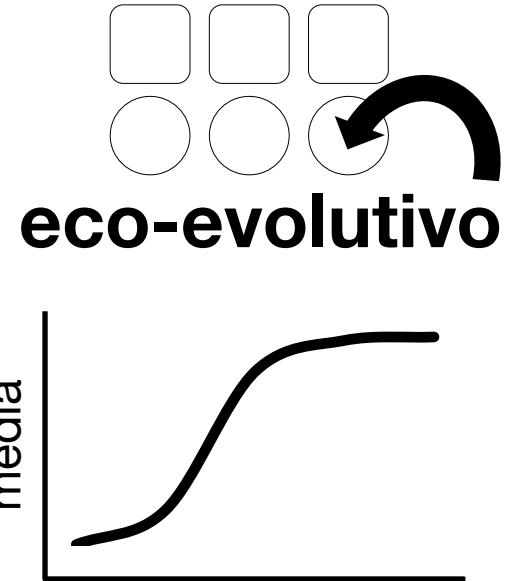
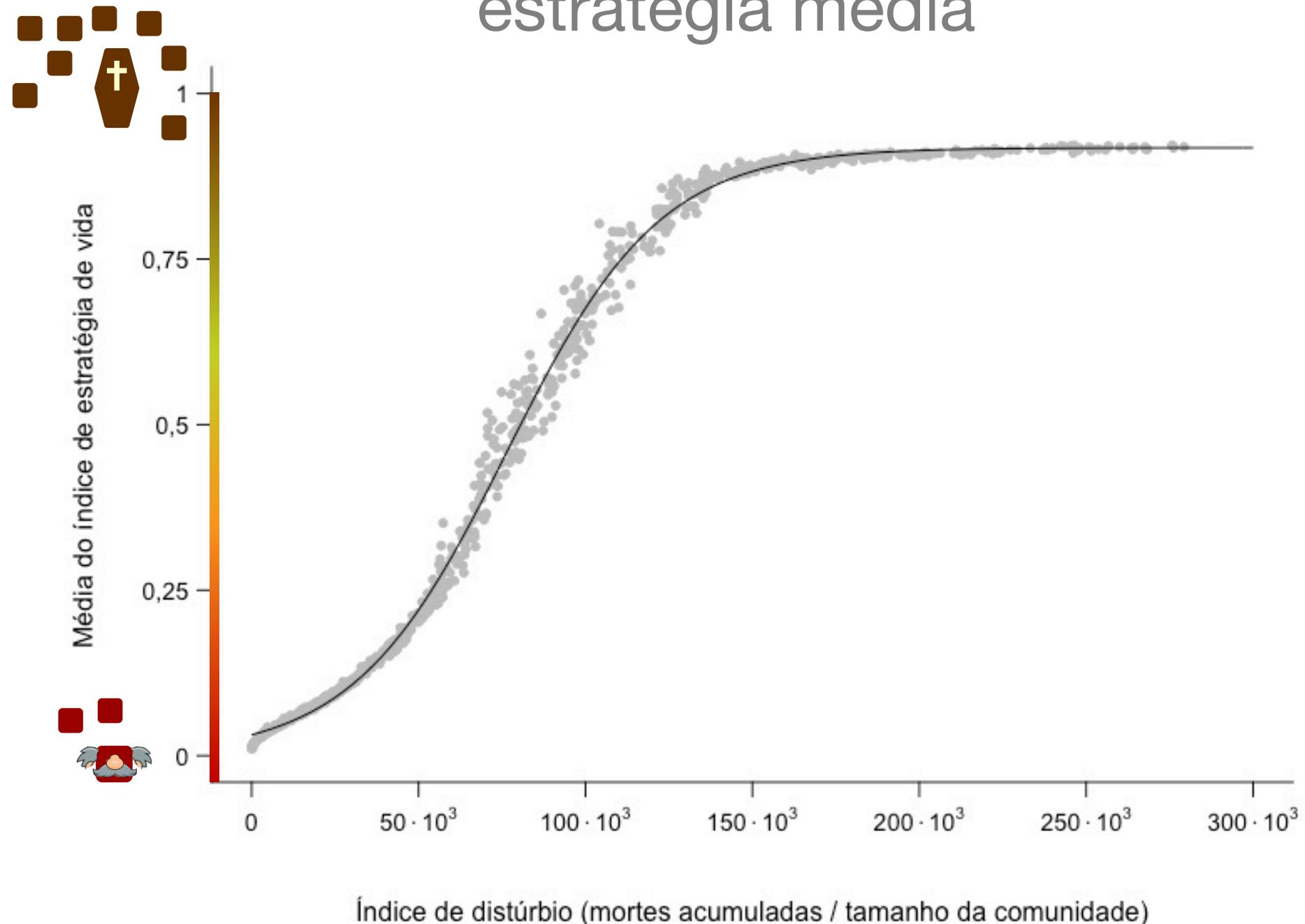
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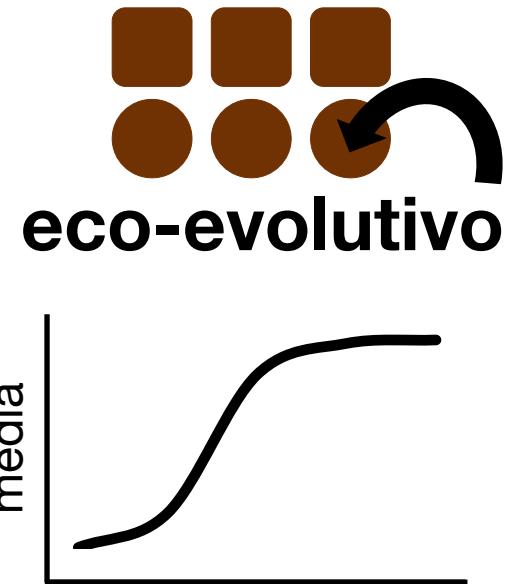
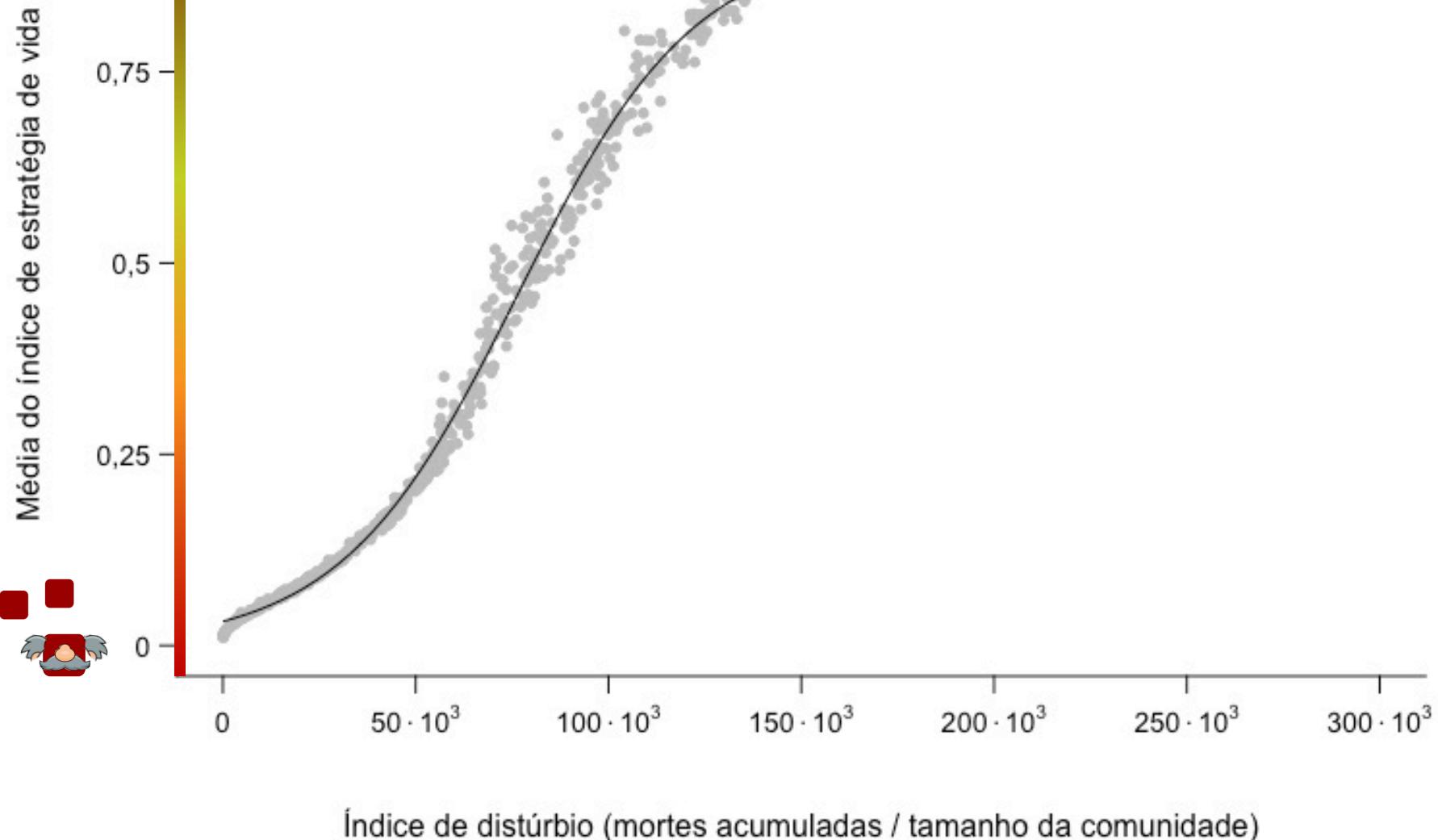
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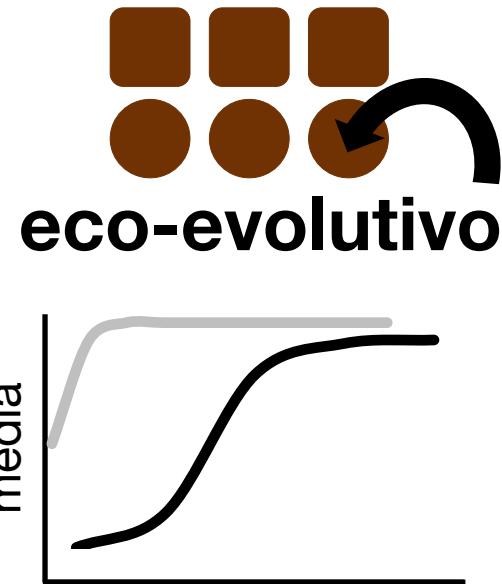
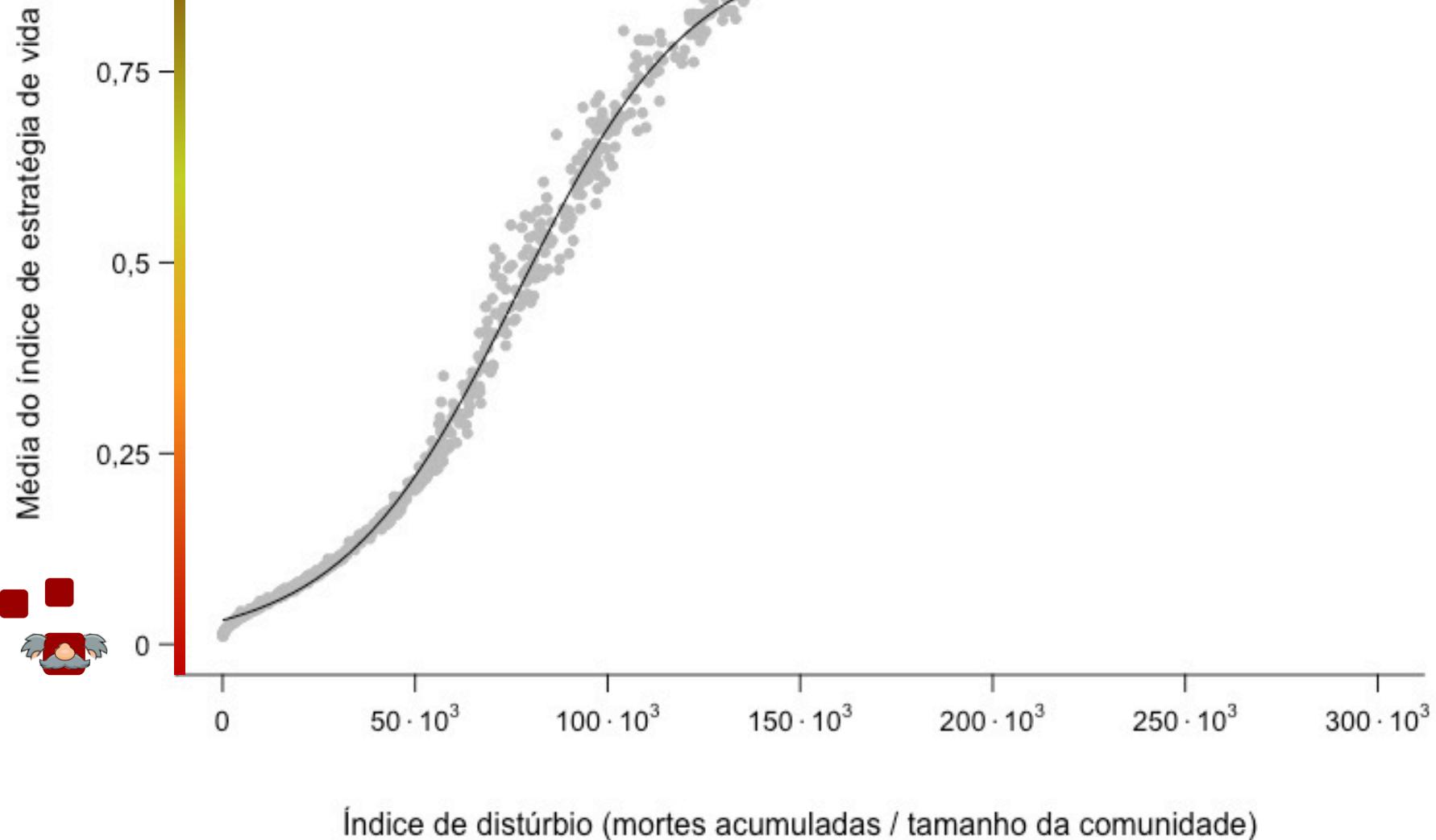
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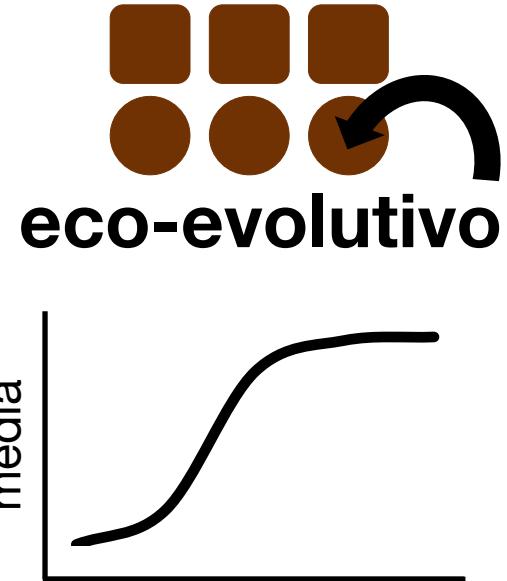
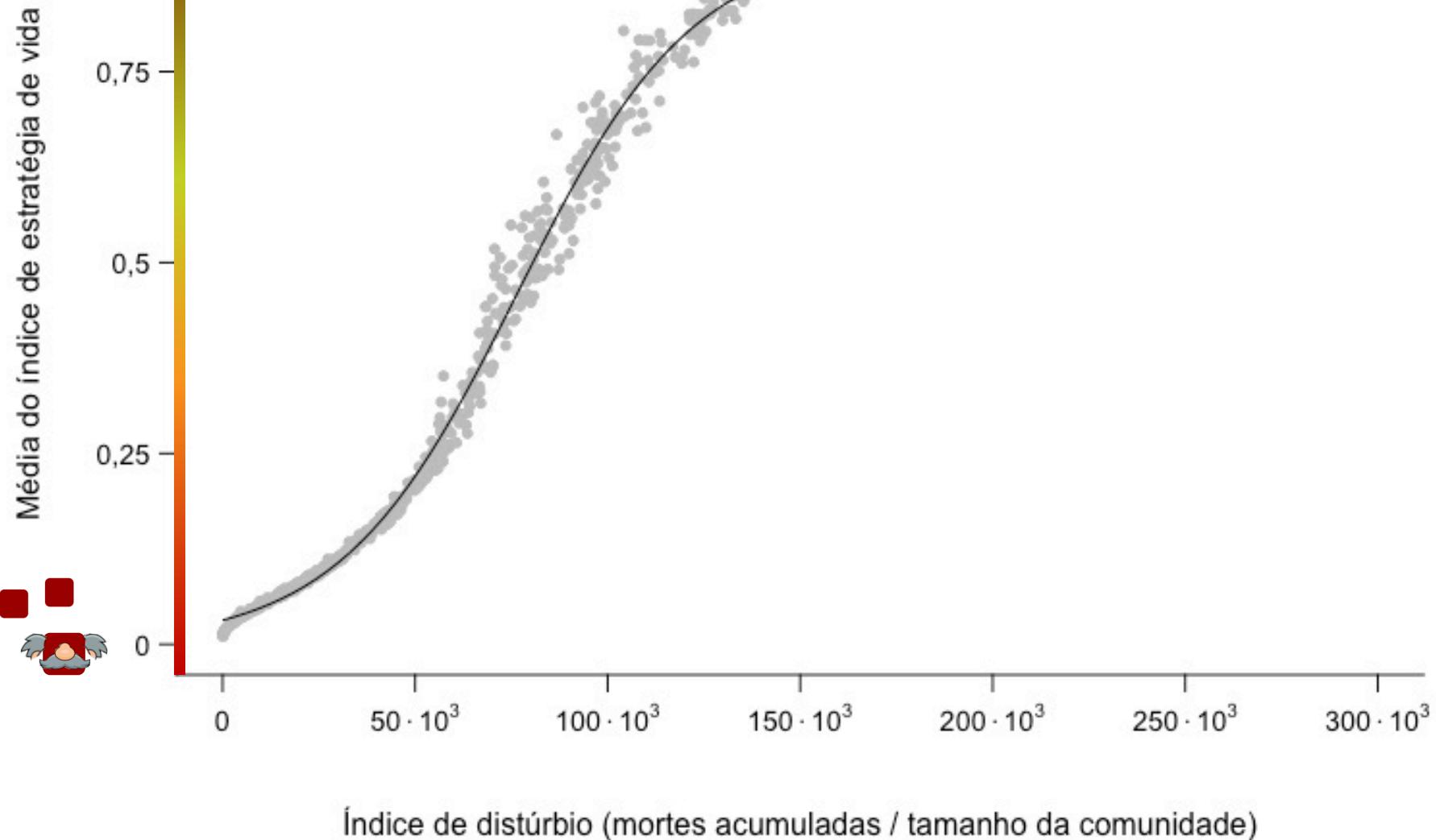
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# estratégia média



# estratégia média



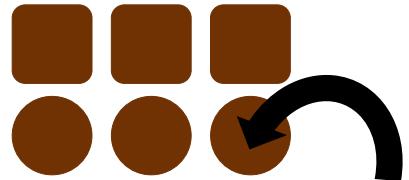
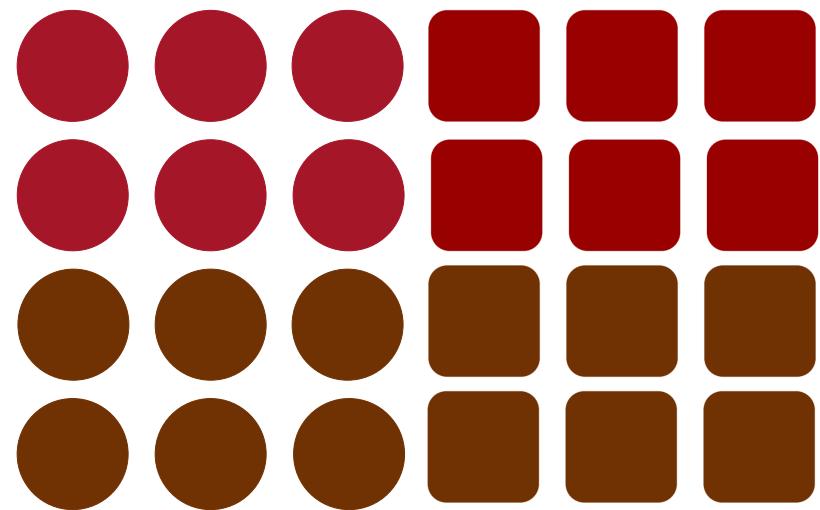
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x 48

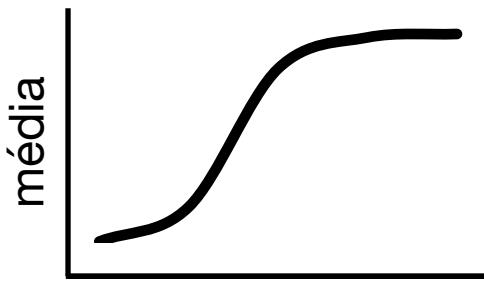
x 12

x 48

x 12



**eco-evolutivo**



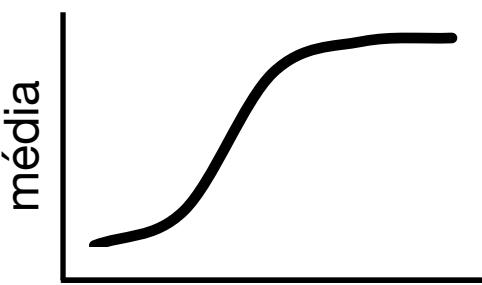
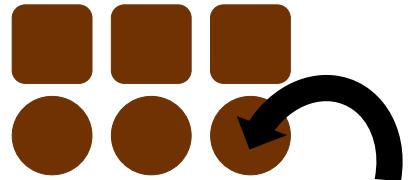
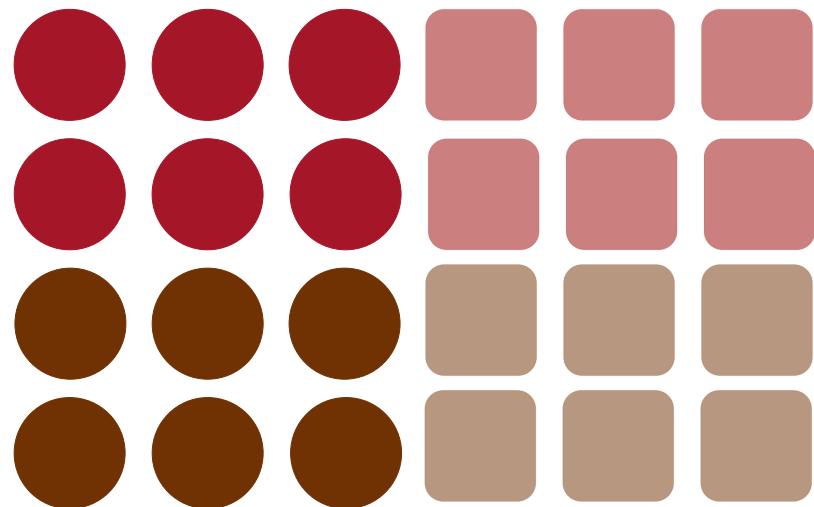
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x 48

x 12

x 48

x 12



# seleção natural

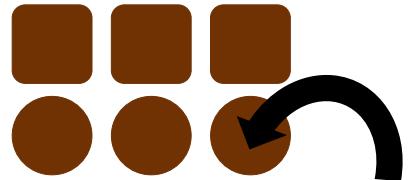
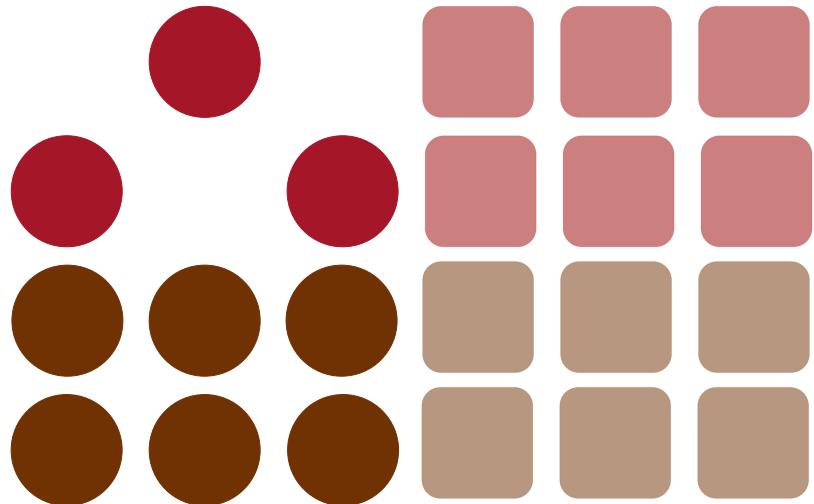
banco

x 48

x 12

x 48

x 12



**eco-evolutivo**



# seleção natural

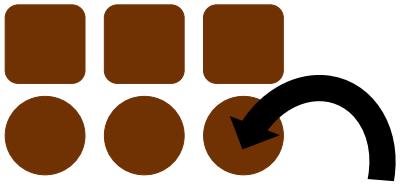
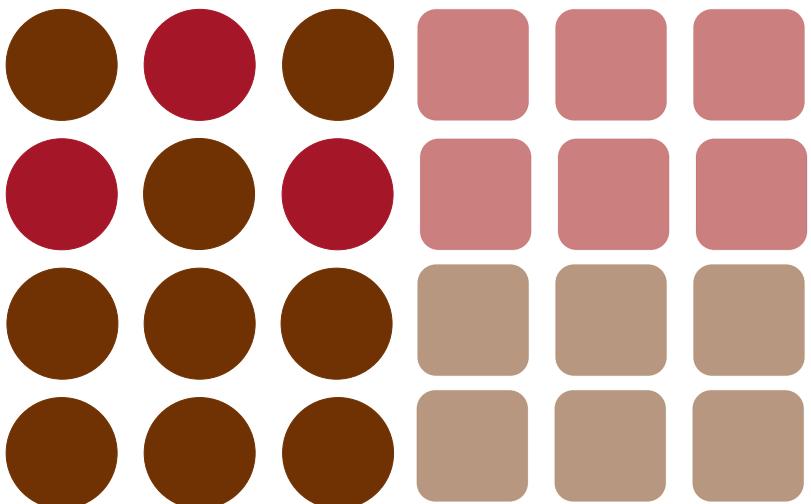
banco

x 72

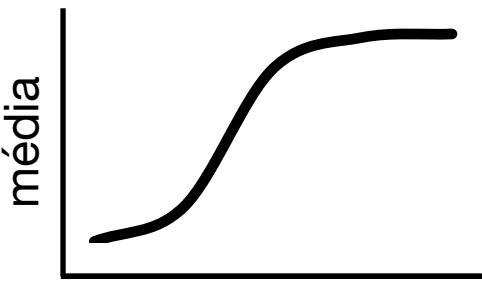
x 6

x 48

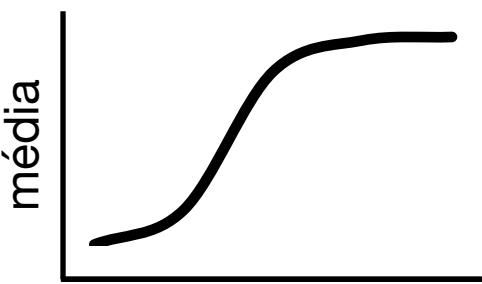
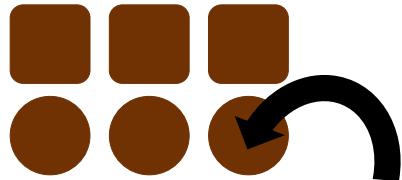
x 12



**eco-evolutivo**



# seleção natural + exclusão competitiva de espécies



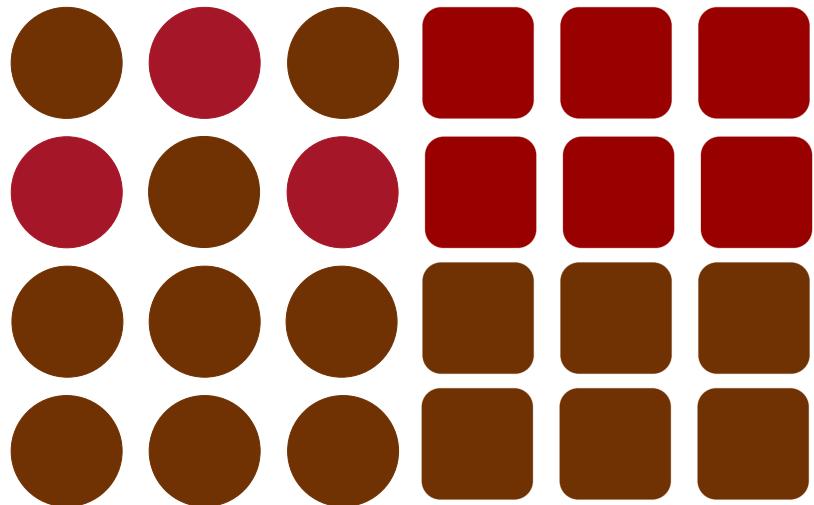
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x 72

x 6

x 48

x 12



# seleção natural + exclusão competitiva de espécies

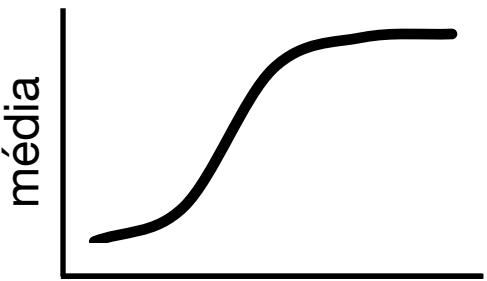
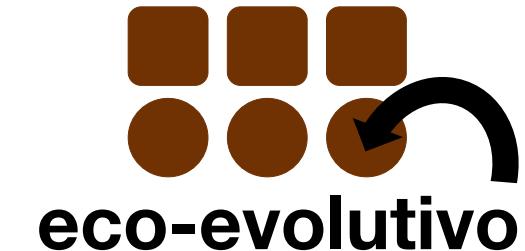
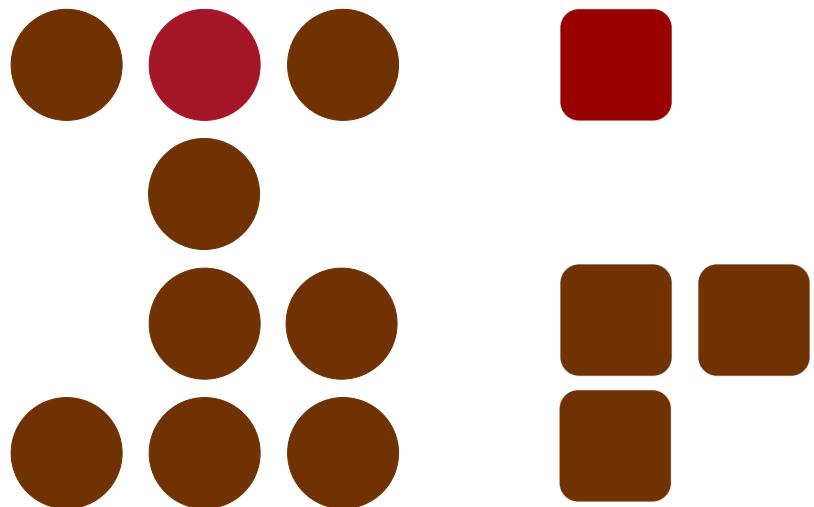
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x 72

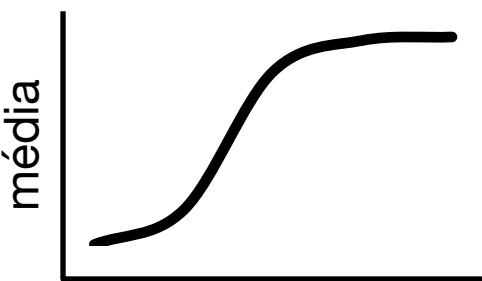
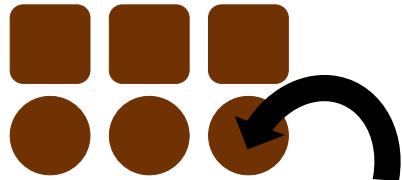
x 6

x 48

x 12



# seleção natural + exclusão competitiva de espécies



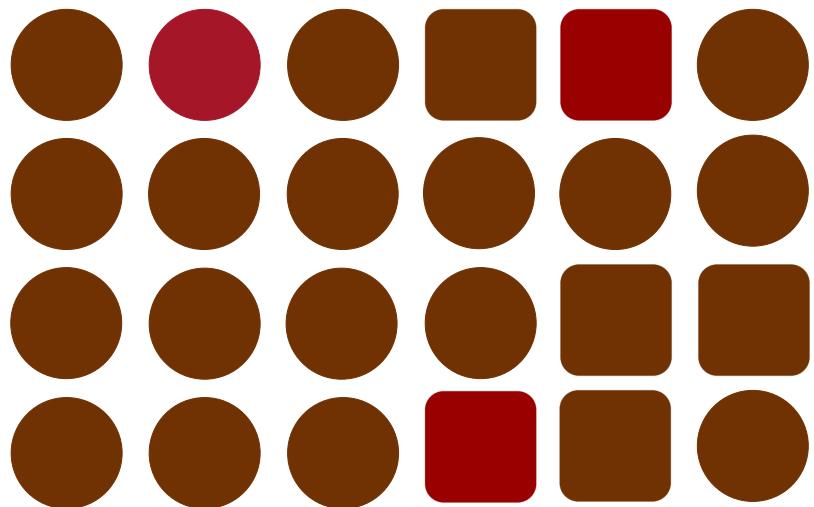
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● x 136

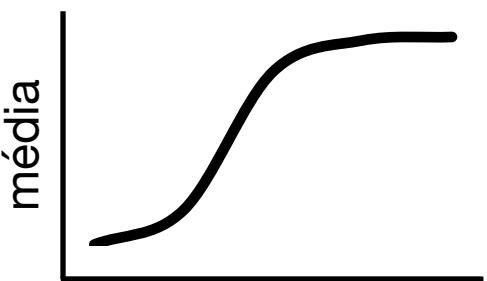
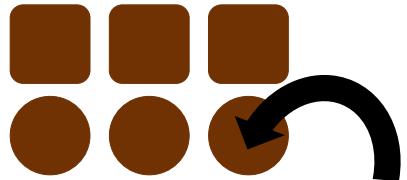
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■ x 32

■ x 4



# seleção natural + exclusão competitiva de espécies



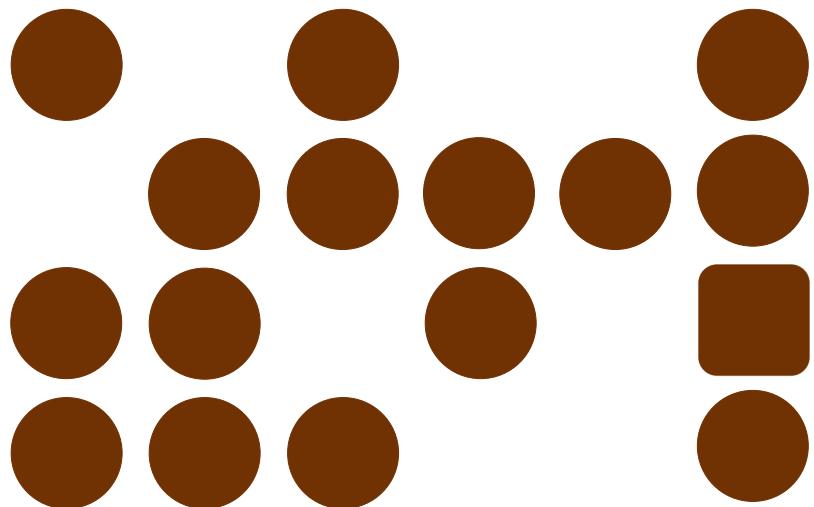
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x 136

x 2

x 32

x 4

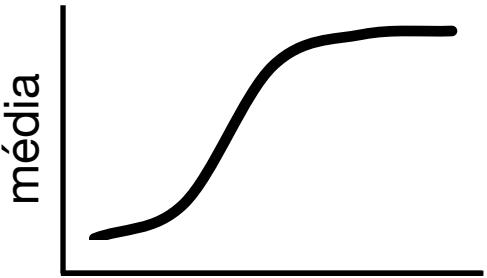
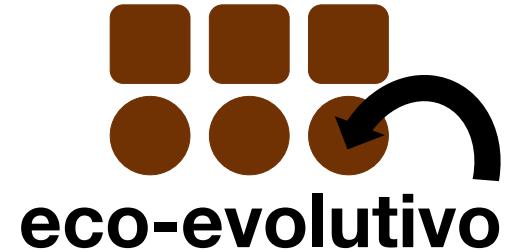
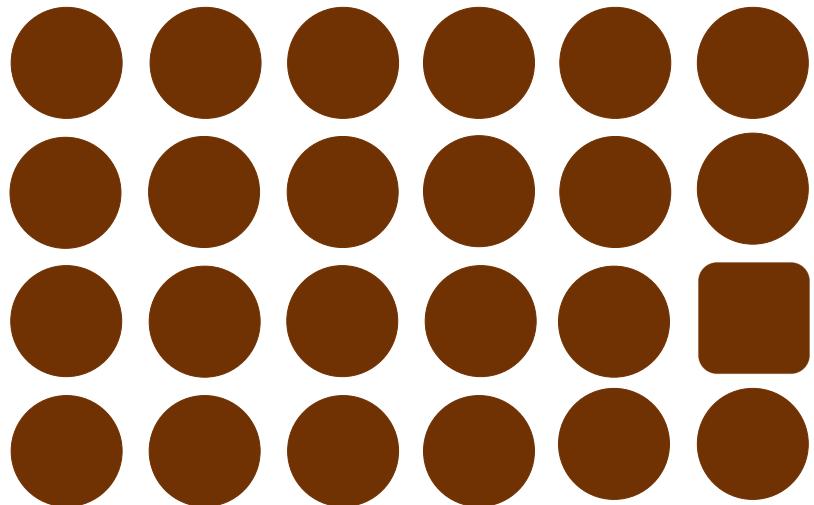


# seleção natural + exclusão competitiva de espécies

banco

x 184

x 8

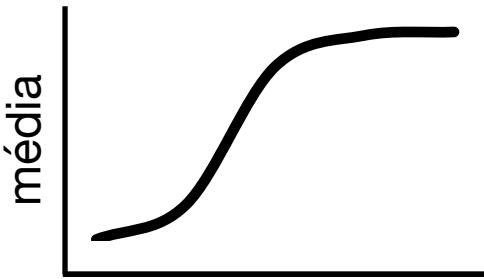
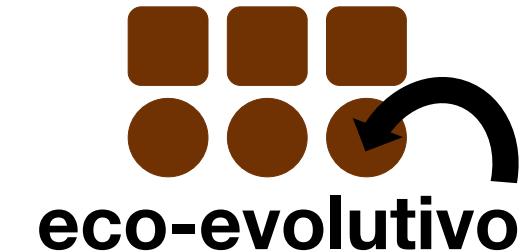
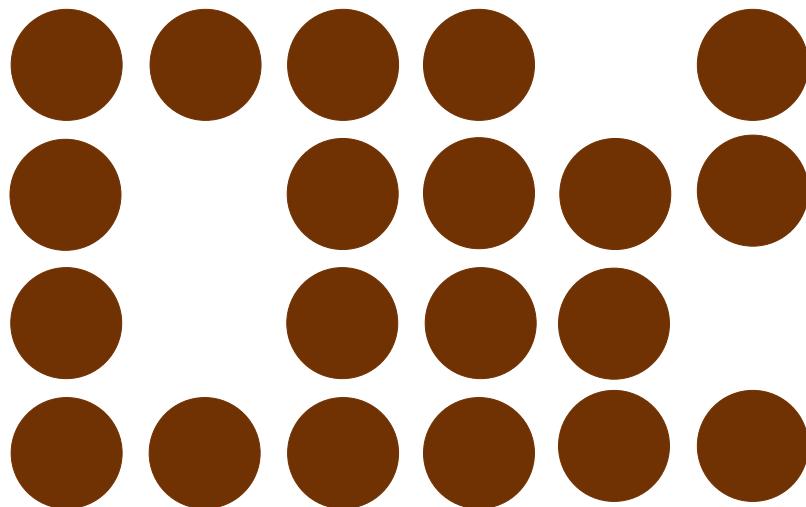


# seleção natural + exclusão competitiva de espécies

banco

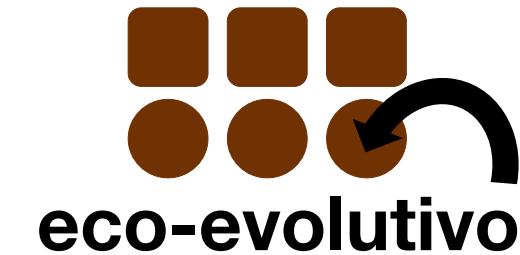
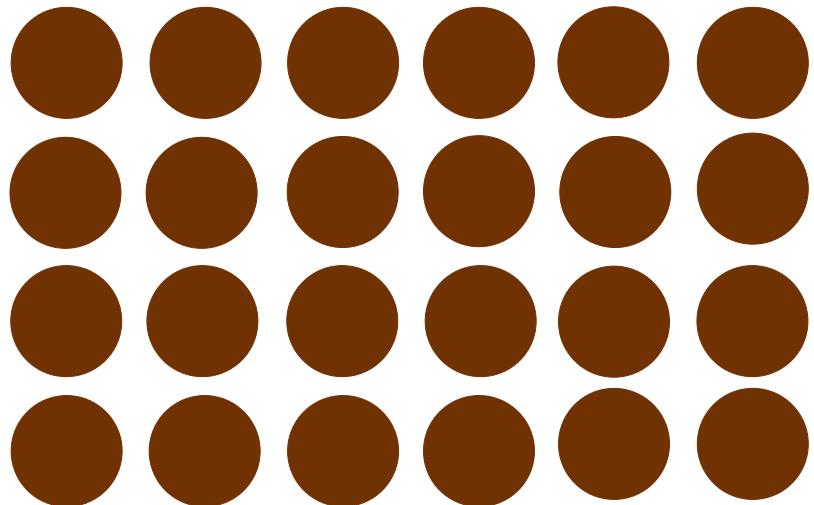
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■ x 8

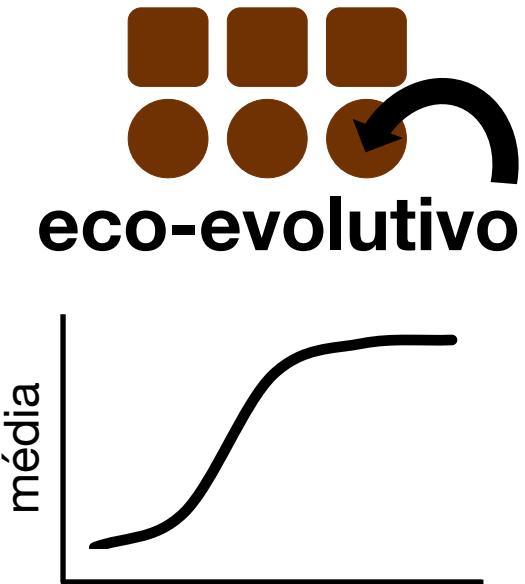
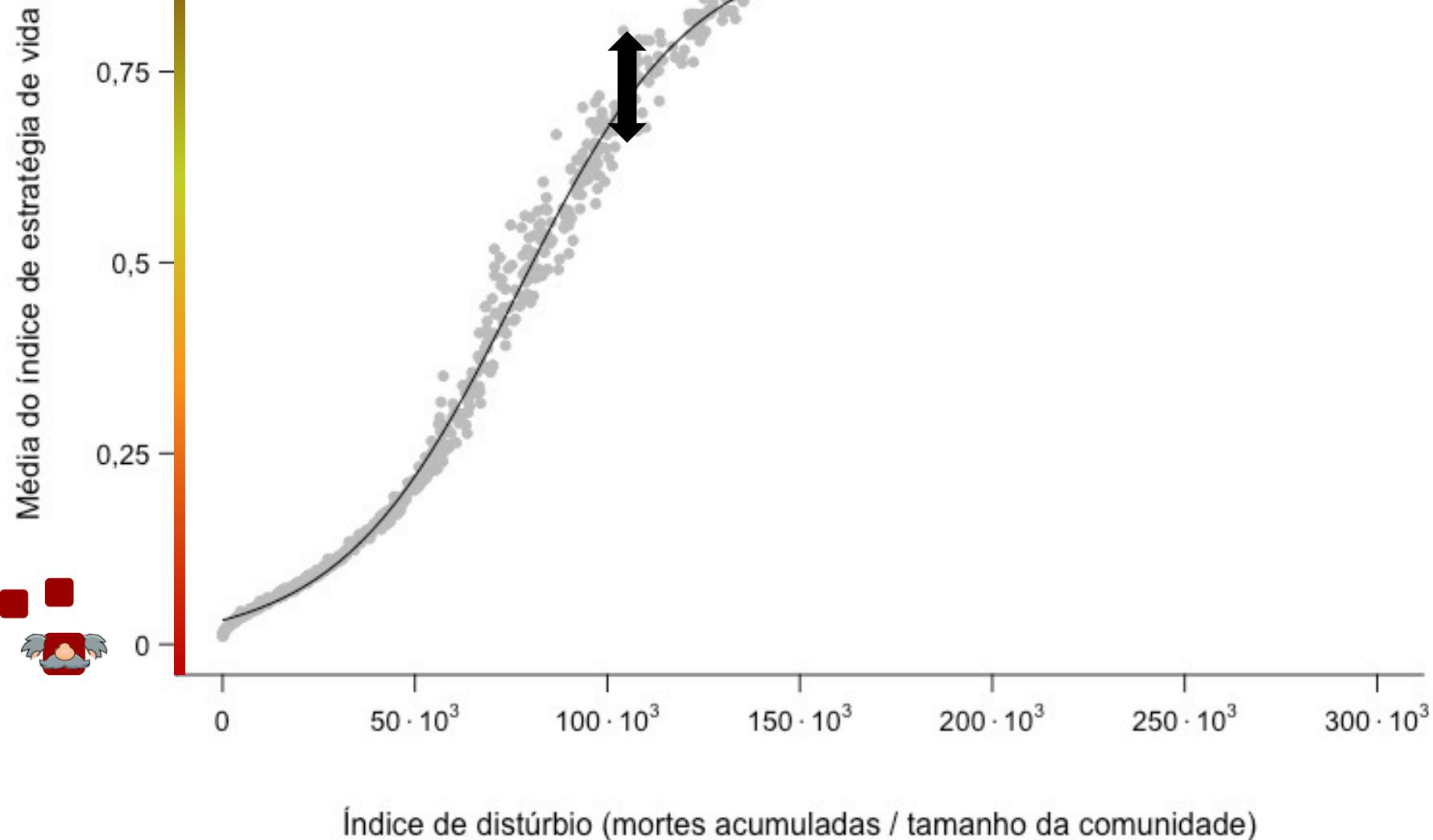


# seleção natural + exclusão competitiva de espécies

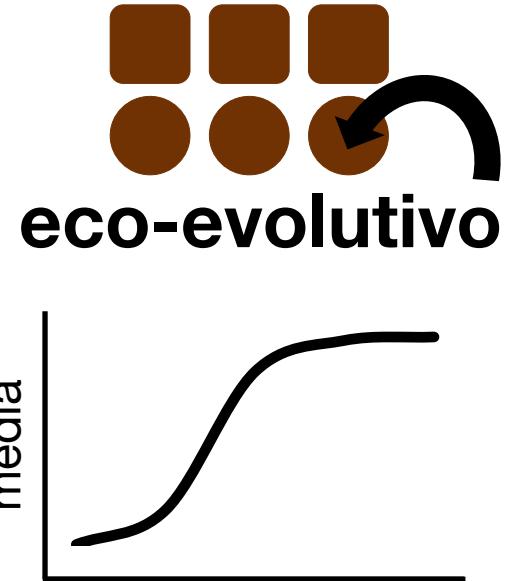
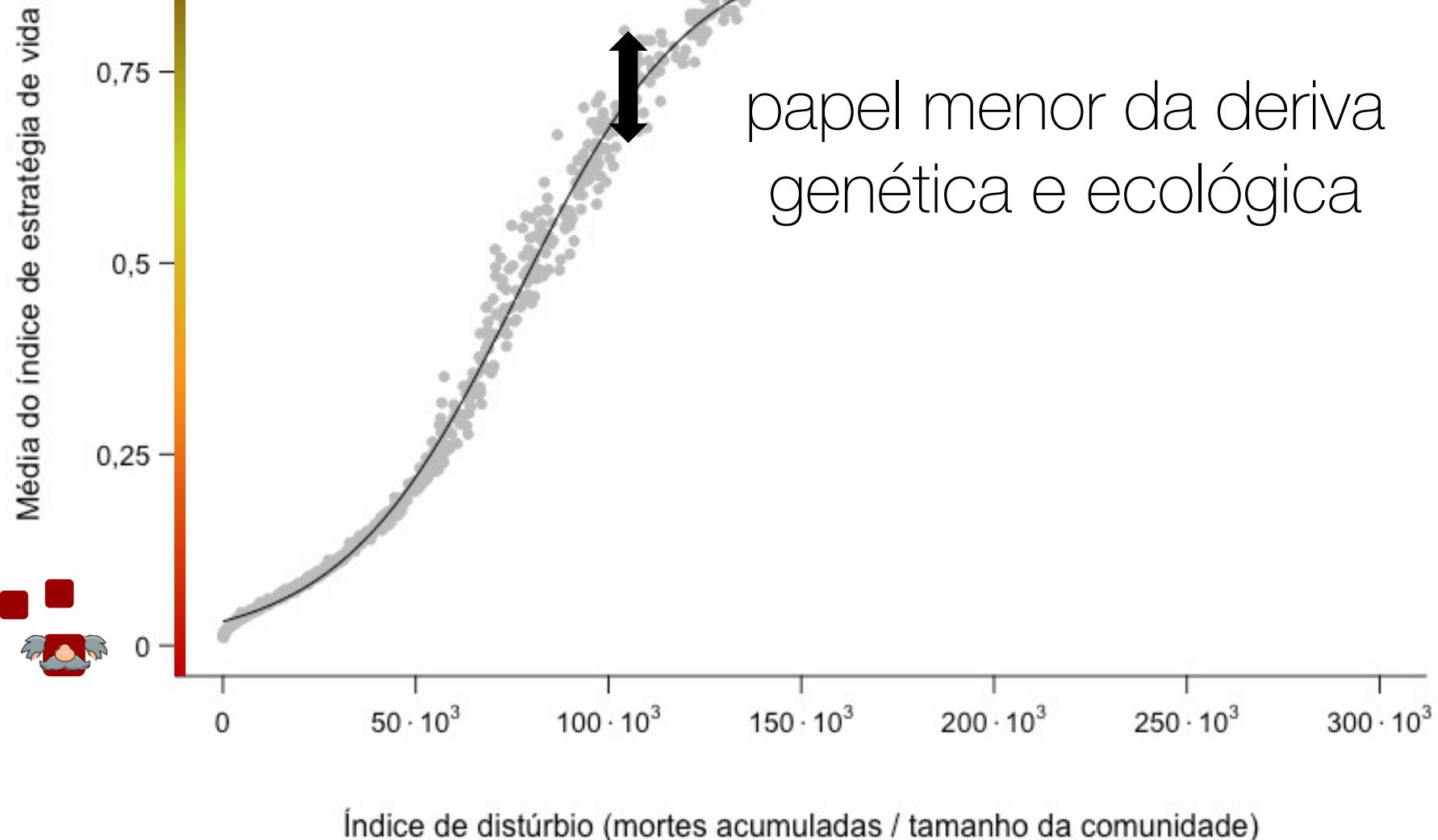
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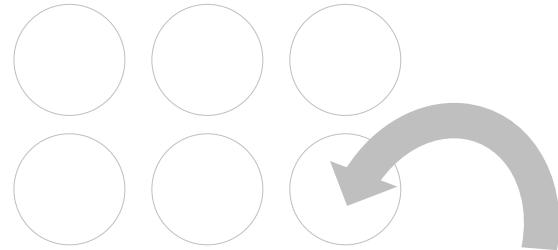
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# estratégia média



## evolutivo

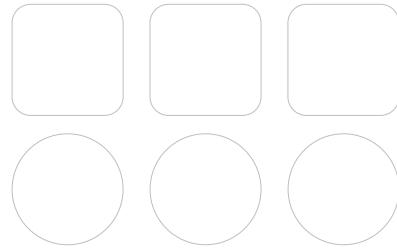


estratégia média

diversidade  
de estratégias

-

## ecológico

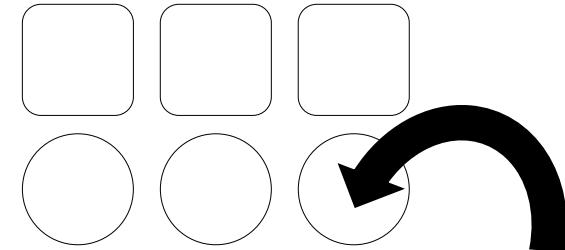


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

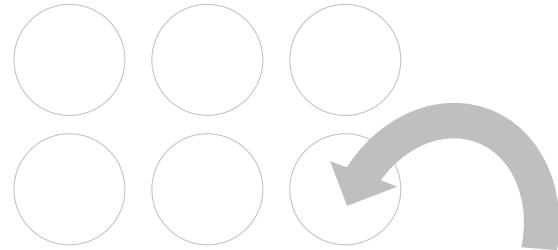


estratégia média

diversidade  
de estratégias

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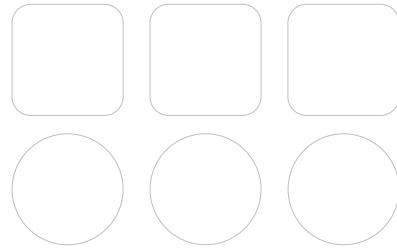


estratégia média

diversidade  
de estratégias

-

## ecológico

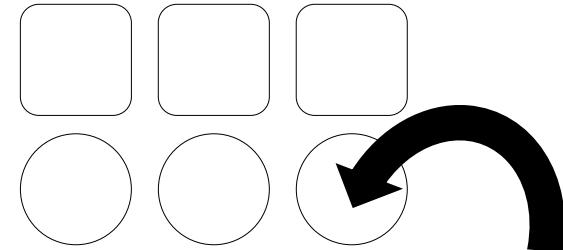


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

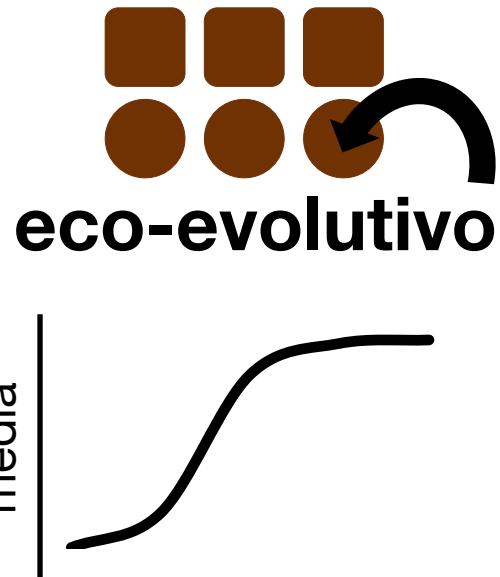
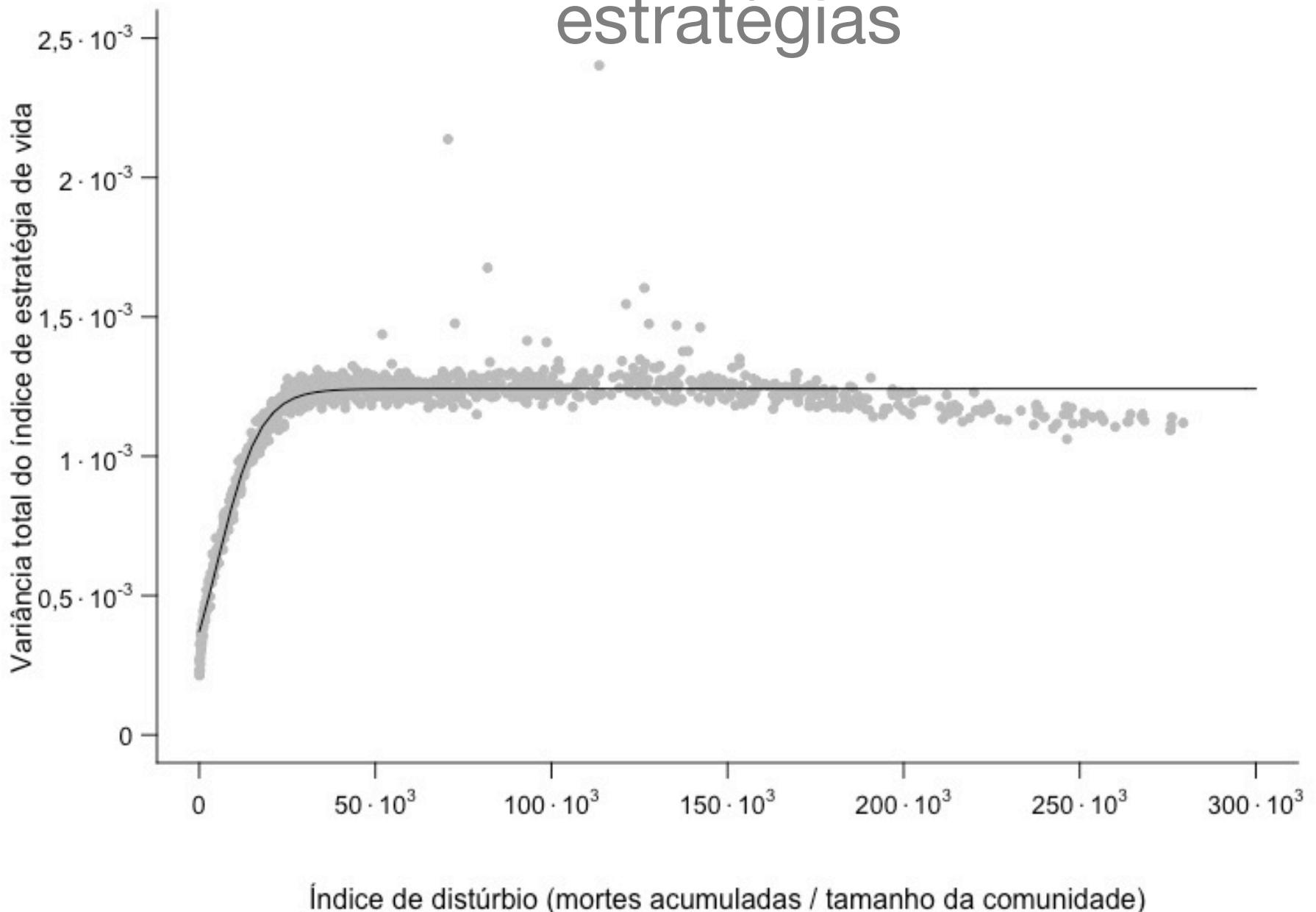


estratégia média

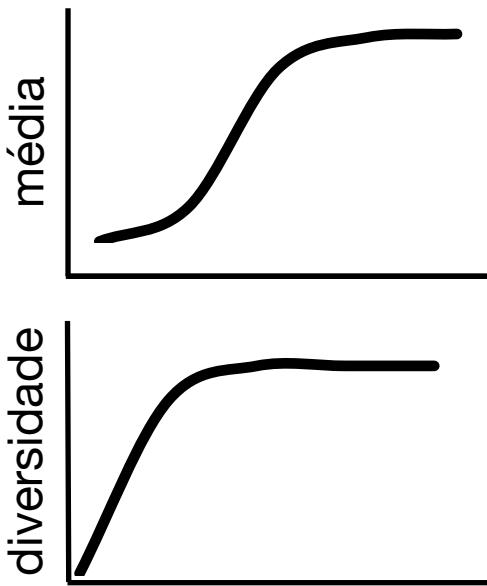
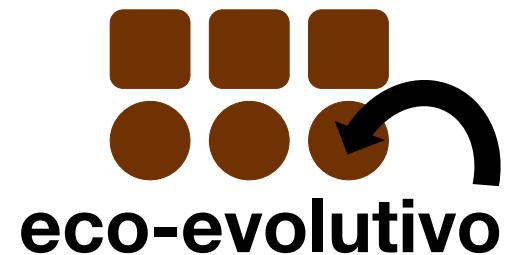
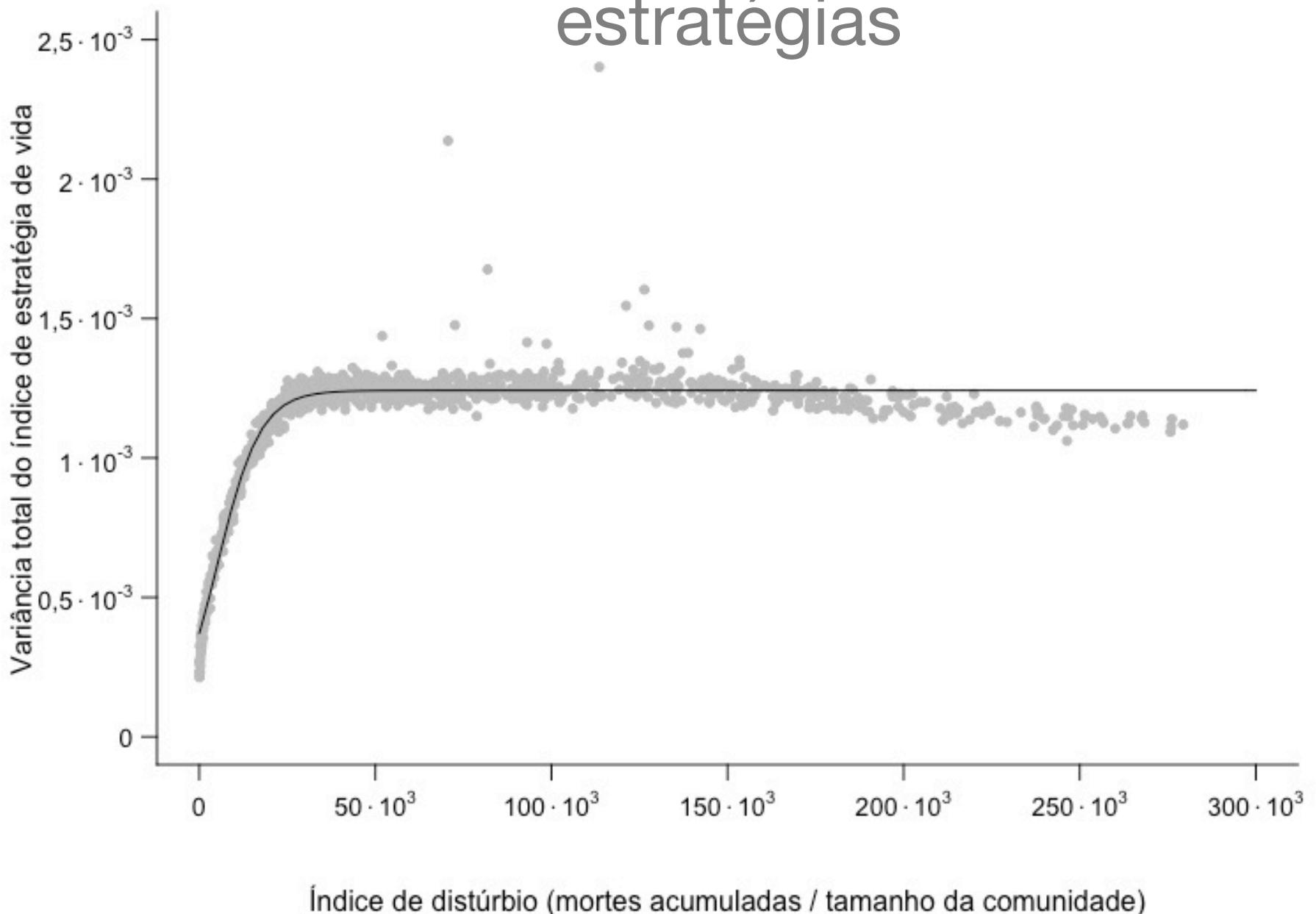
diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

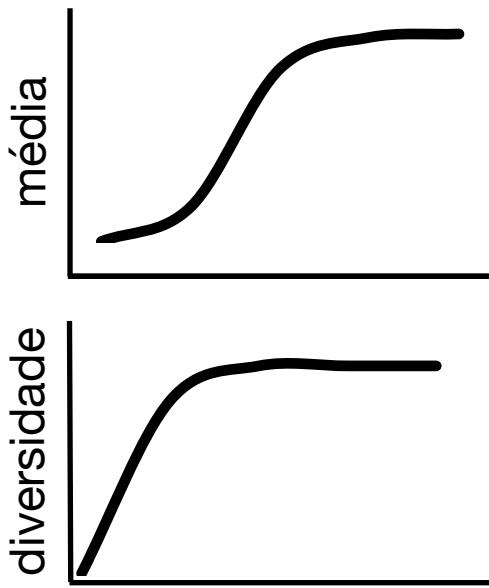
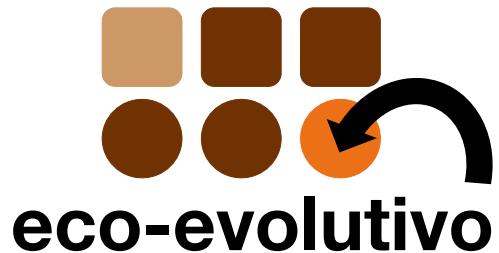
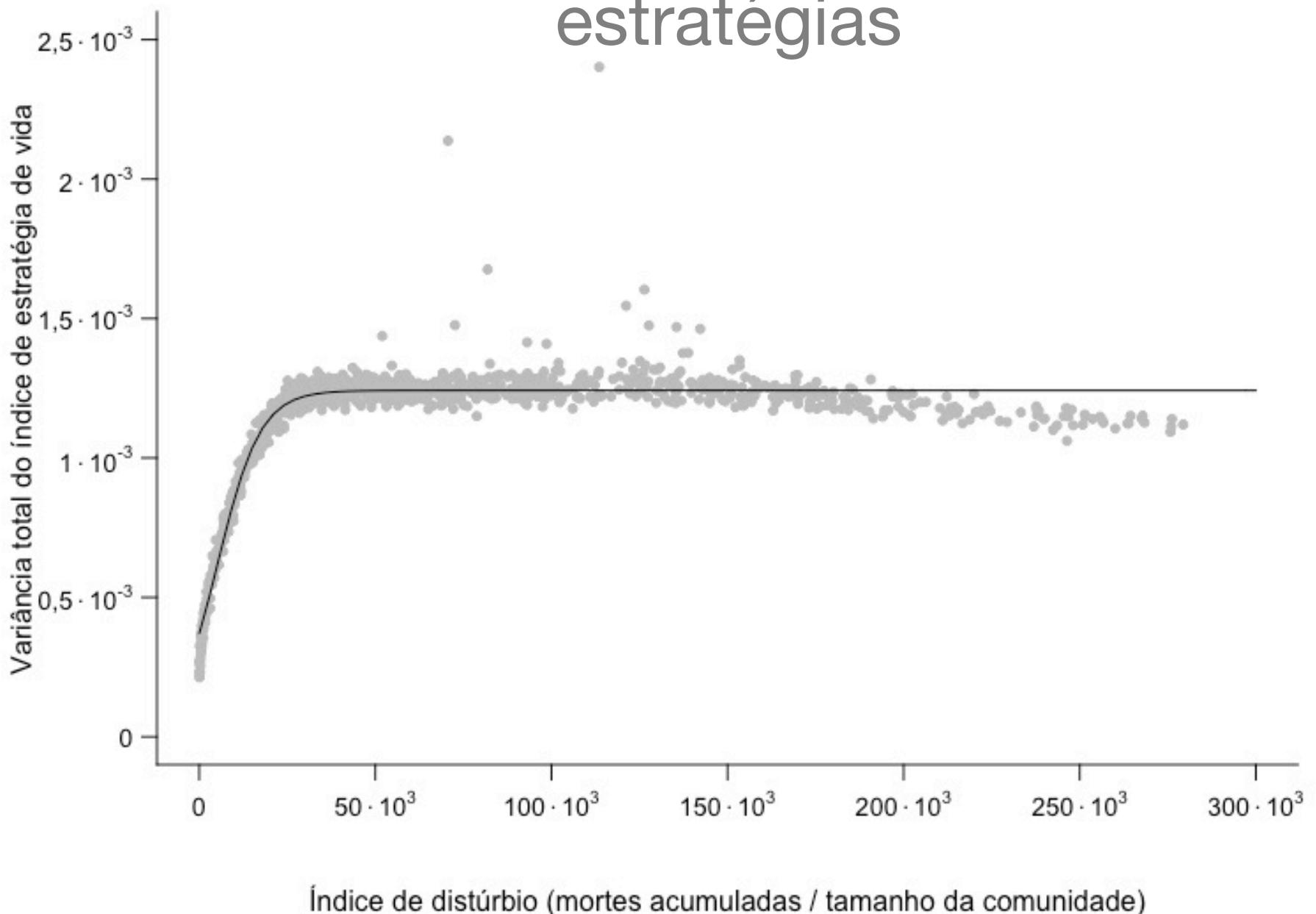
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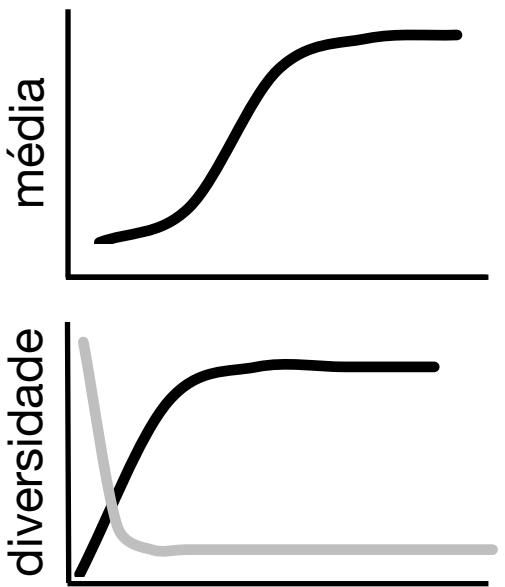
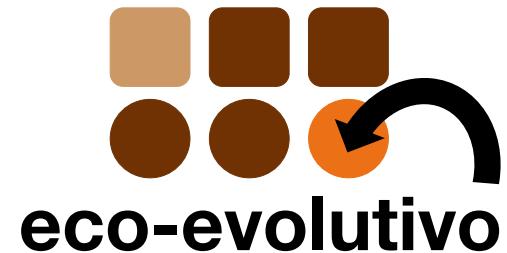
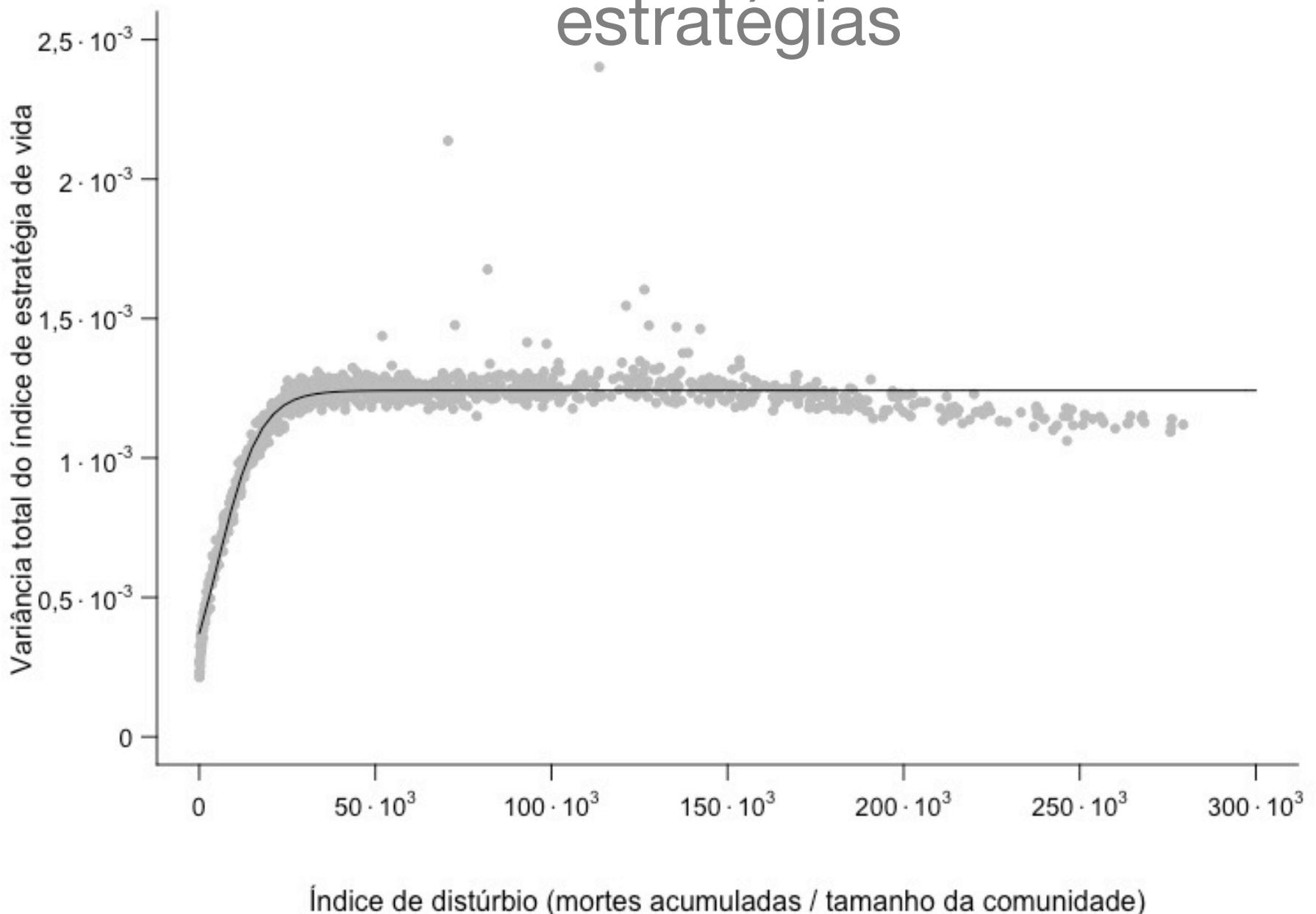
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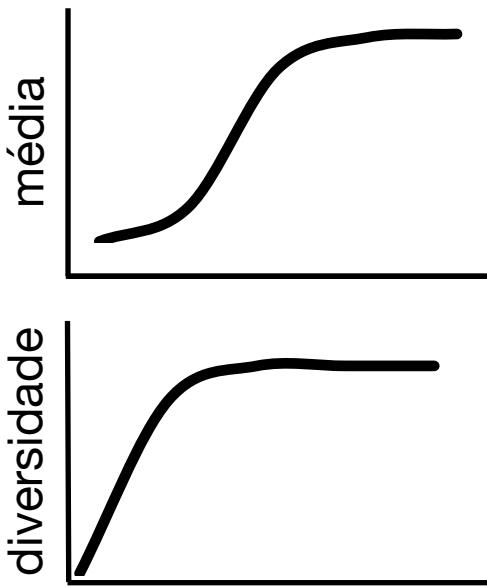
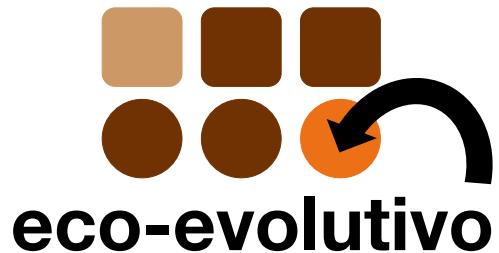
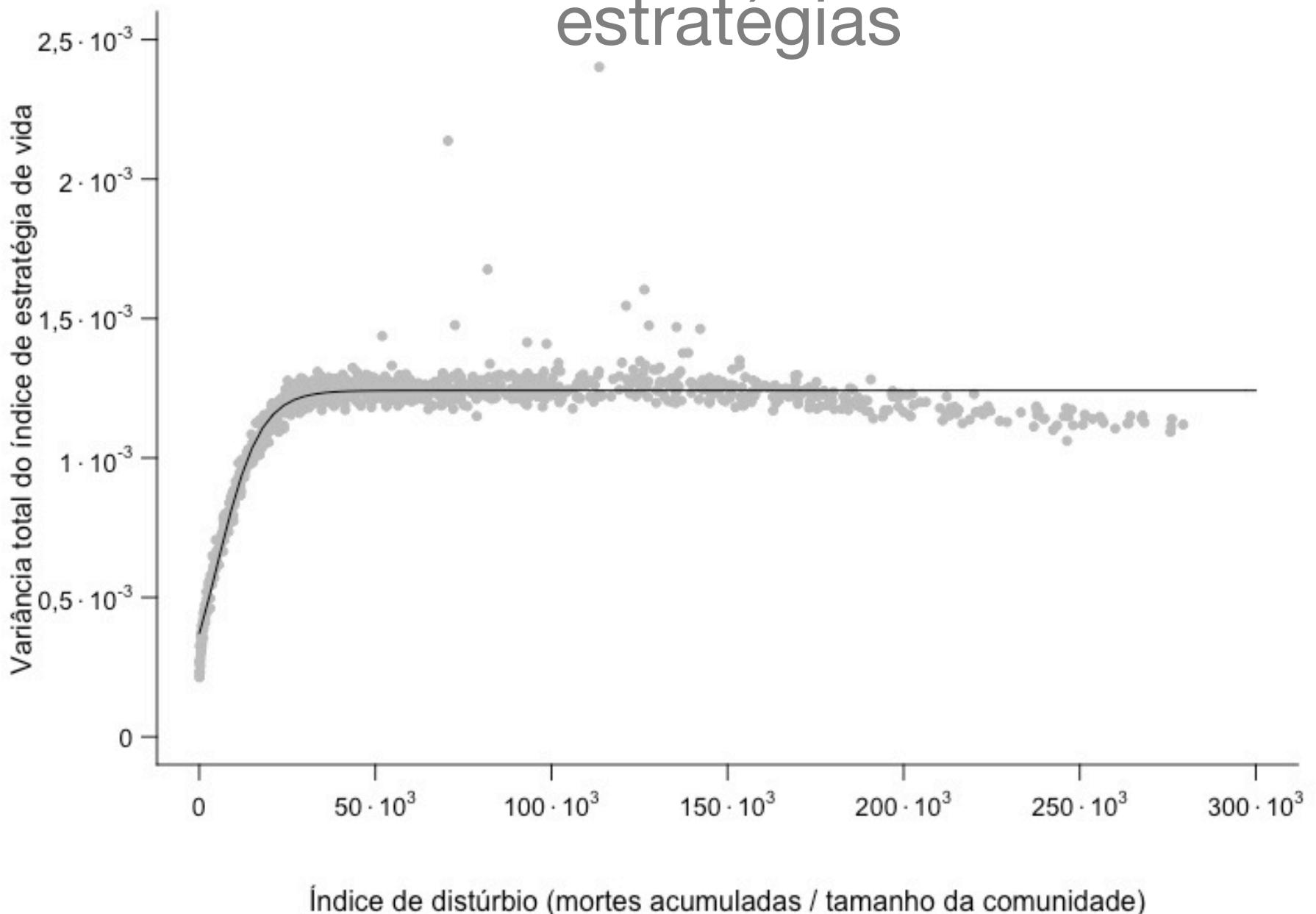
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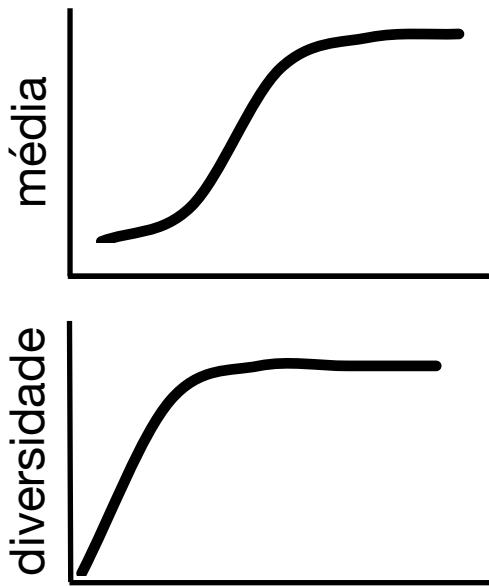
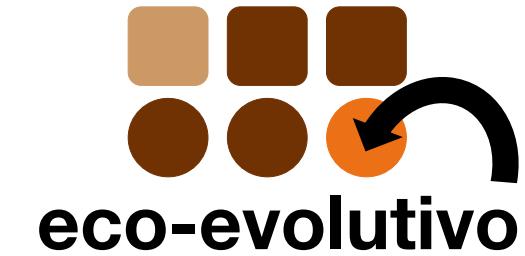
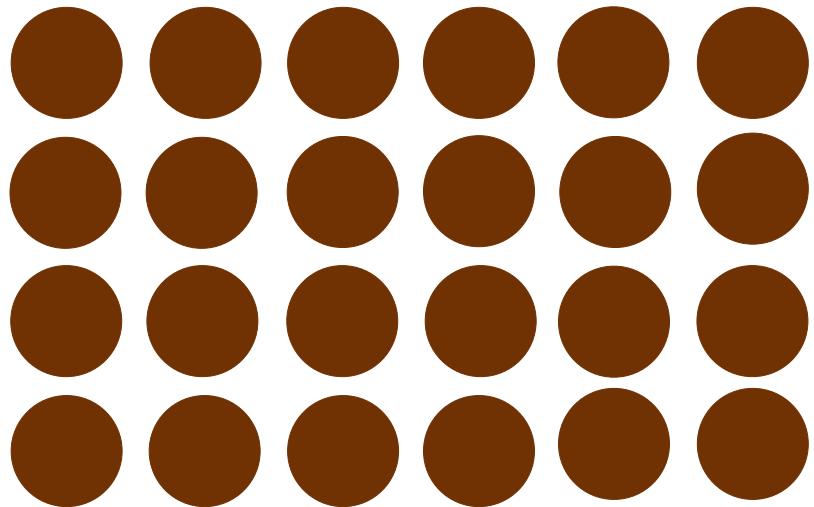
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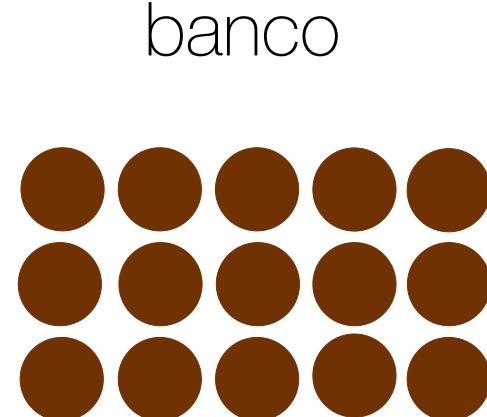


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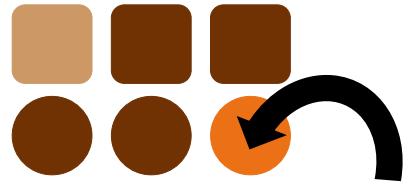
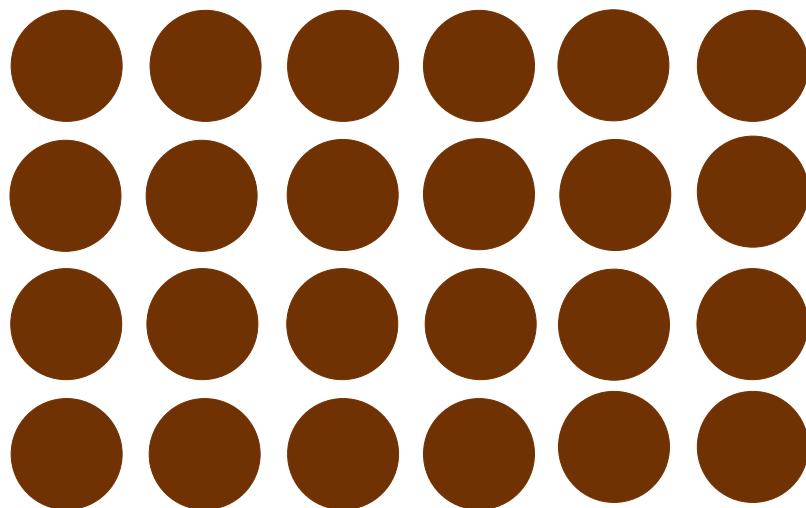


banco  
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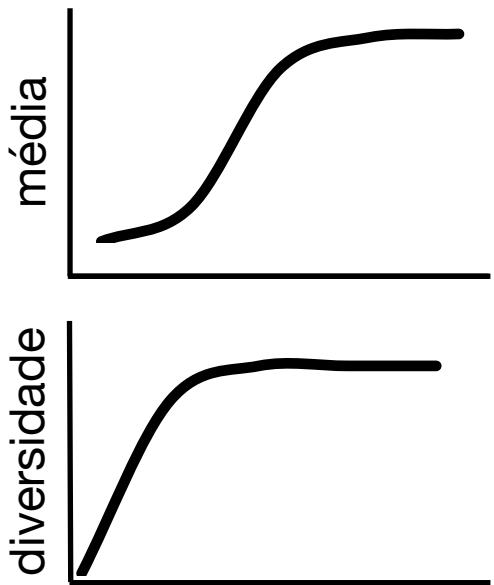




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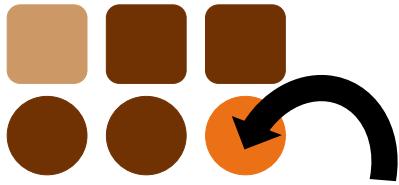
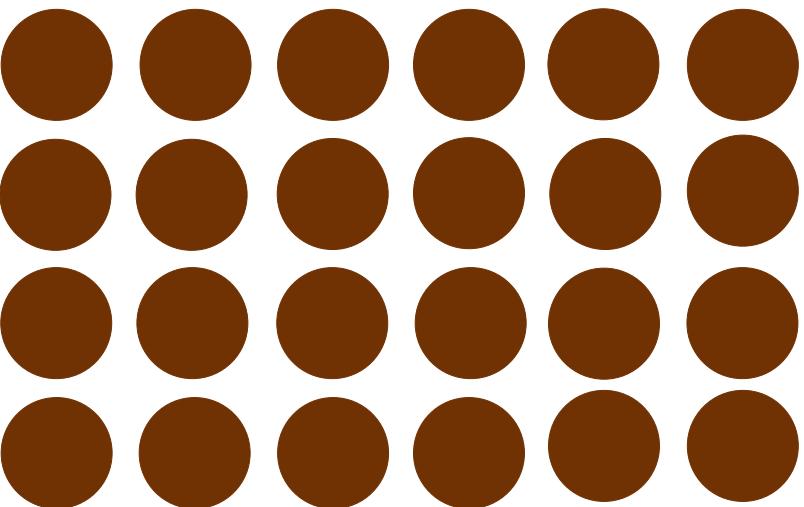
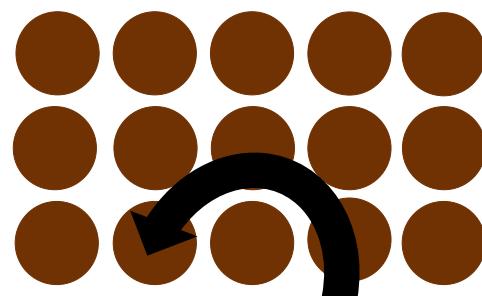


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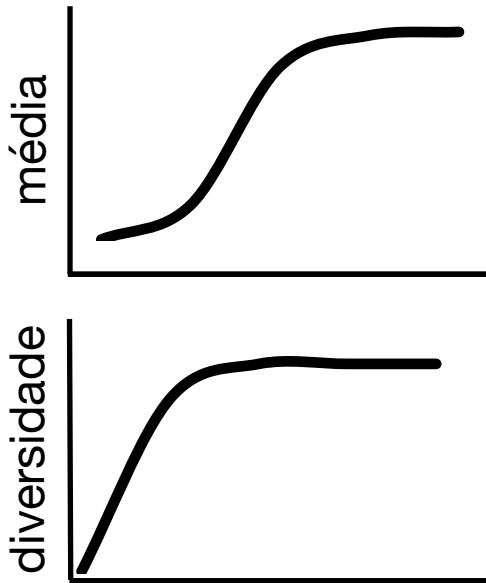


# mutação

banco

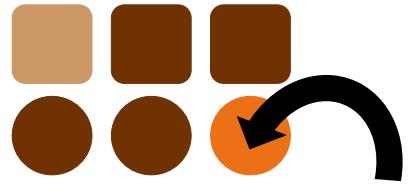
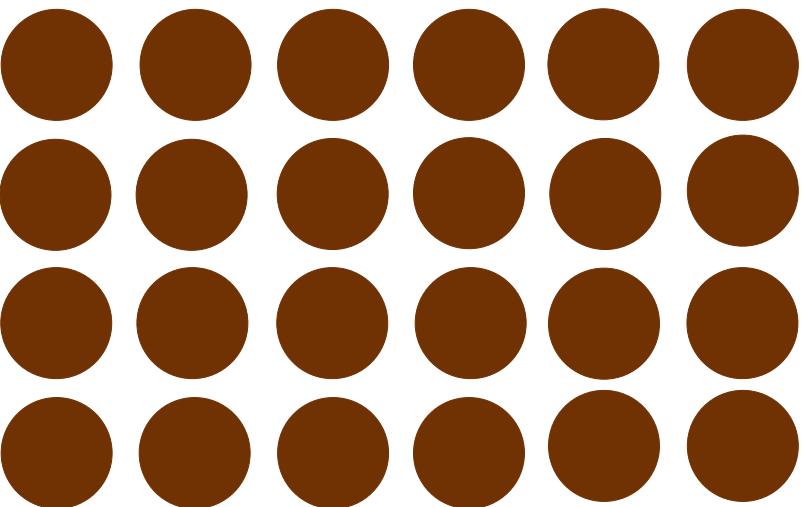
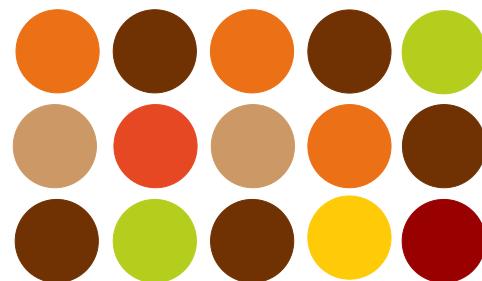


**eco-evolutivo**

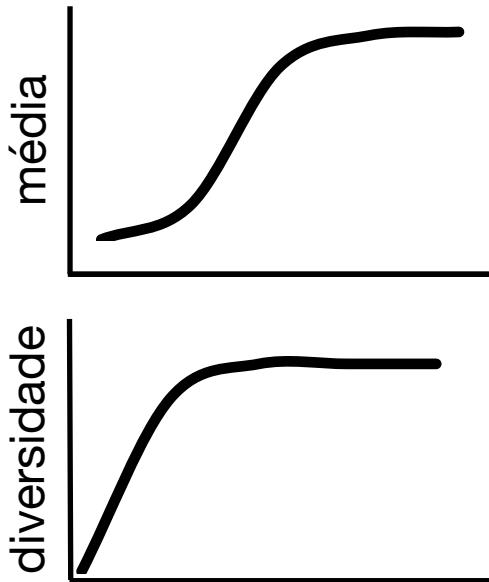


# mutação

banco

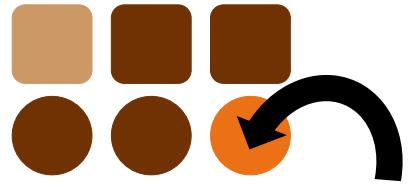
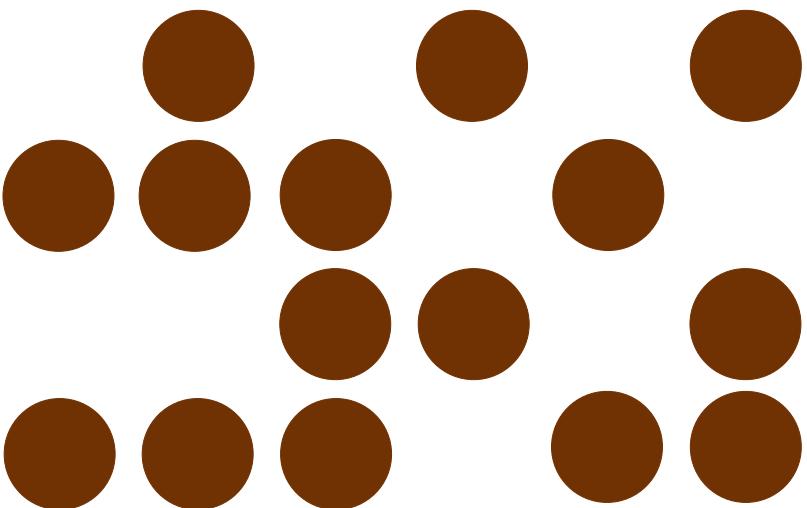
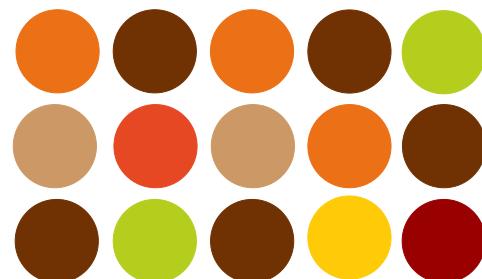


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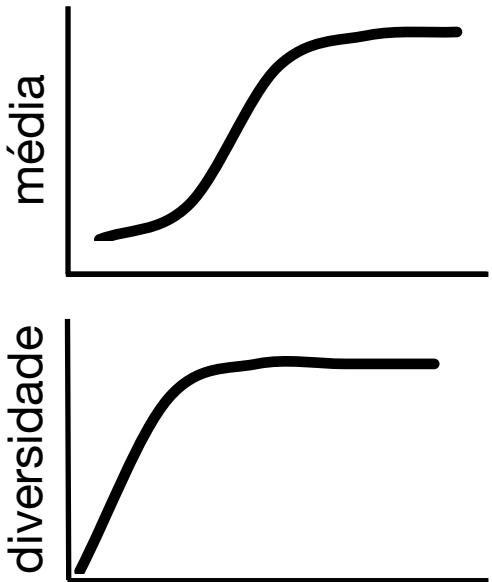


# mutação

banco

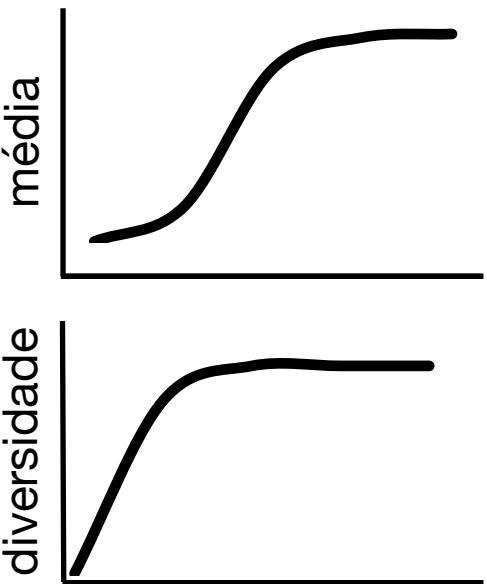
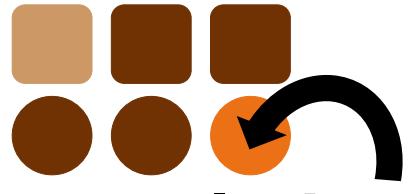
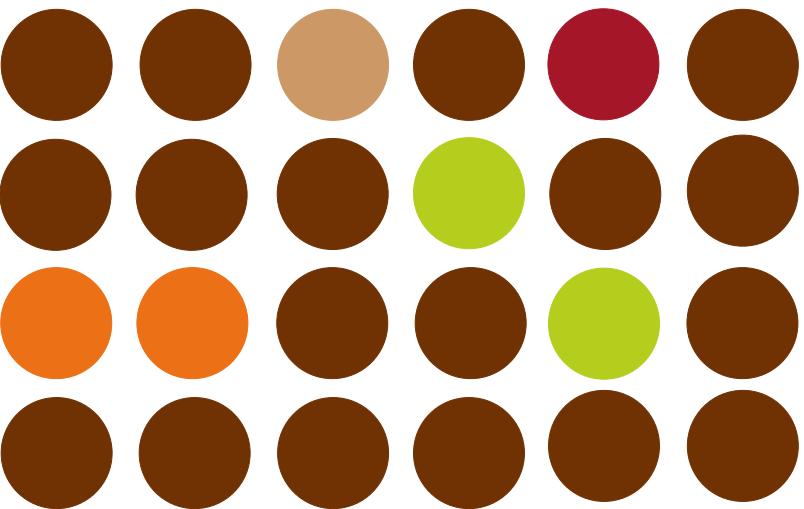
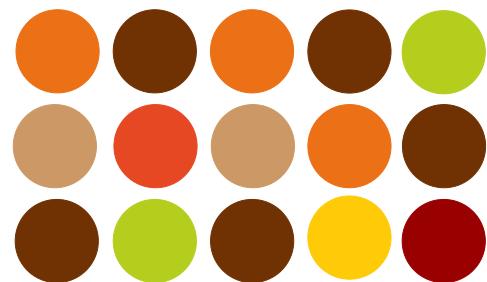


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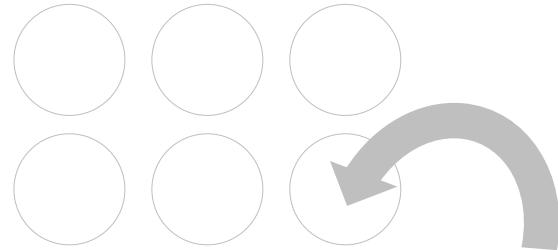


# mutação + amostragem

banco



## evolutivo

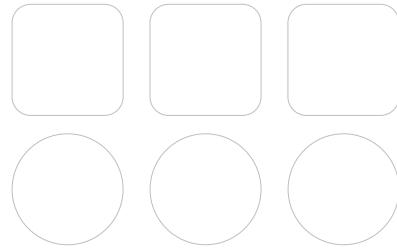


estratégia média

diversidade  
de estratégias

-

## ecológico

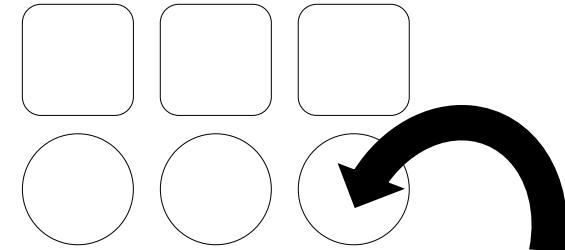


estratégia média

diversidade  
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heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

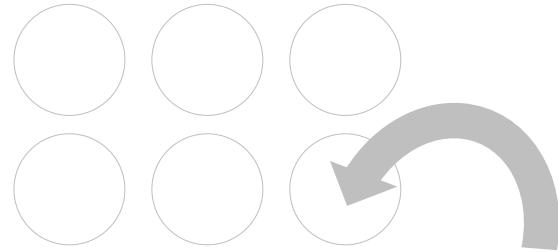


estratégia média

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de estratégias

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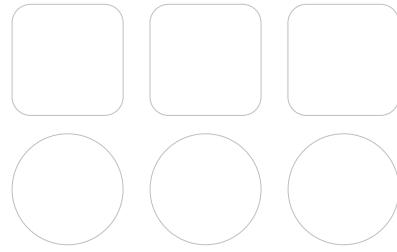


estratégia média

diversidade  
de estratégias

-

## ecológico

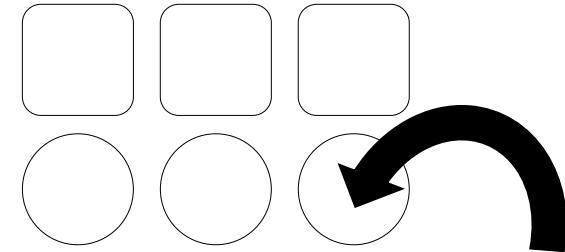


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

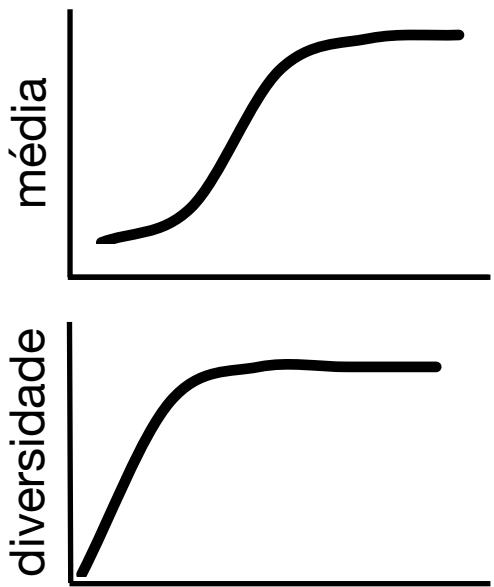
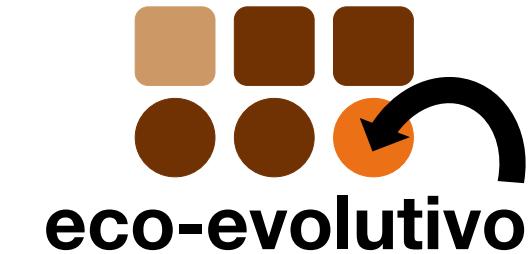
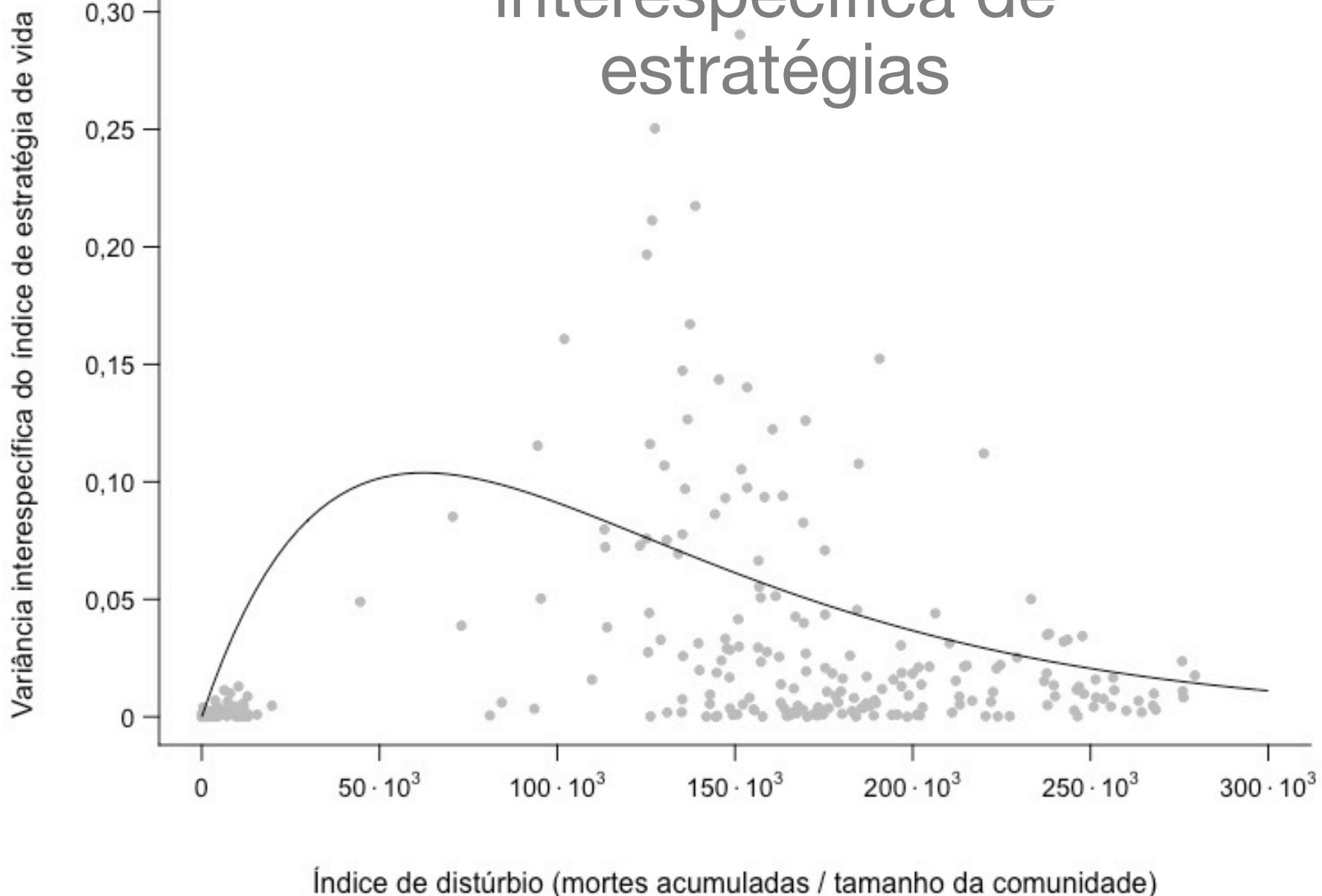


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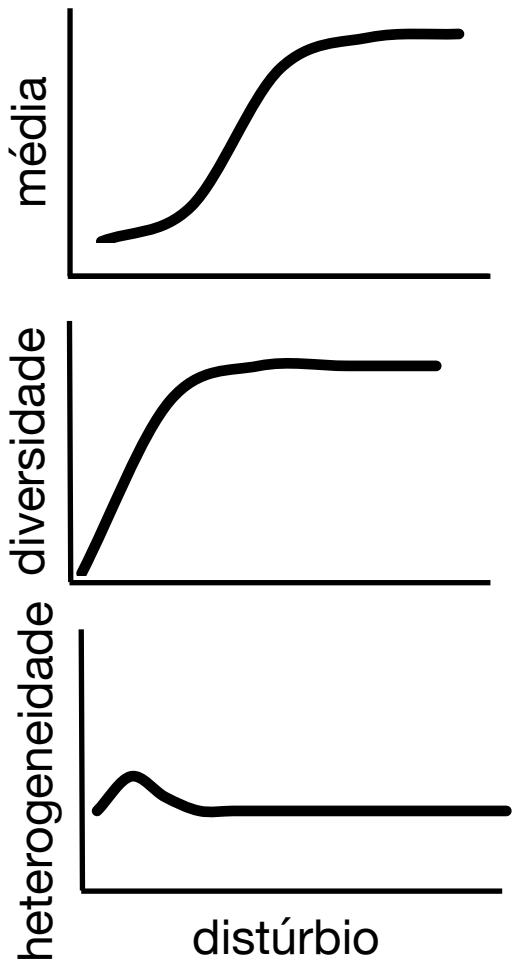
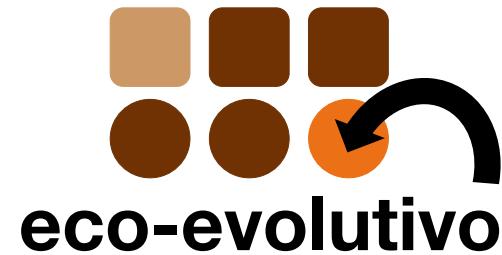
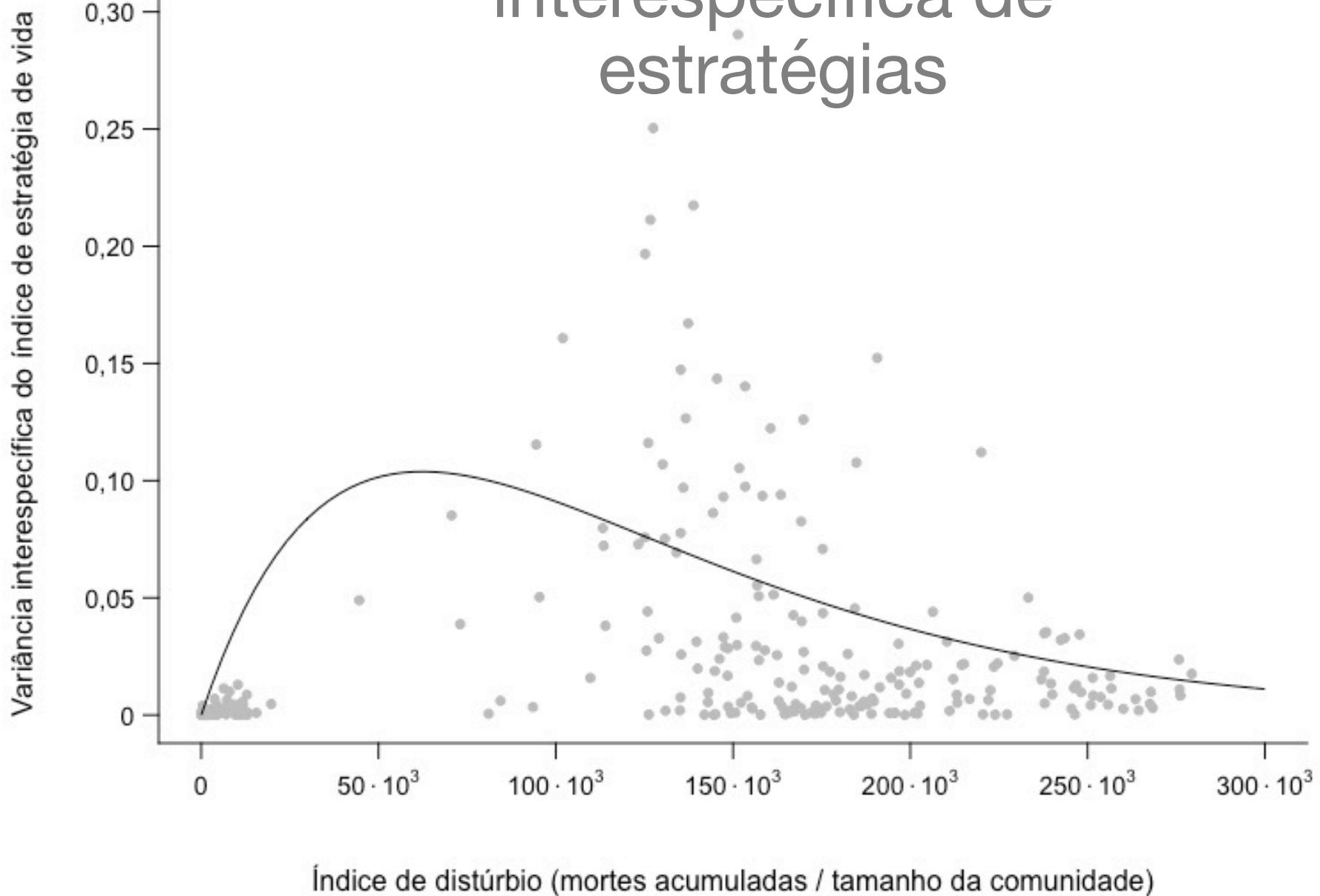
diversidade  
de estratégias

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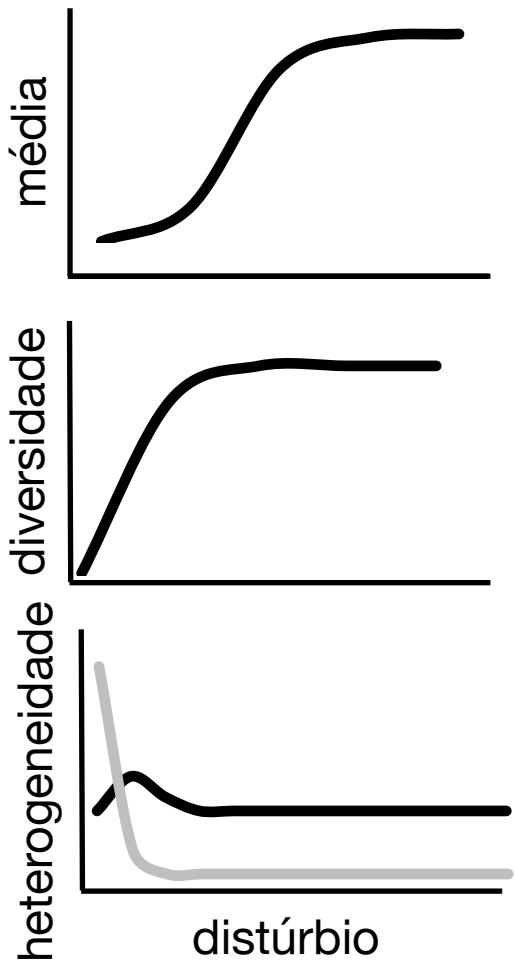
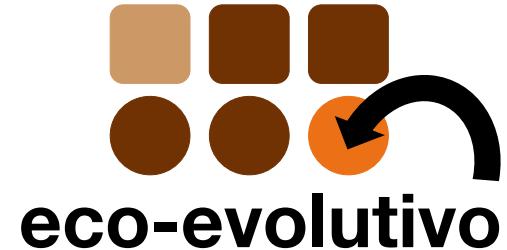
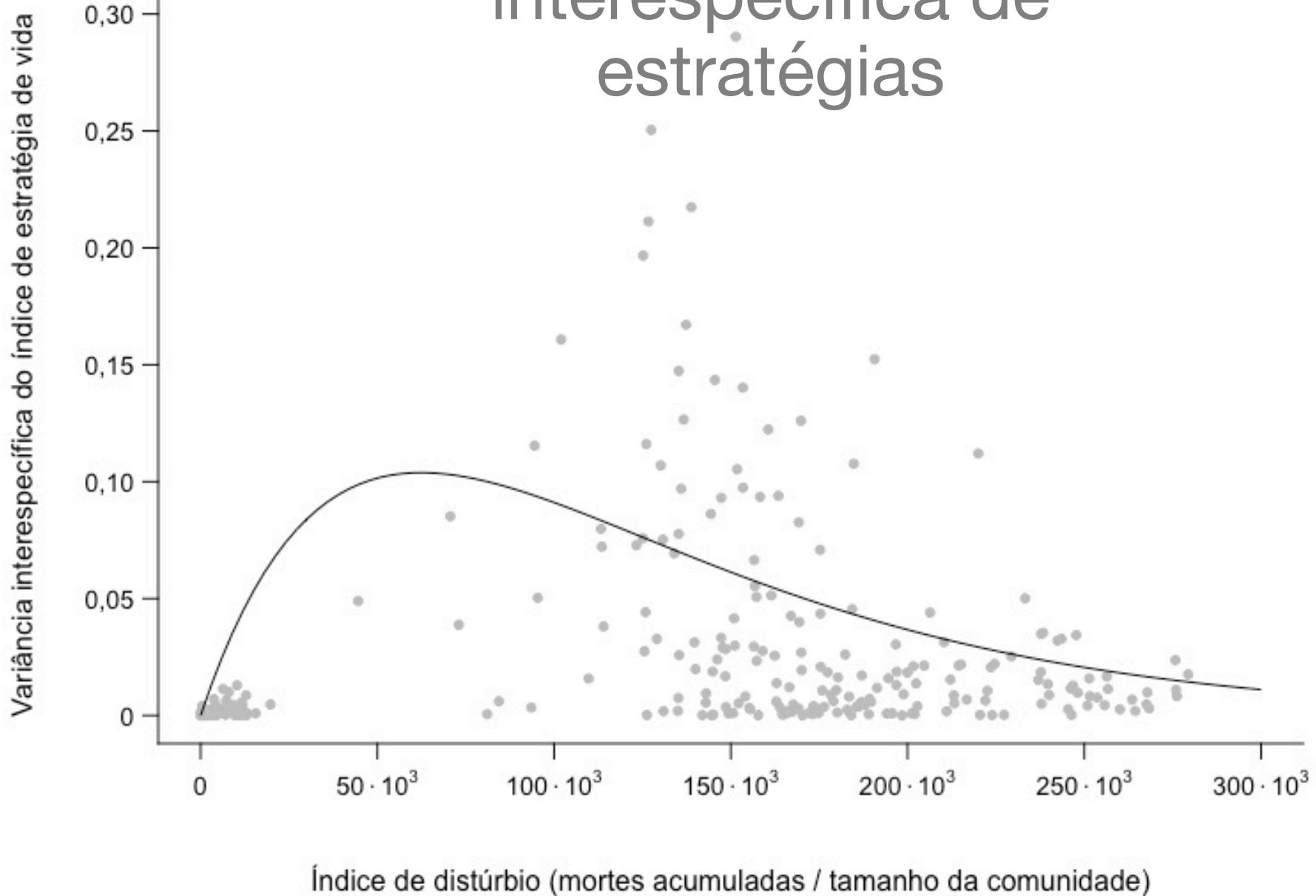
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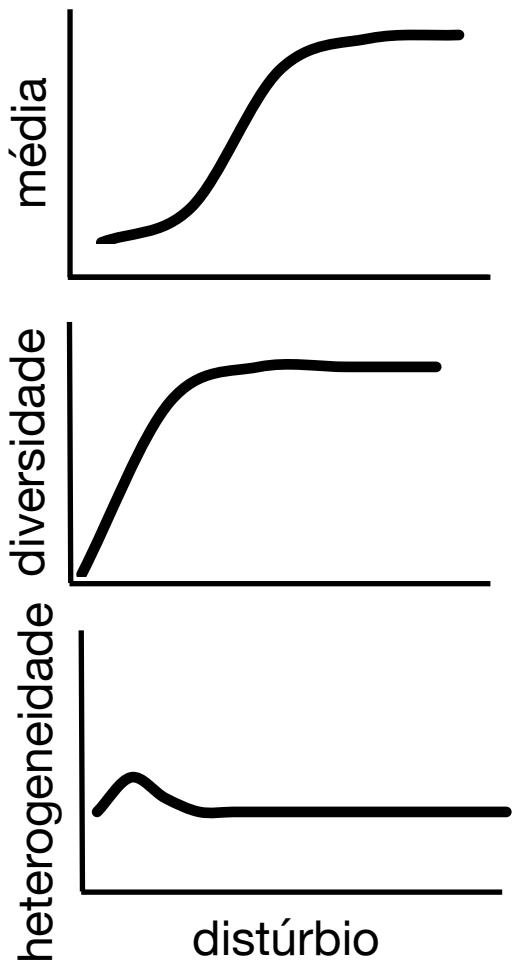
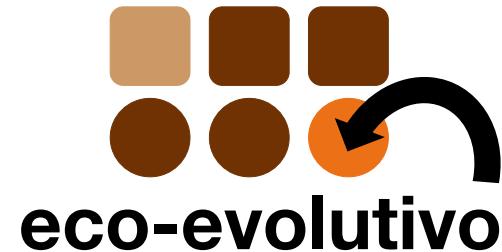
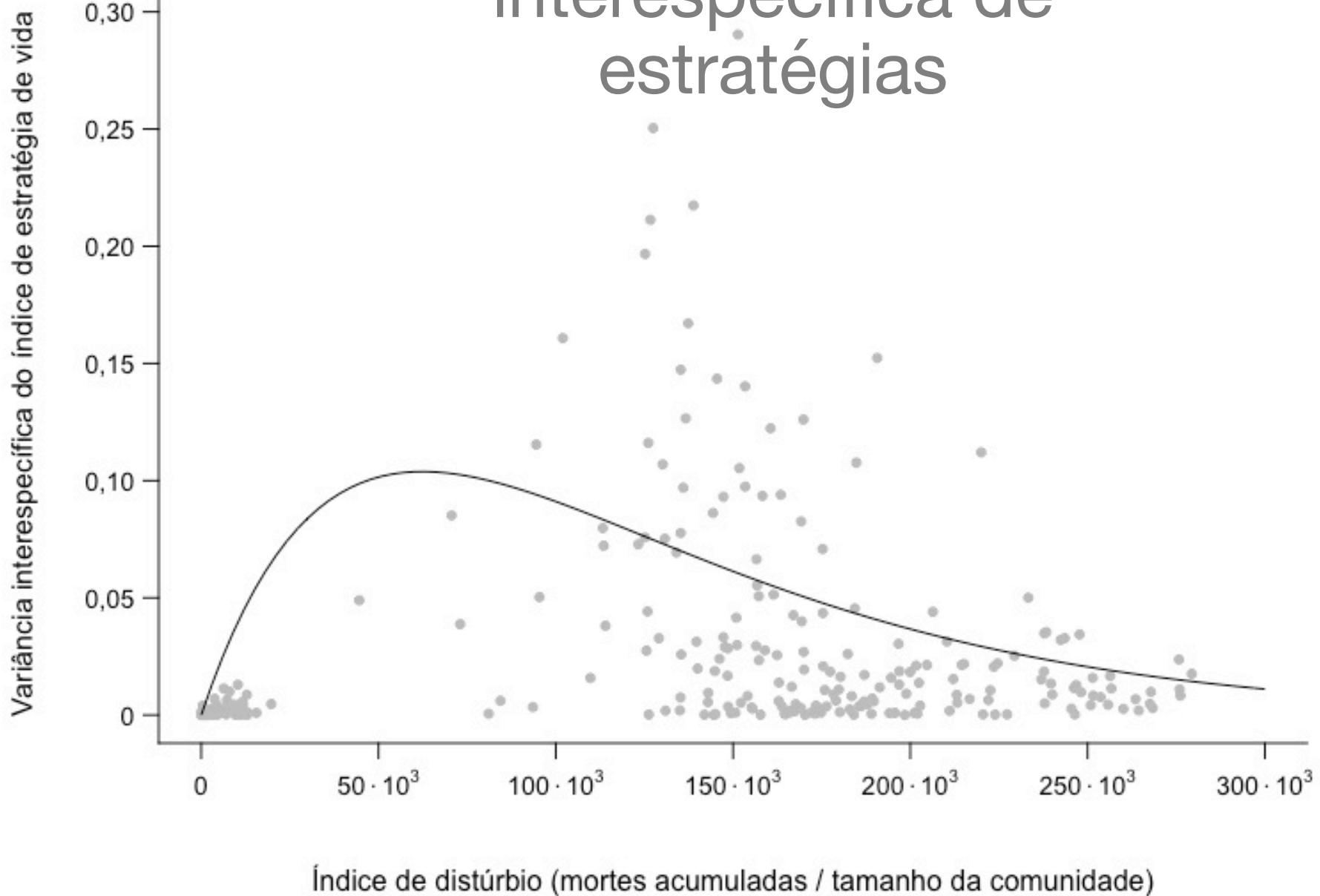
# heterogeneidade interespecífica de estratégias



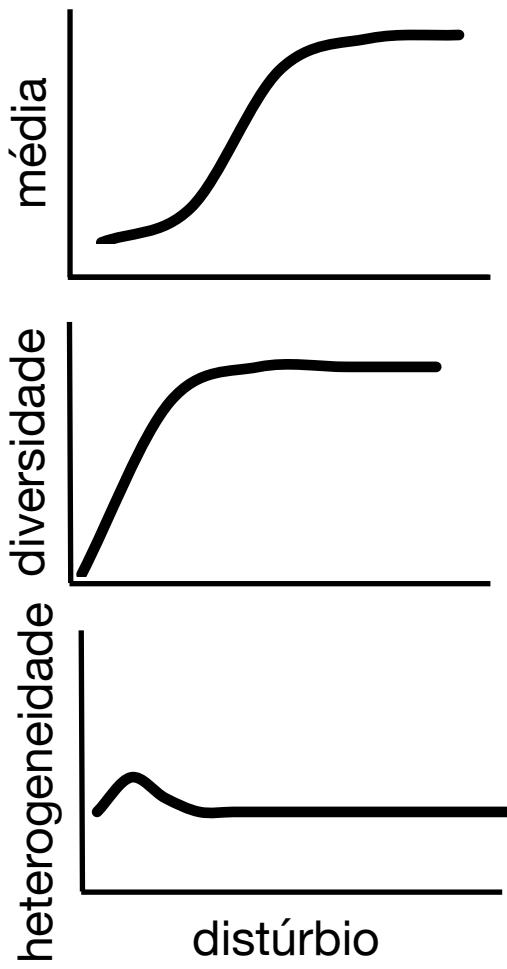
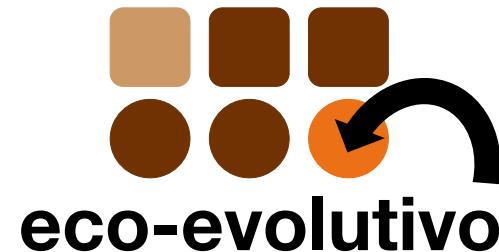
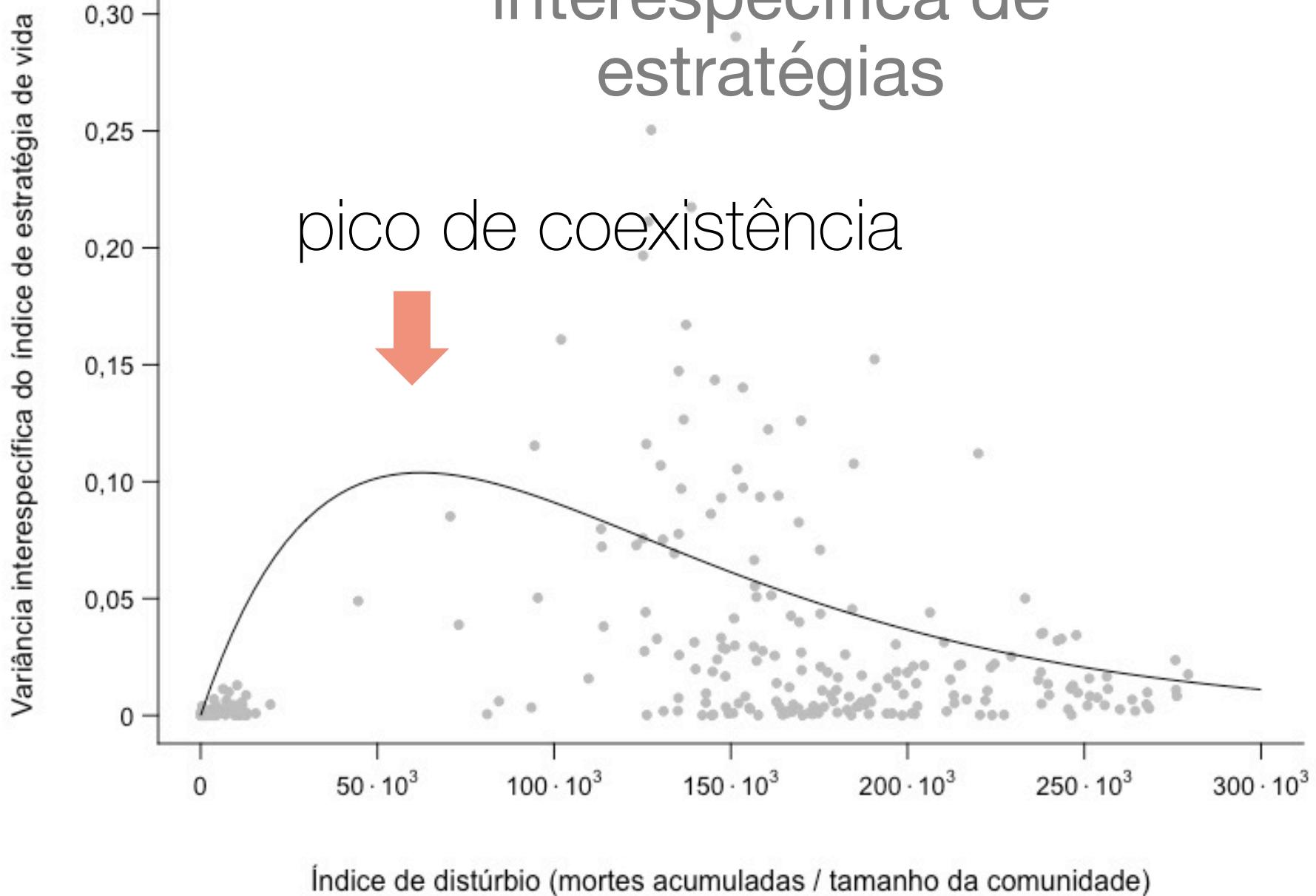
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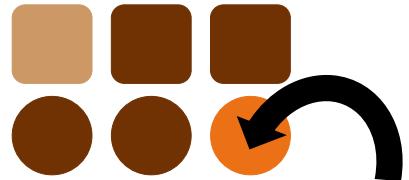
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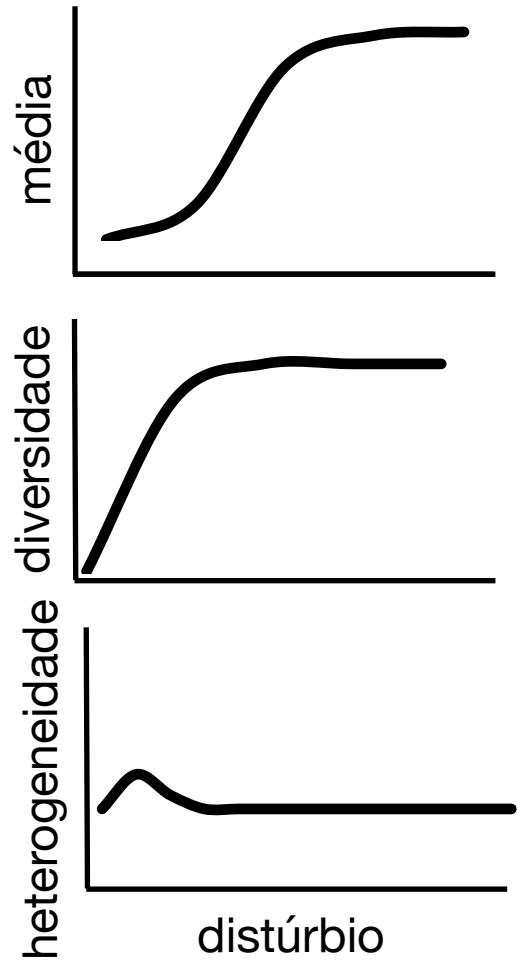
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# coexistência de estratégias mediada pelo distúrbio

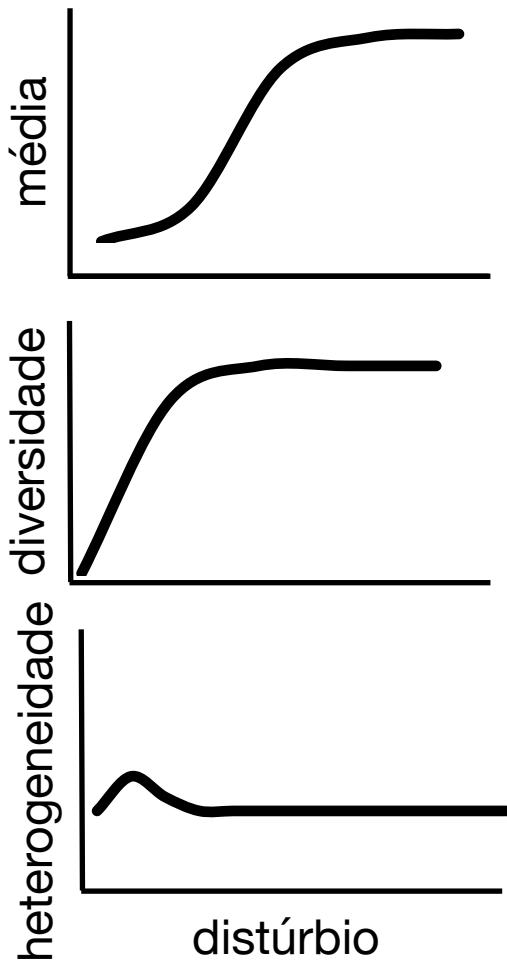
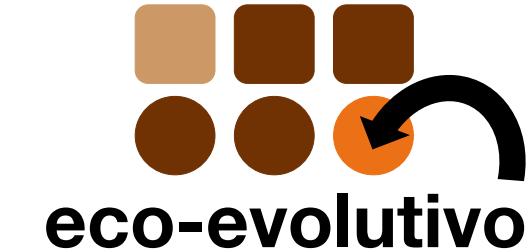
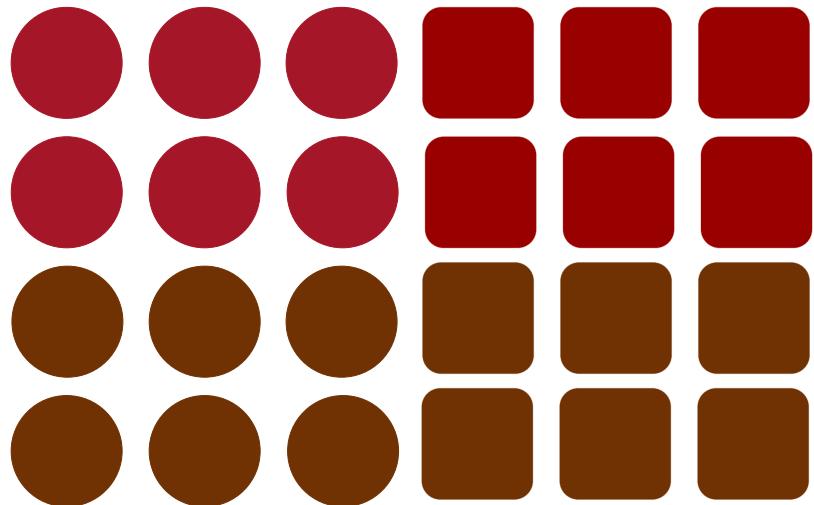


**eco-evolutivo**



# coexistência de estratégias mediada pelo distúrbio

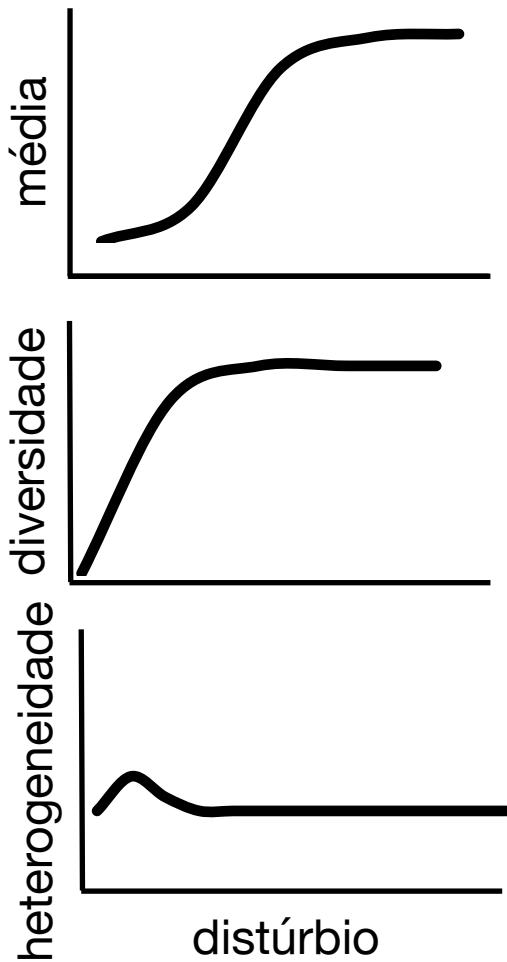
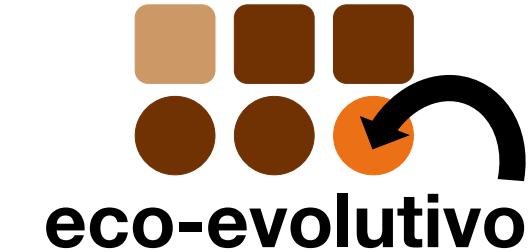
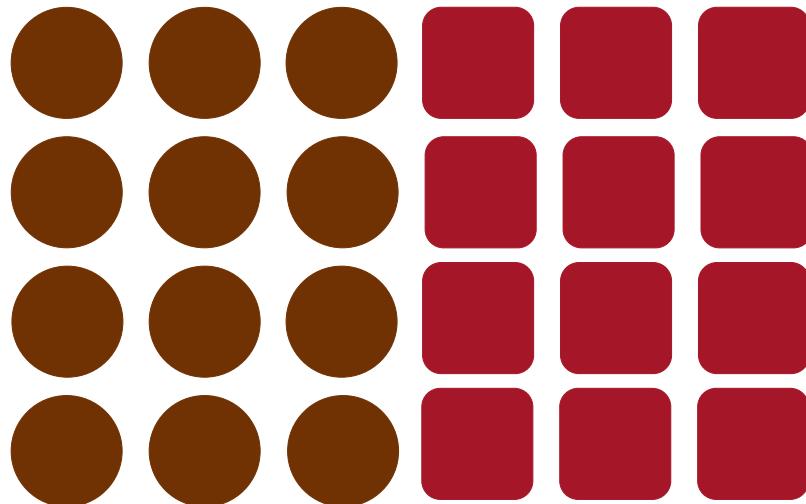
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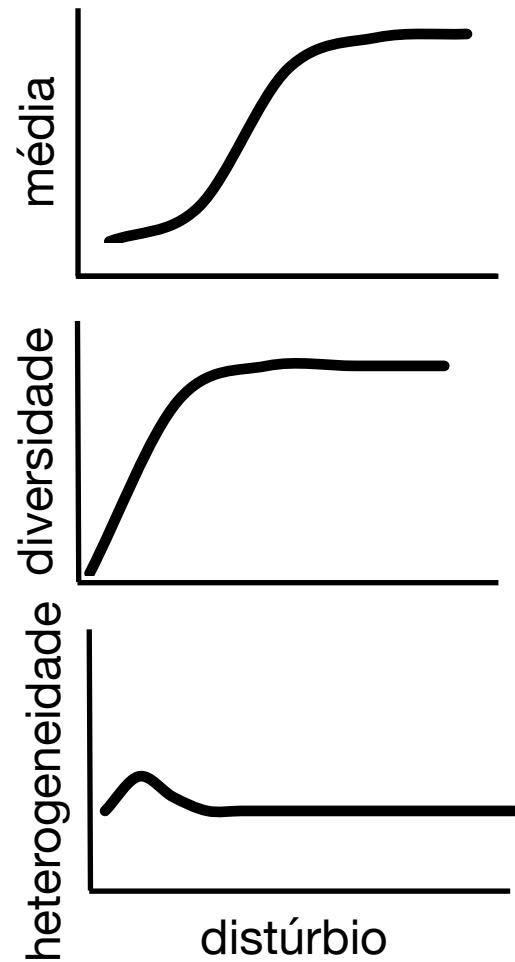
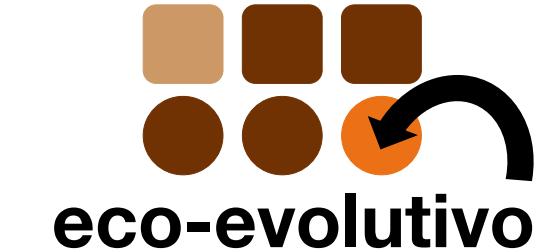
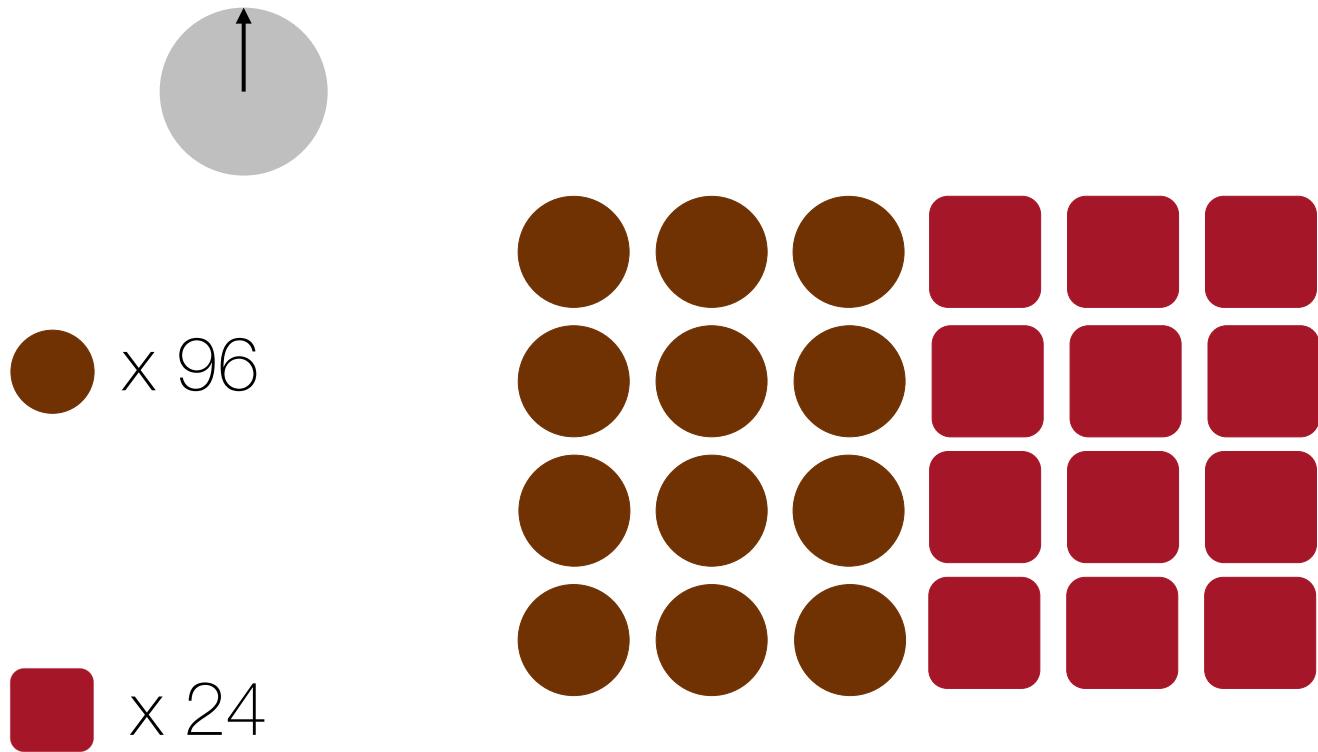
# coexistência de estratégias mediada pelo distúrbio

x 96

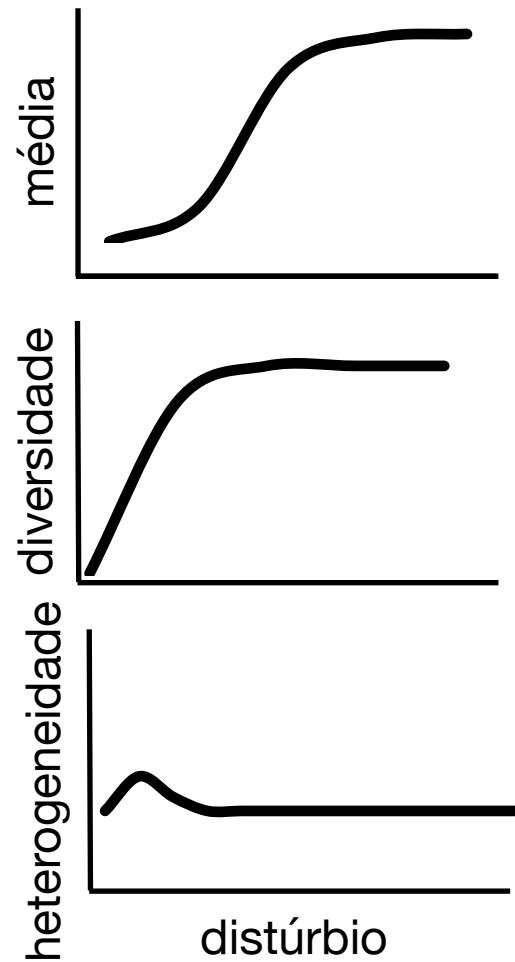
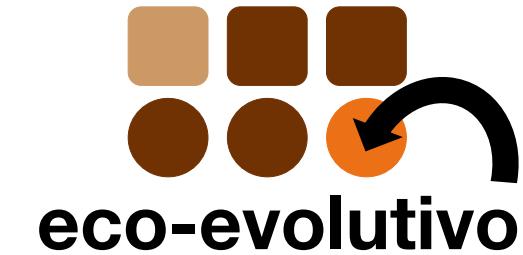
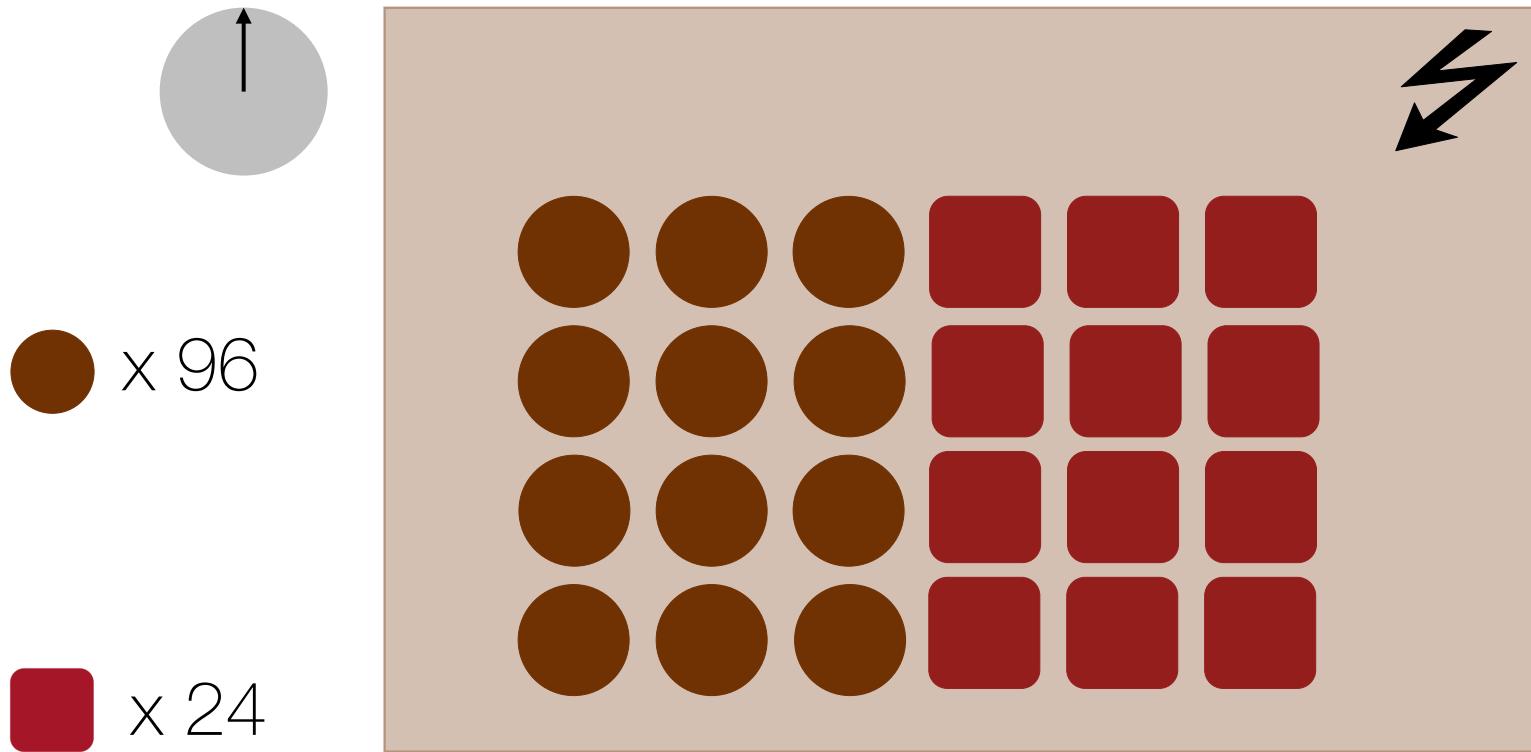
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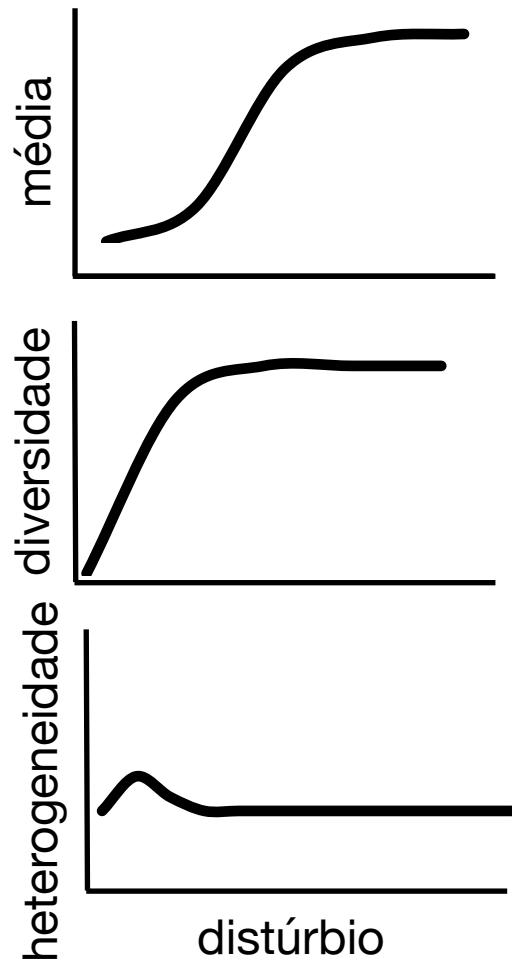
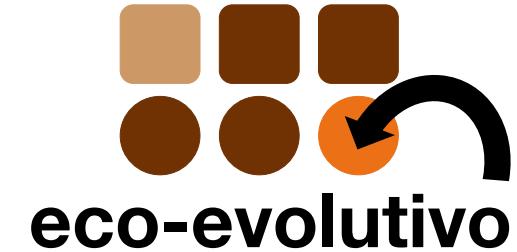
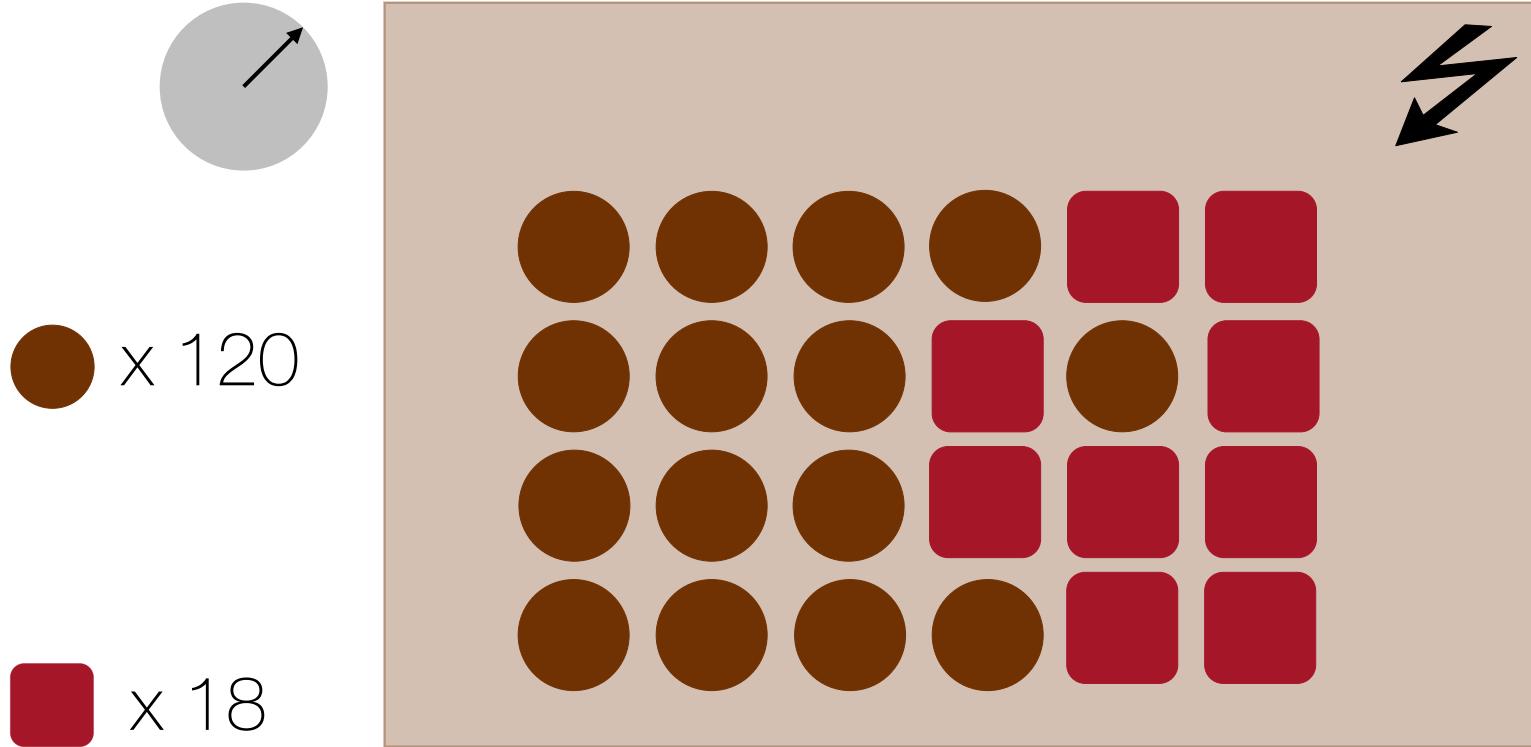
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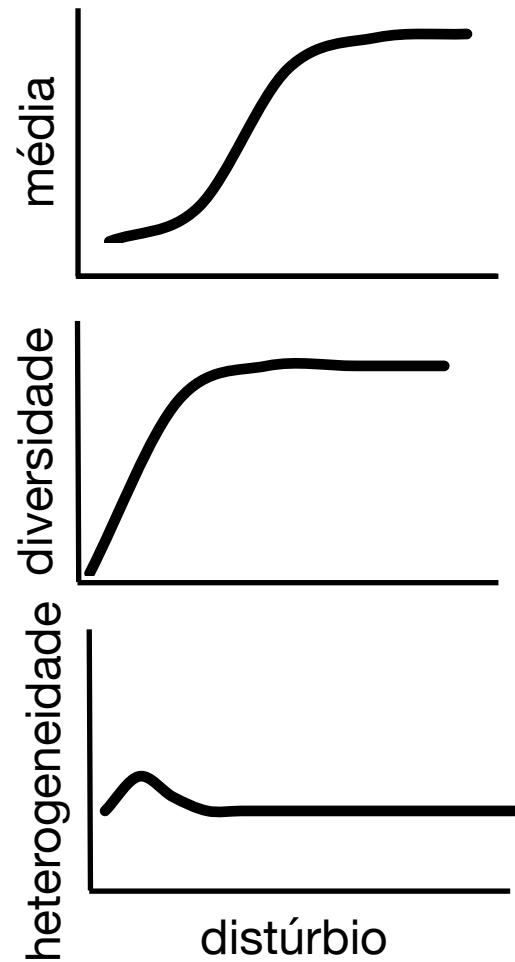
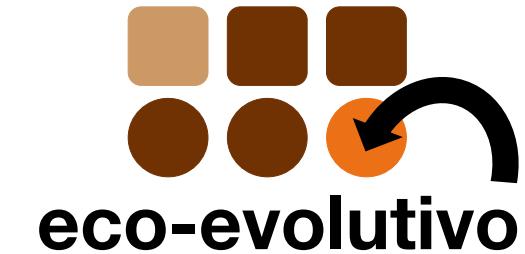
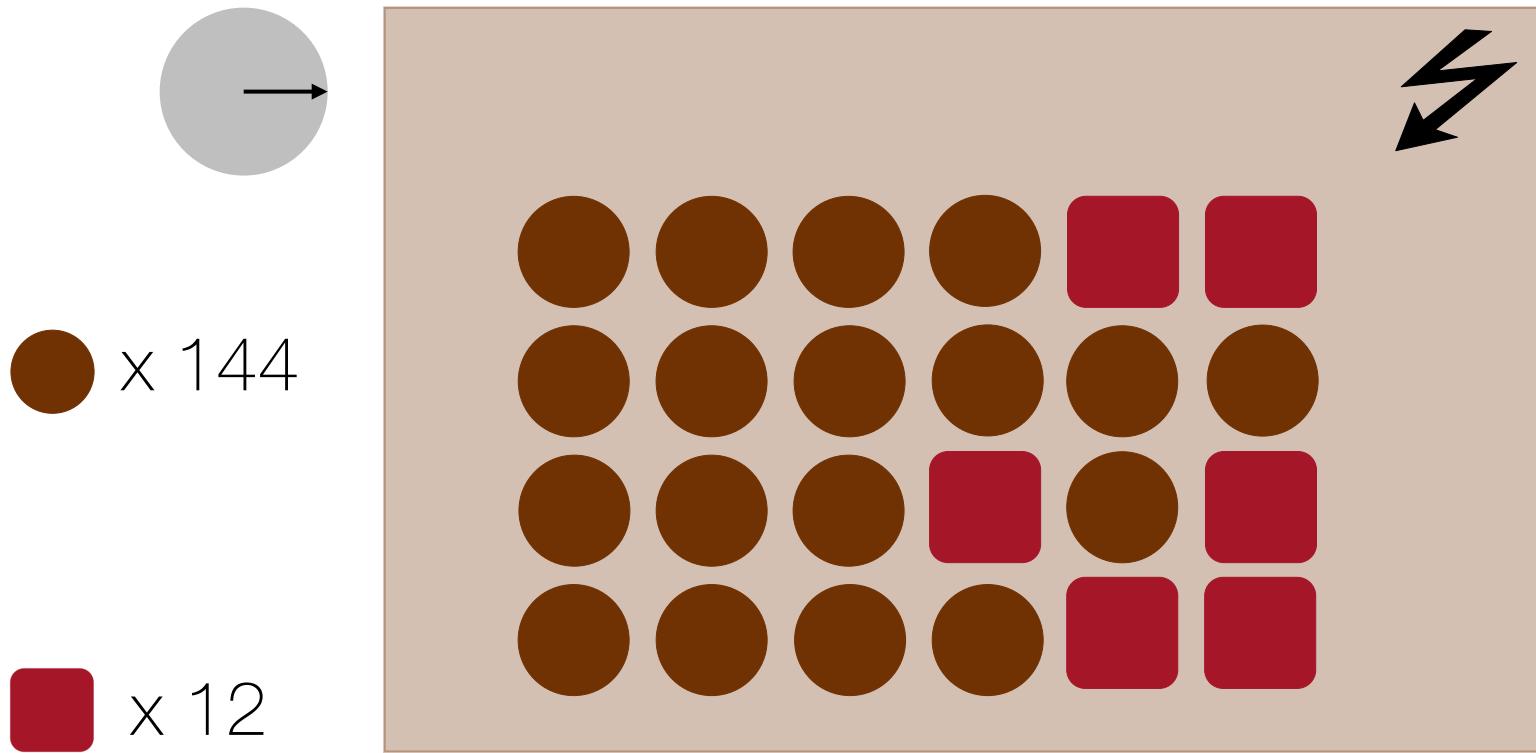
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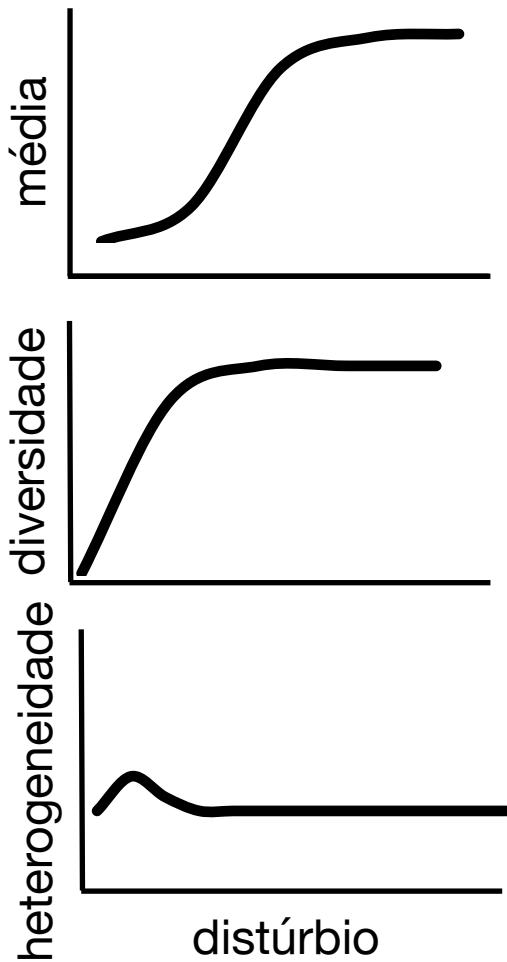
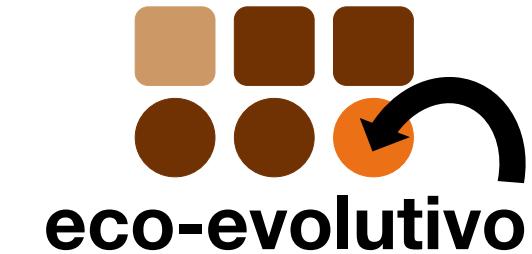
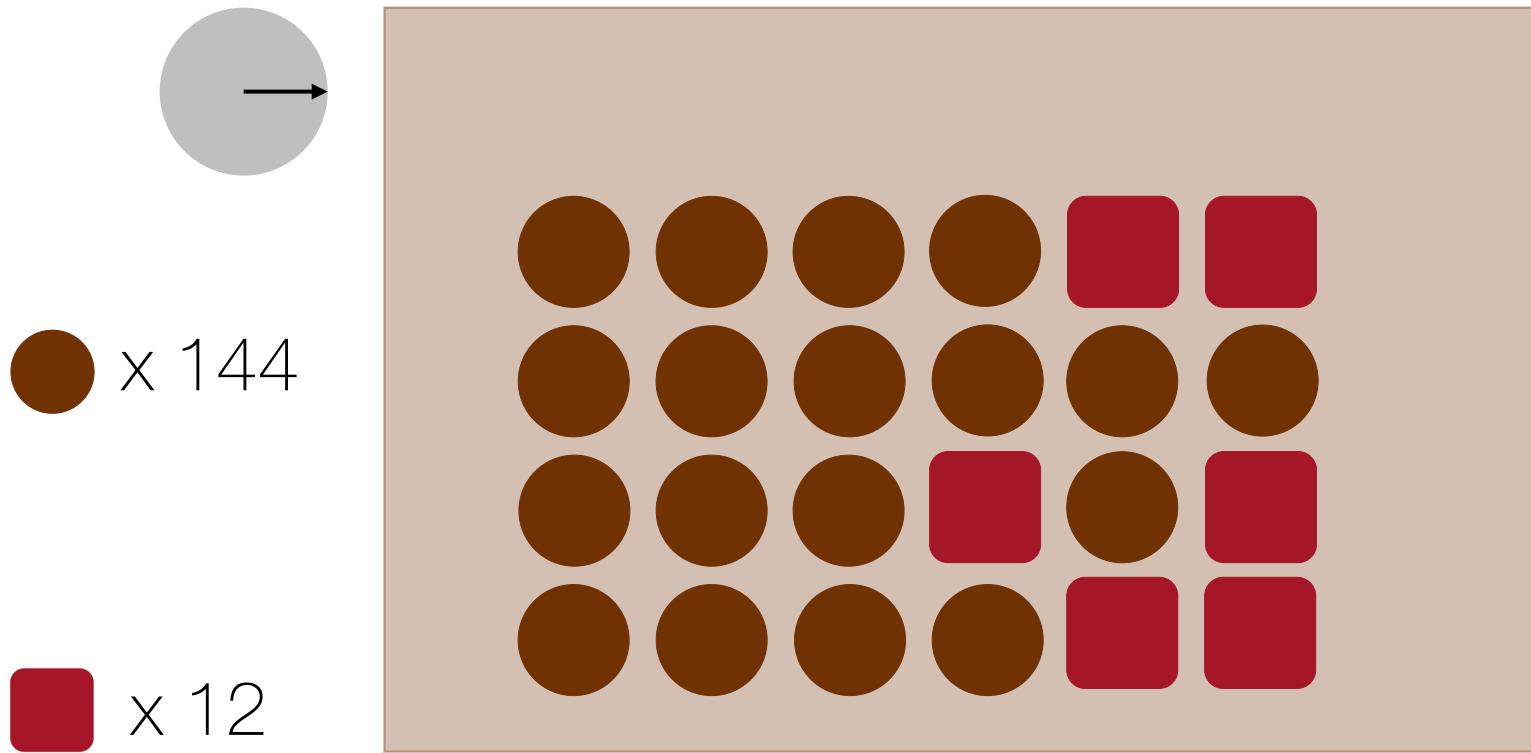
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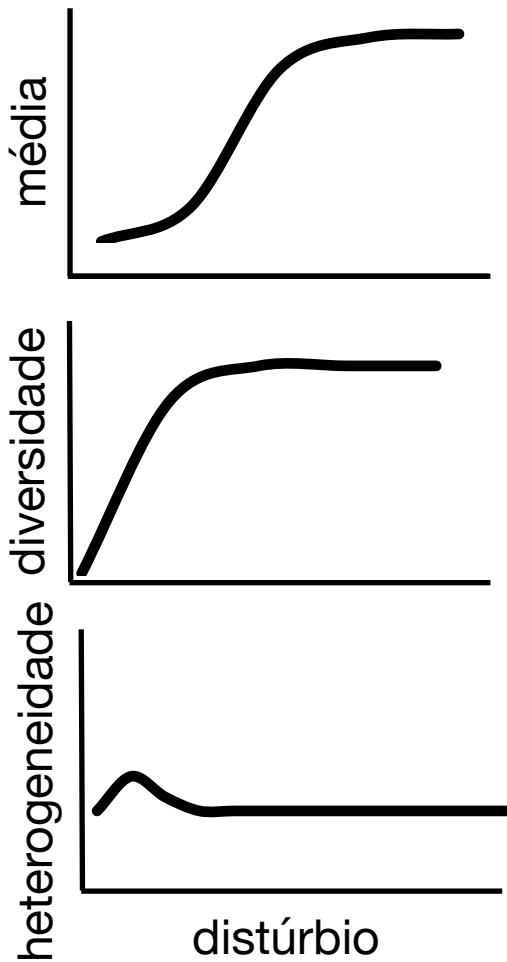
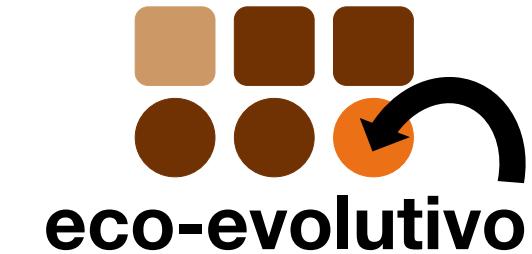
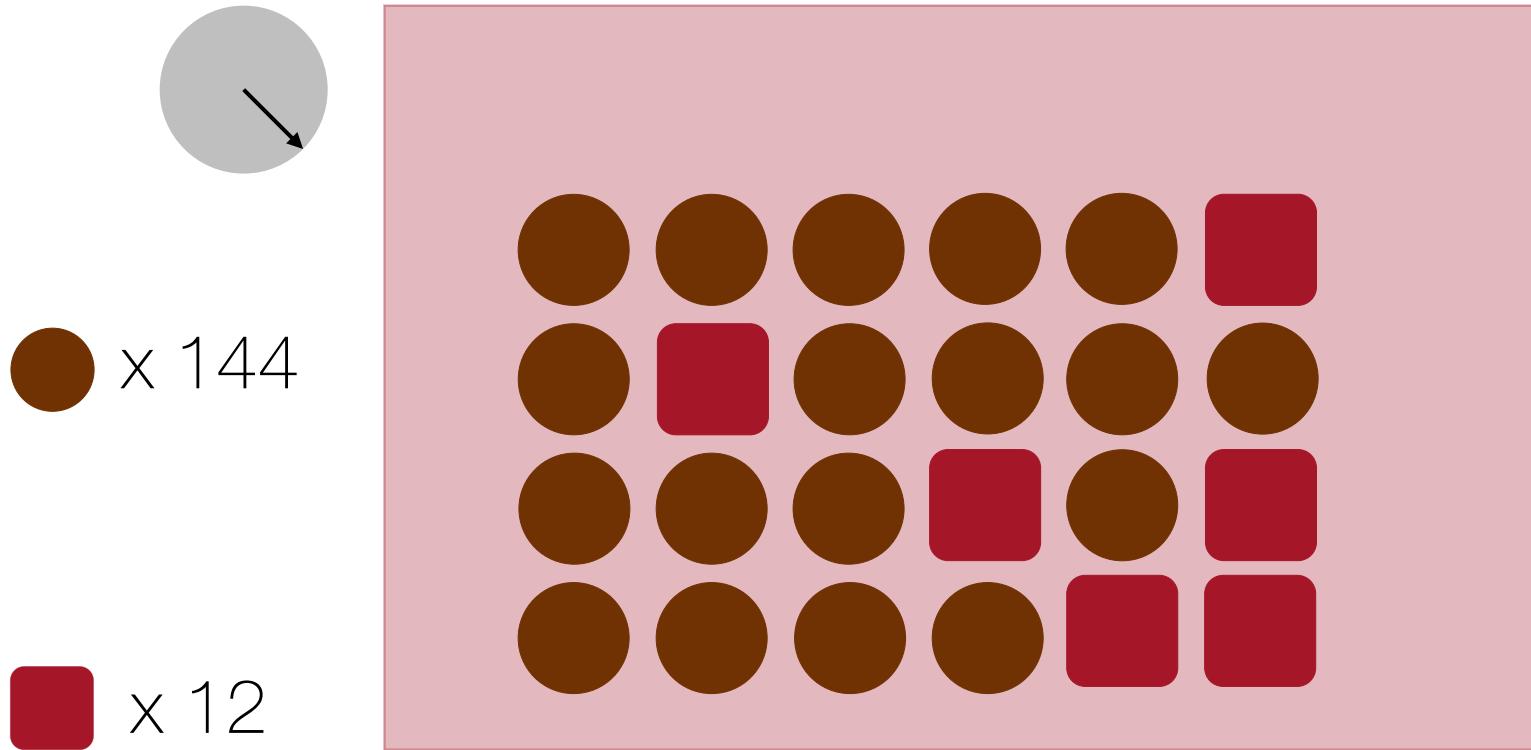
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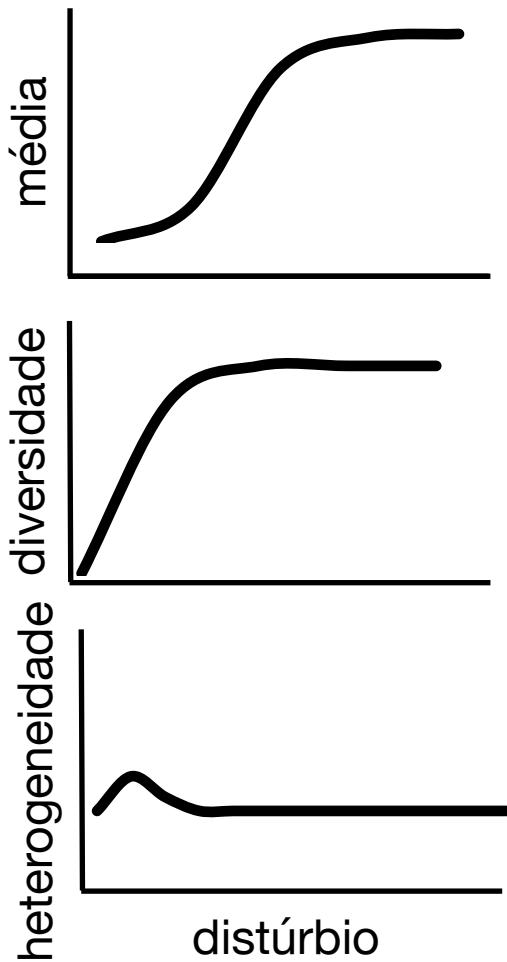
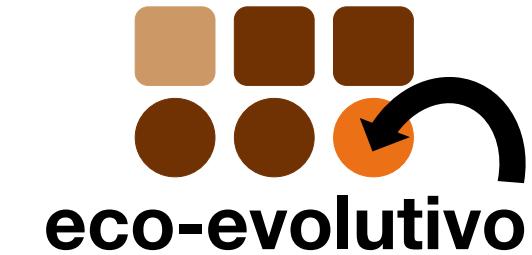
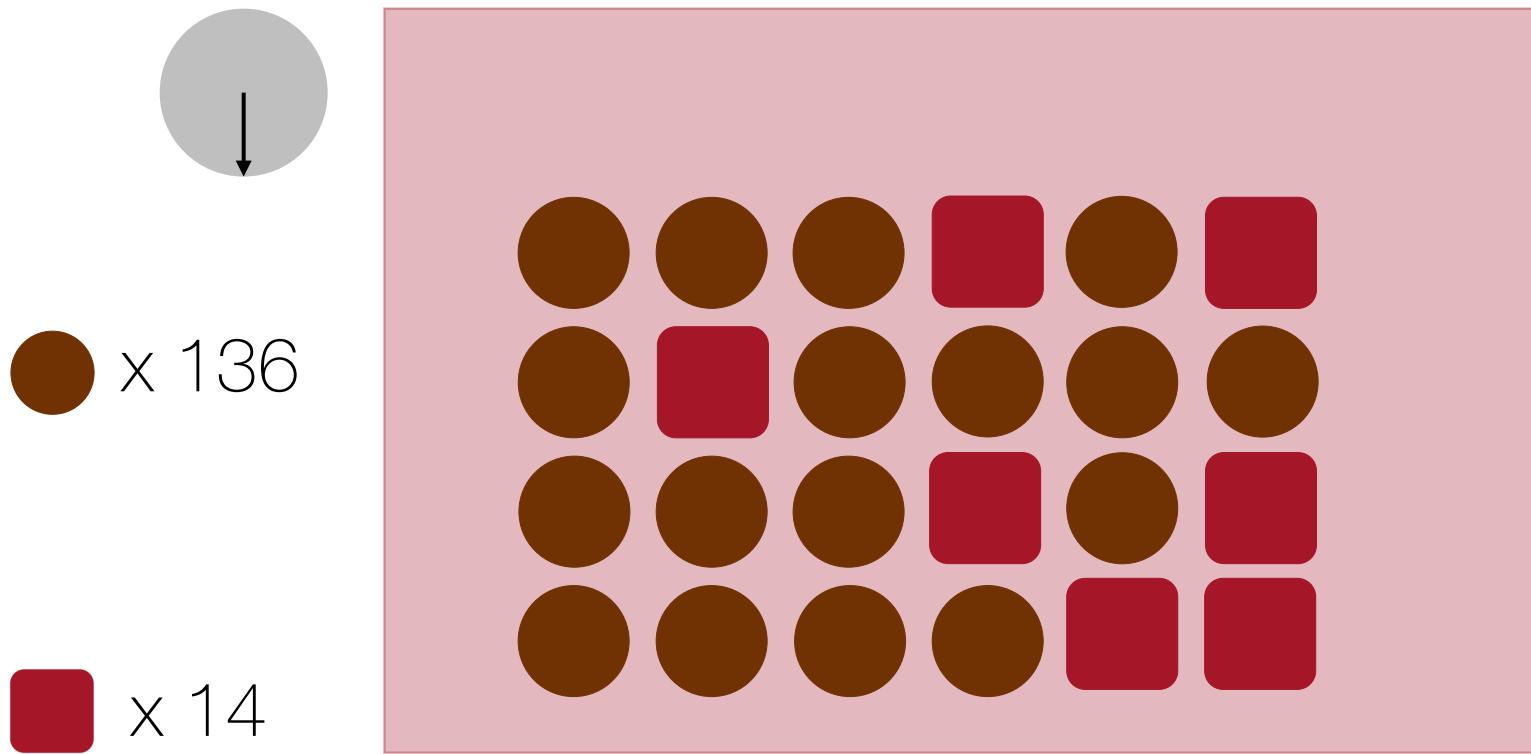
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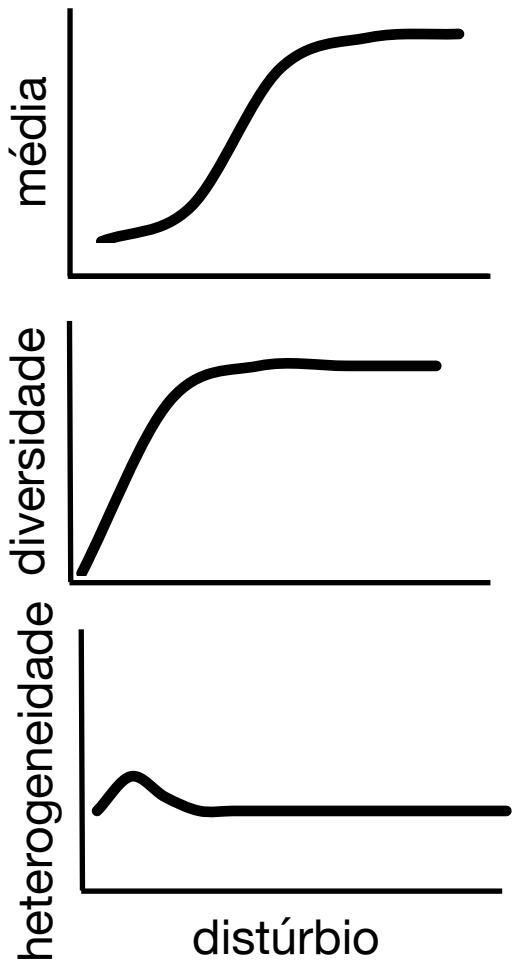
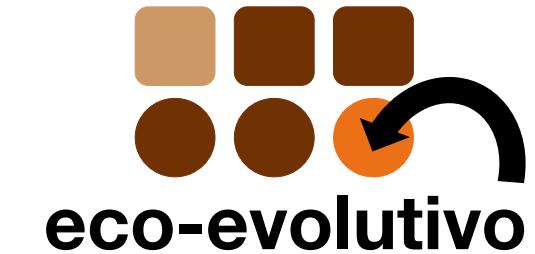
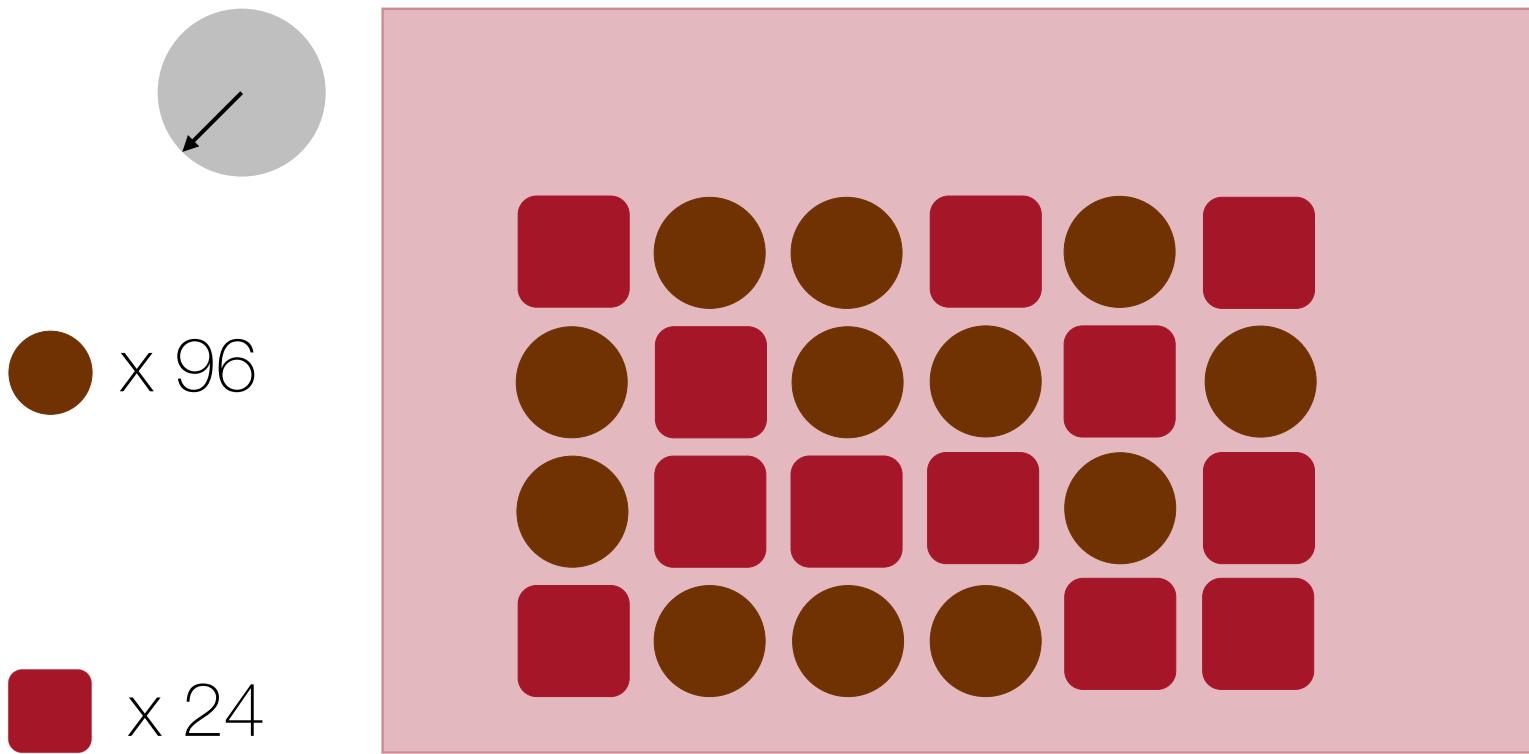
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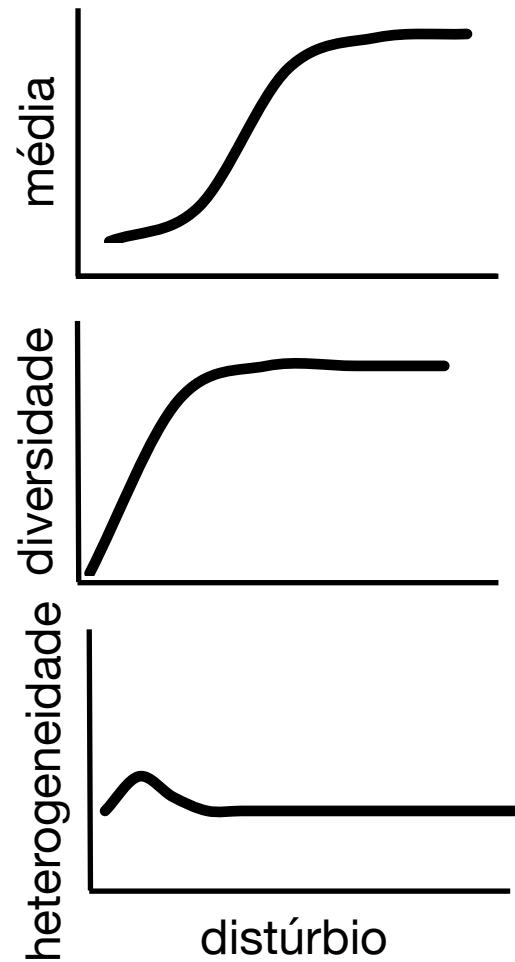
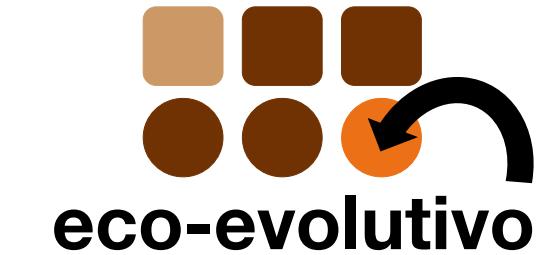
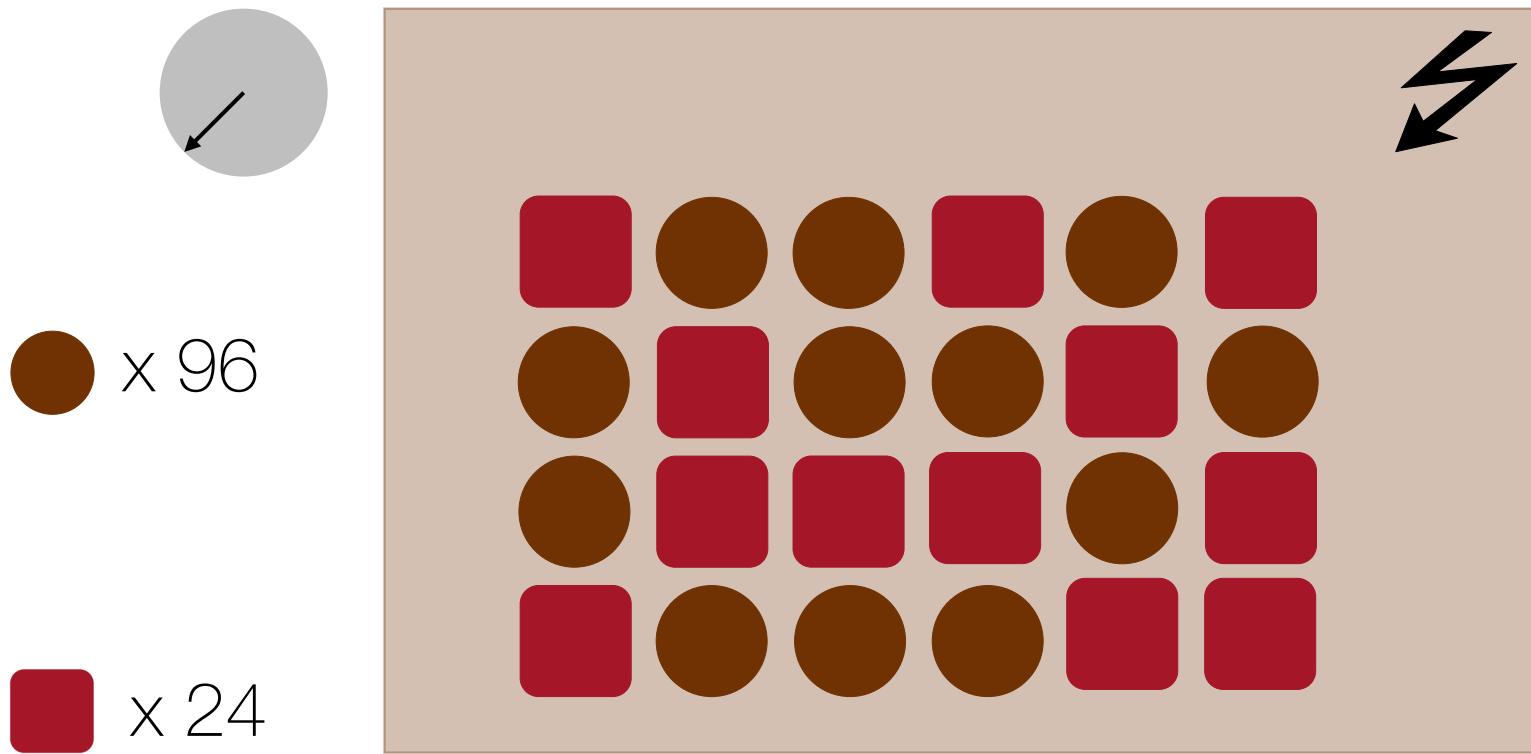
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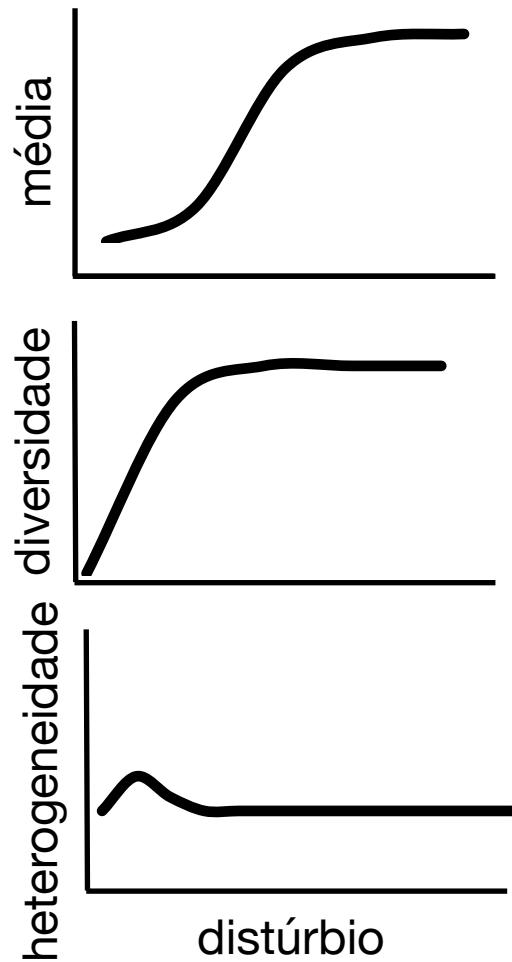
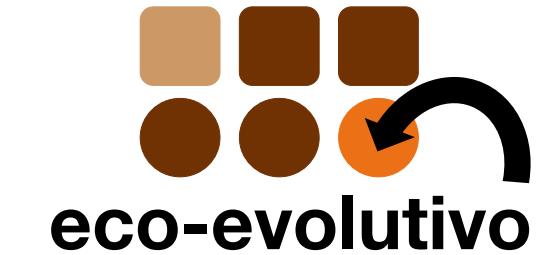
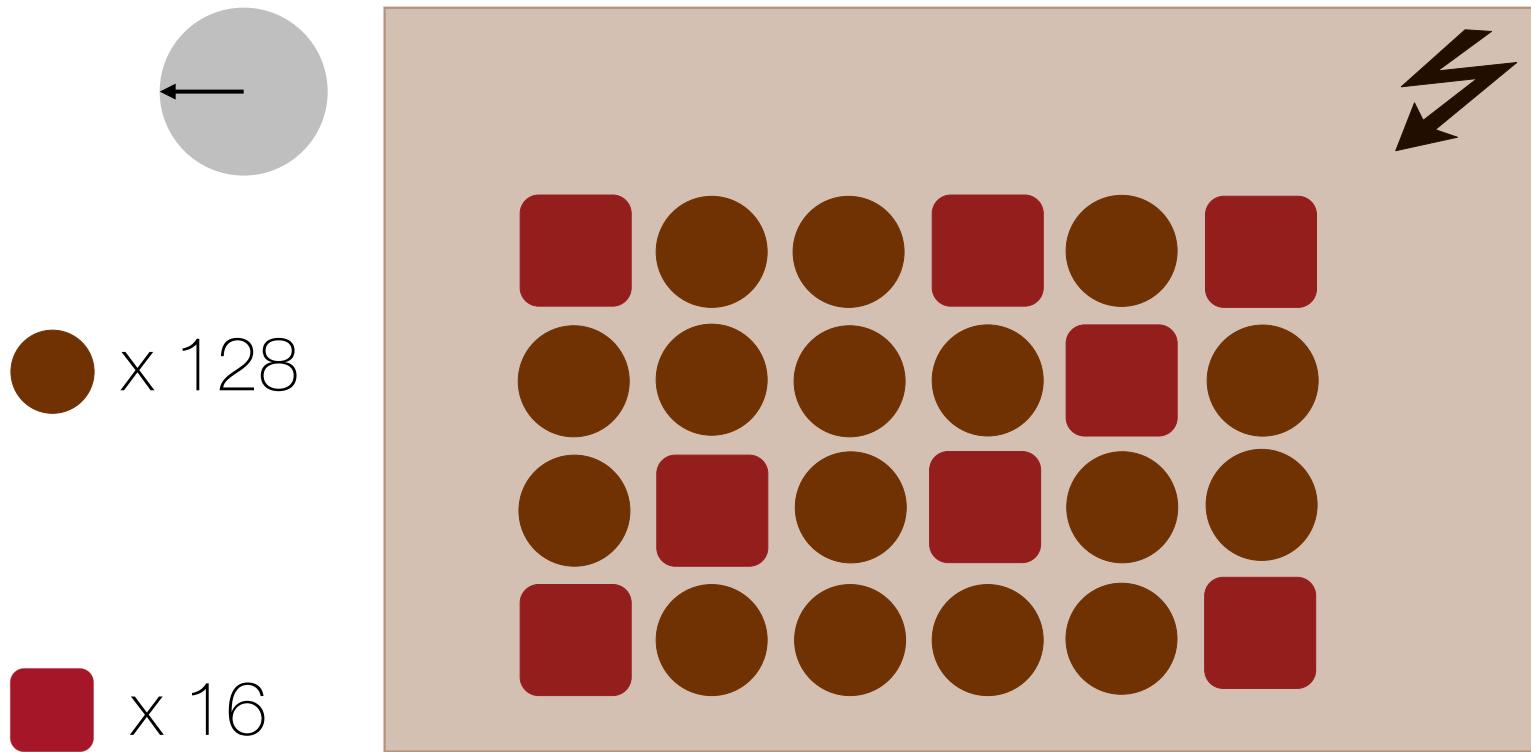
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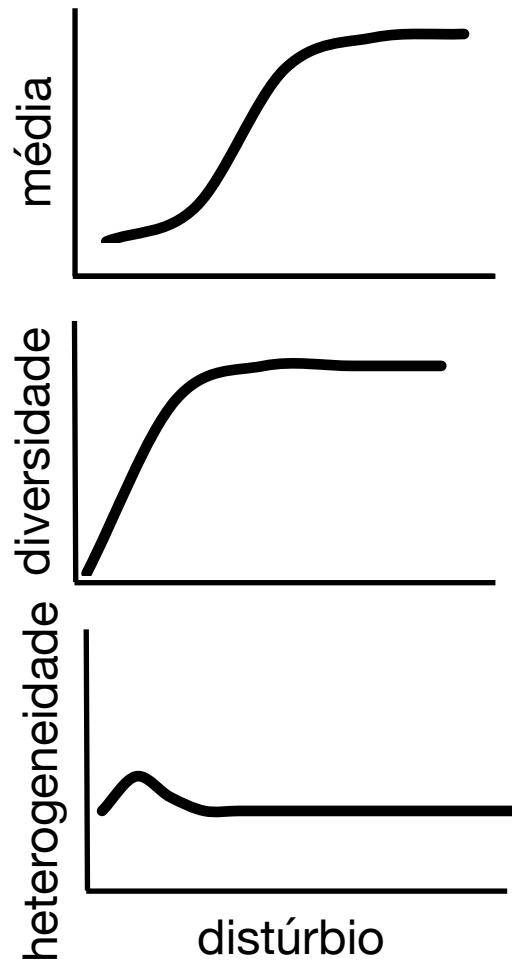
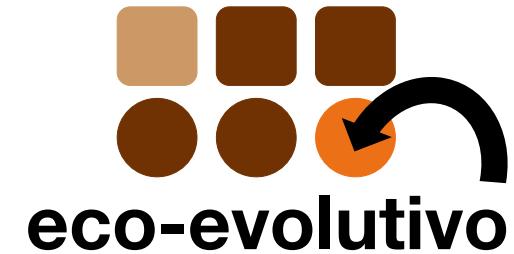
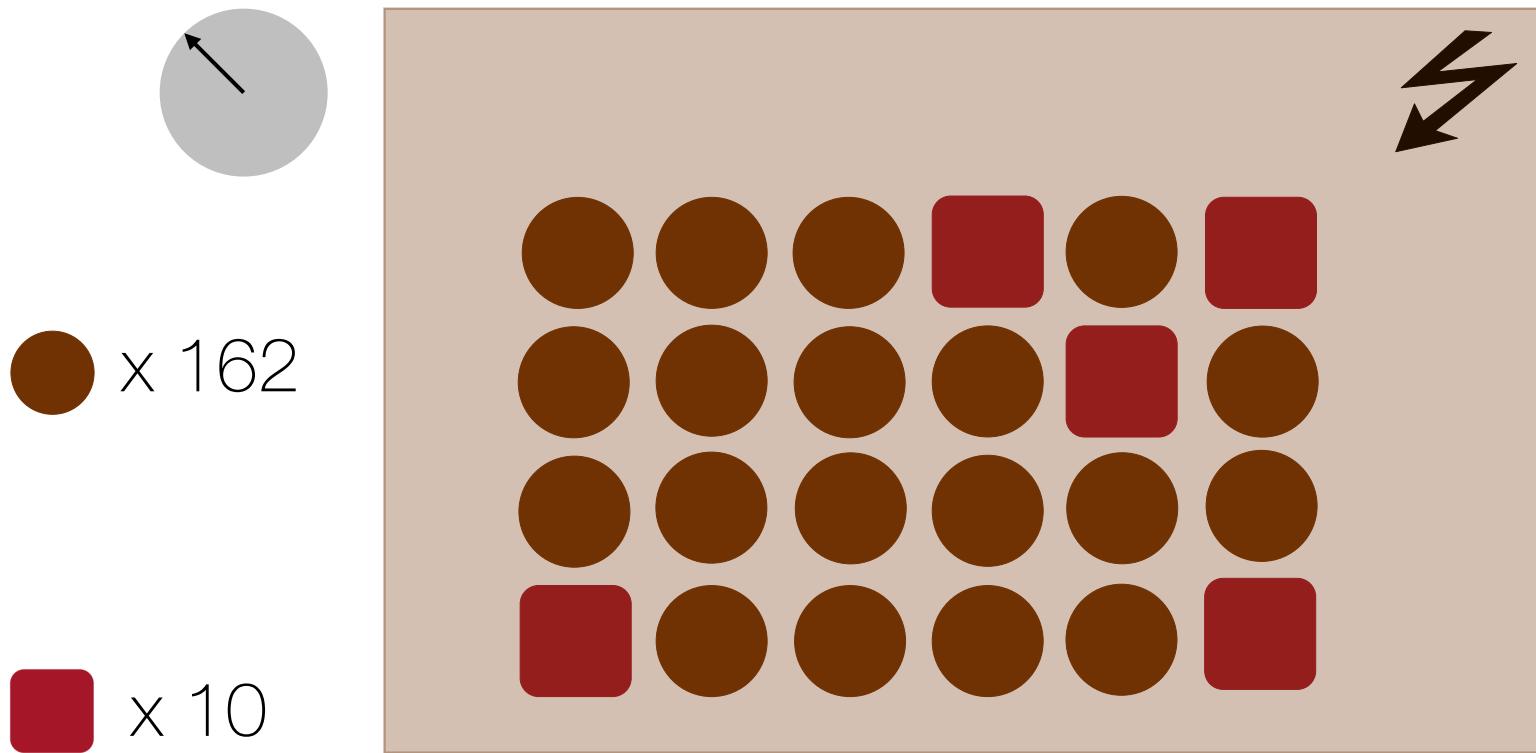
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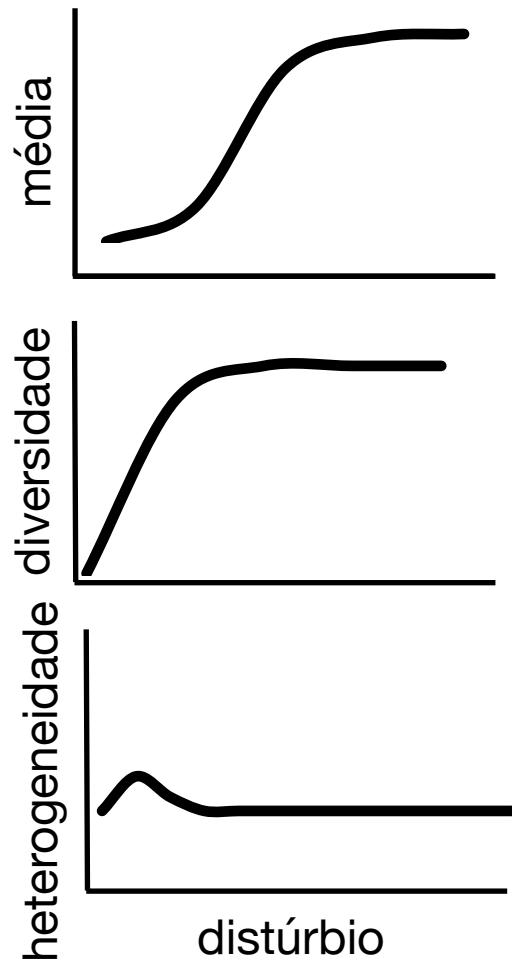
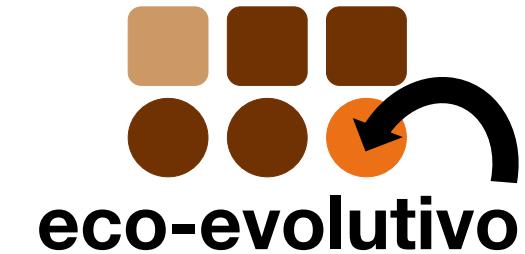
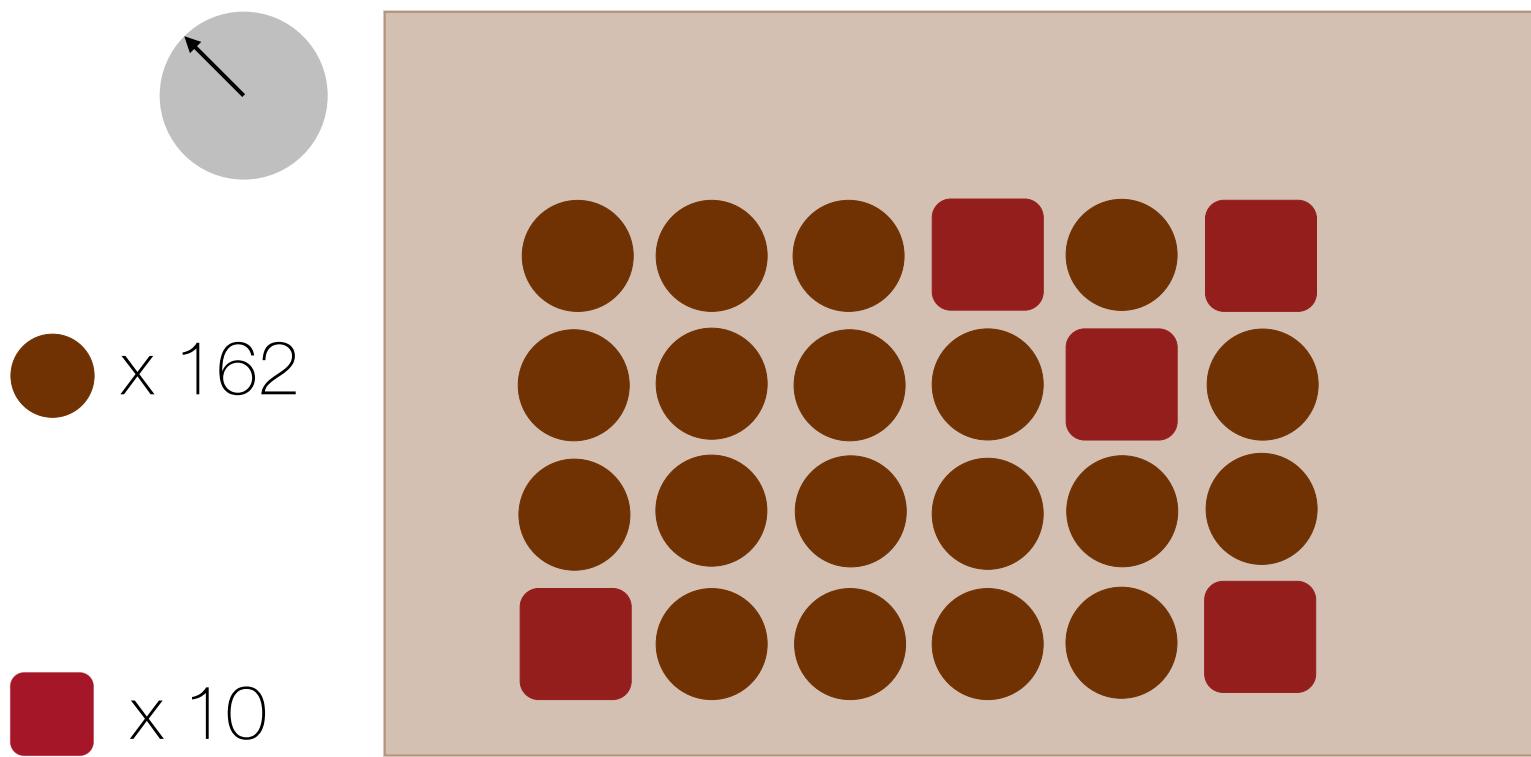
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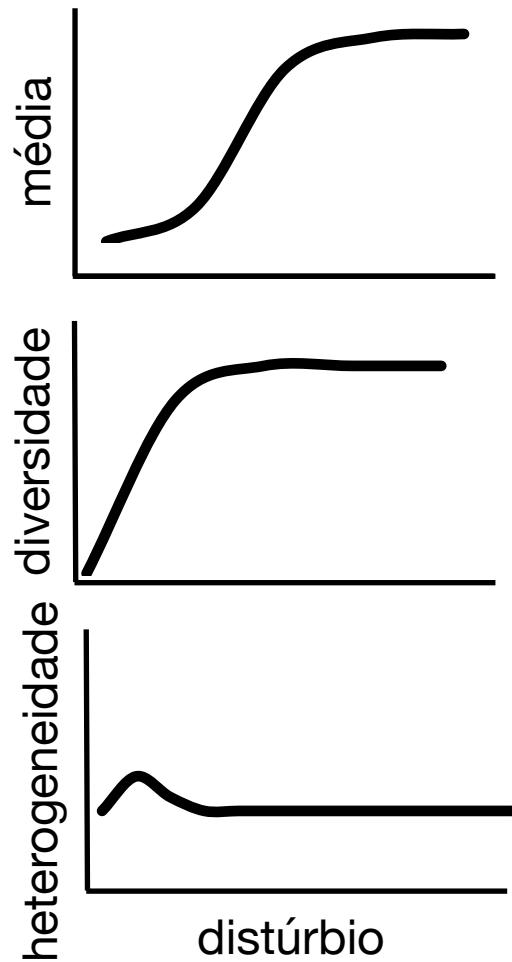
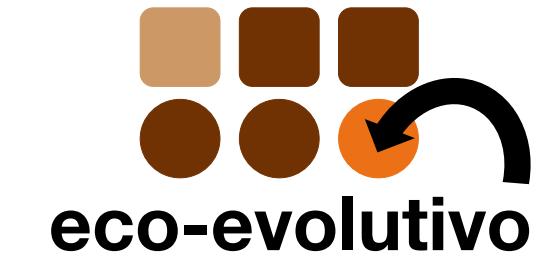
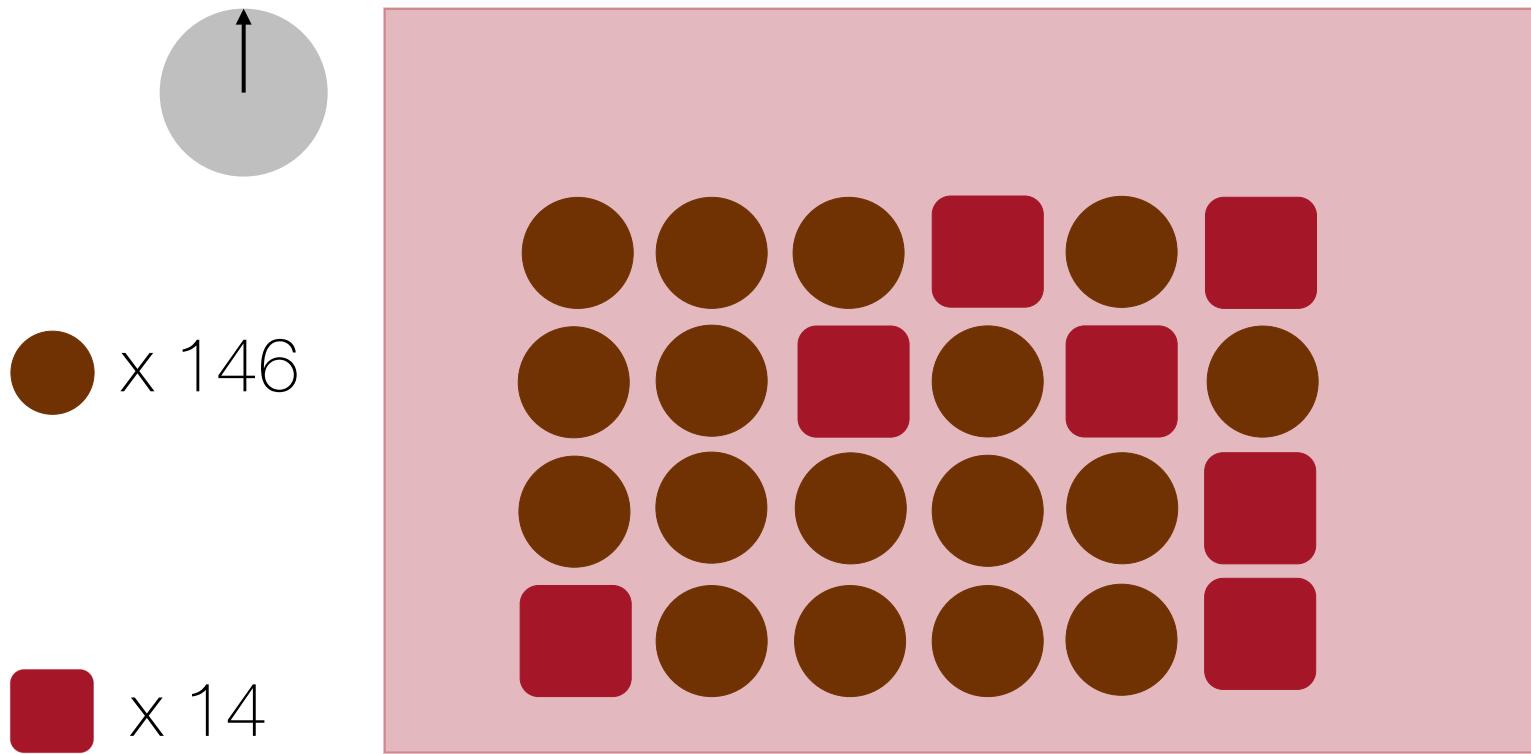
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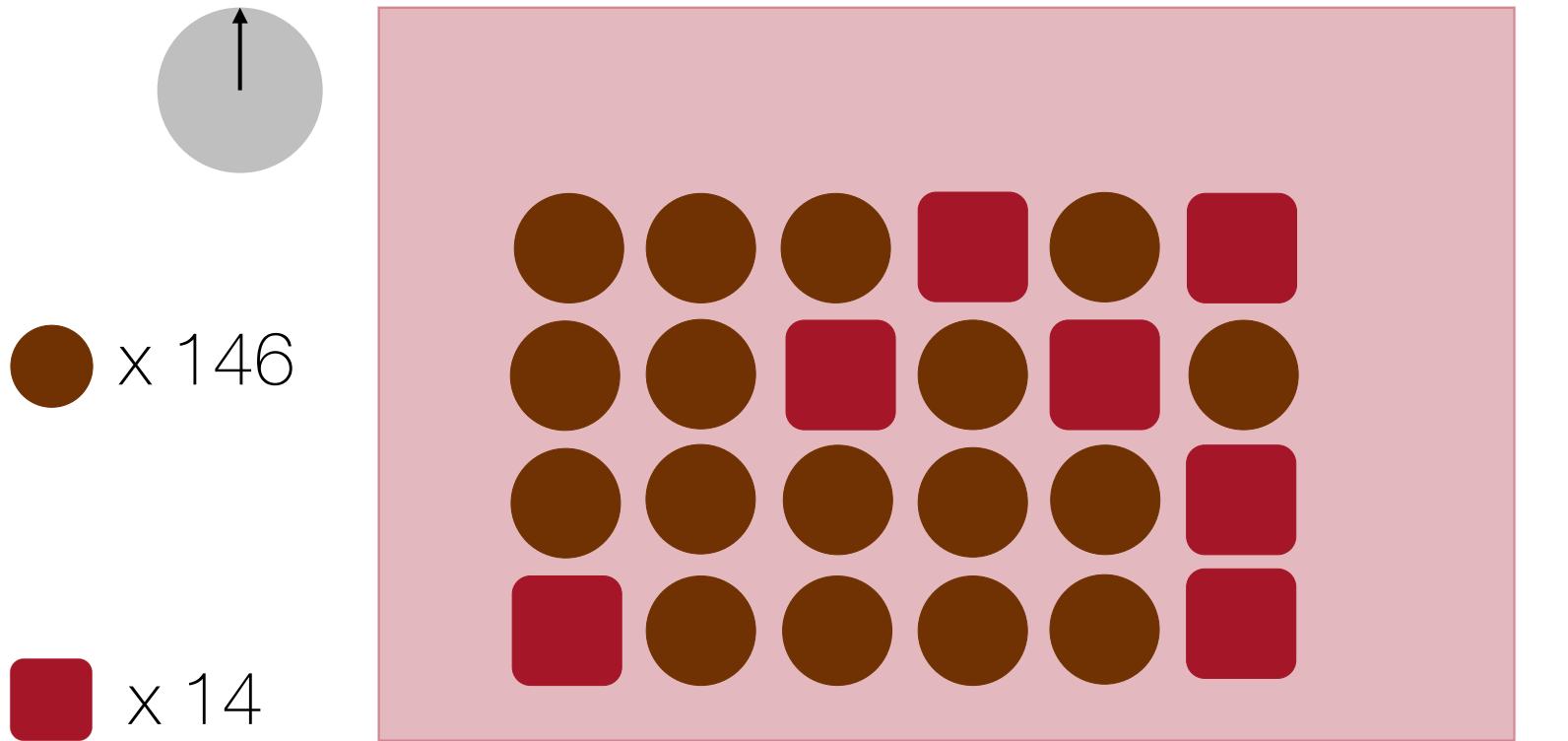
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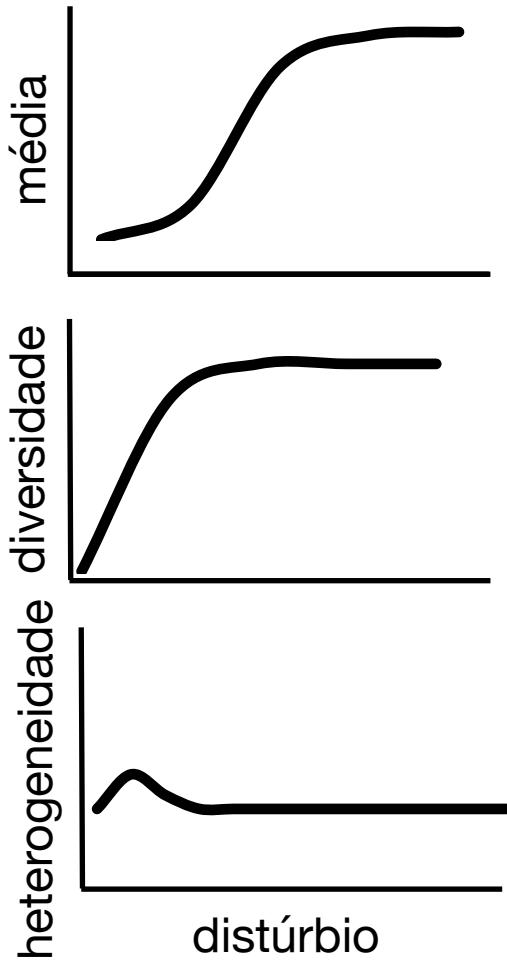
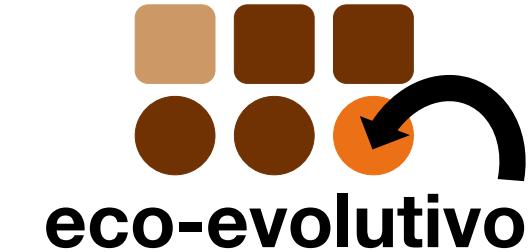
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# coexistência de estratégias mediada pelo distúrbio

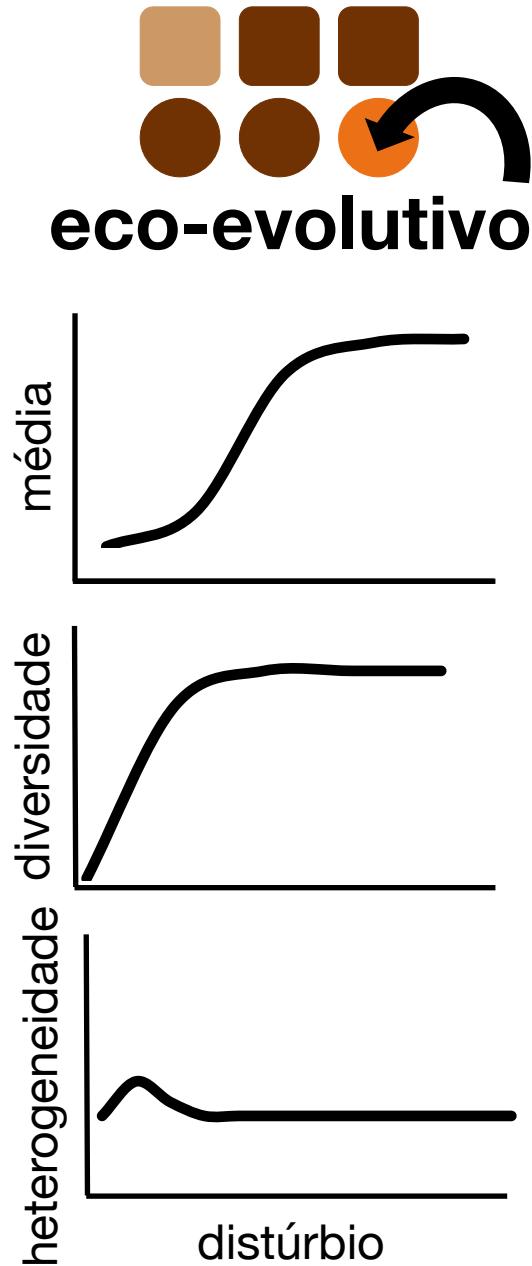
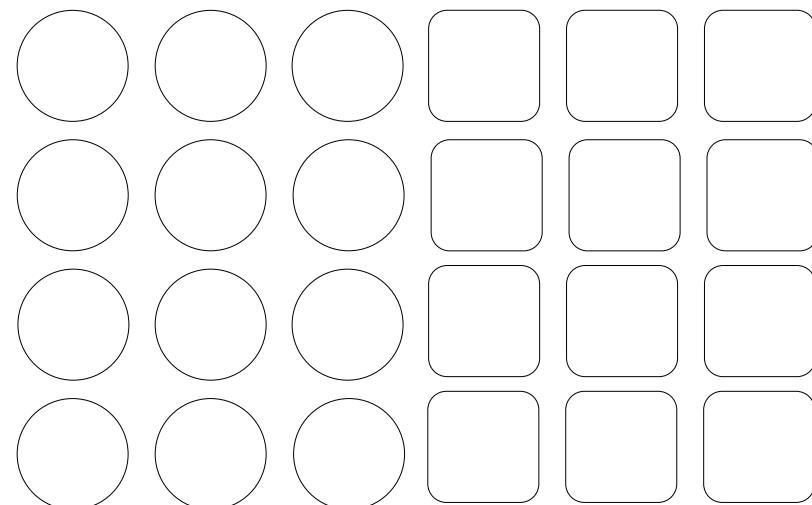


coexistência de especialistas



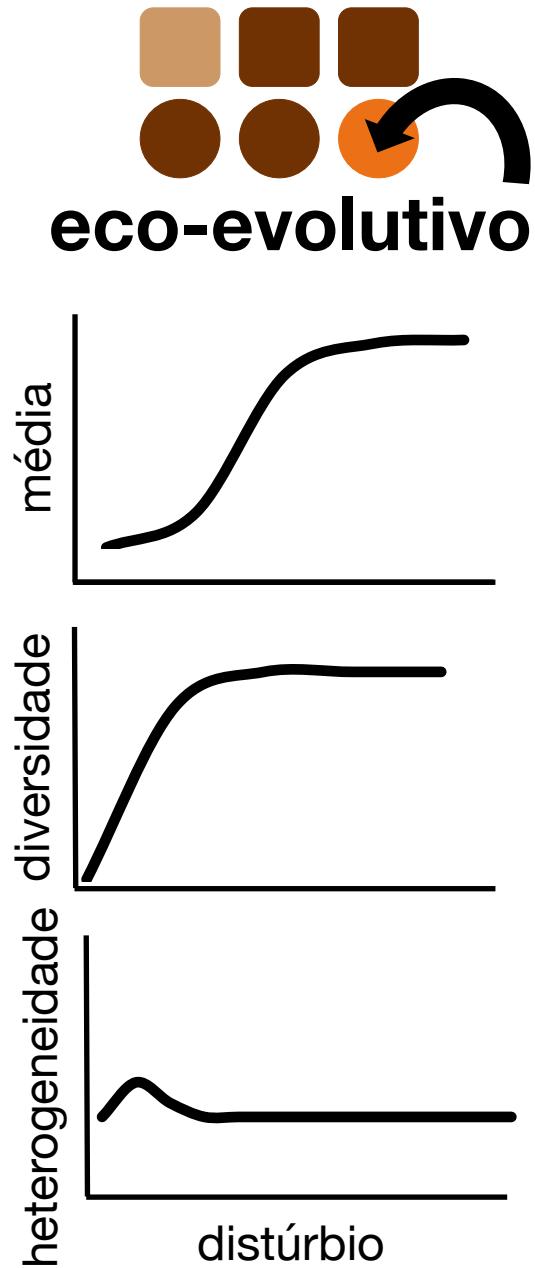
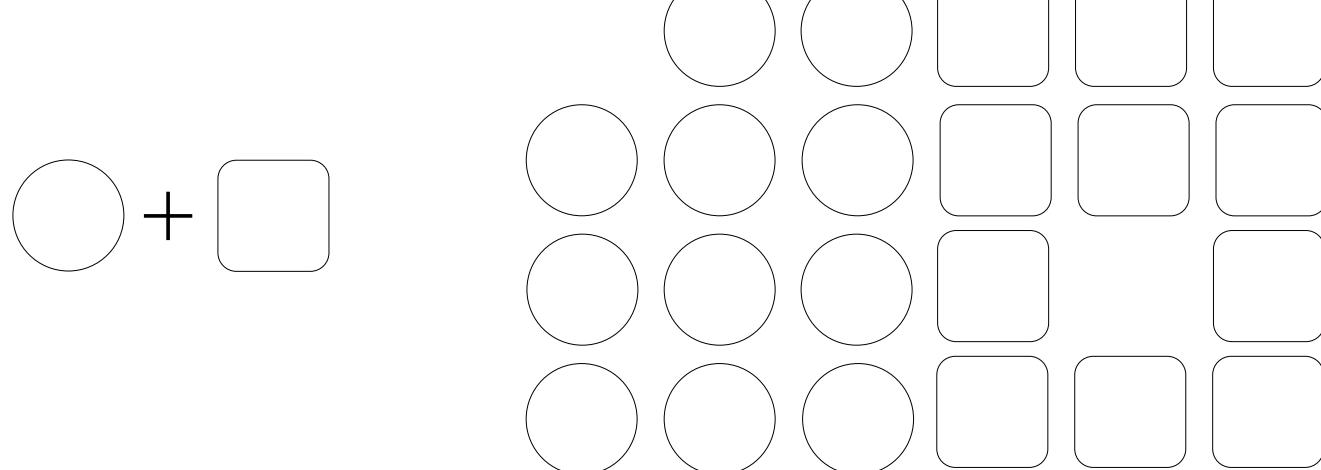
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = isolamento reprodutivo



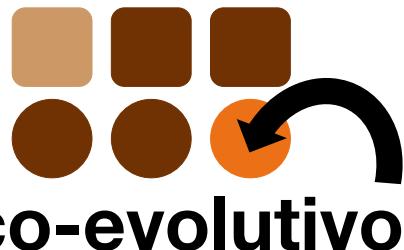
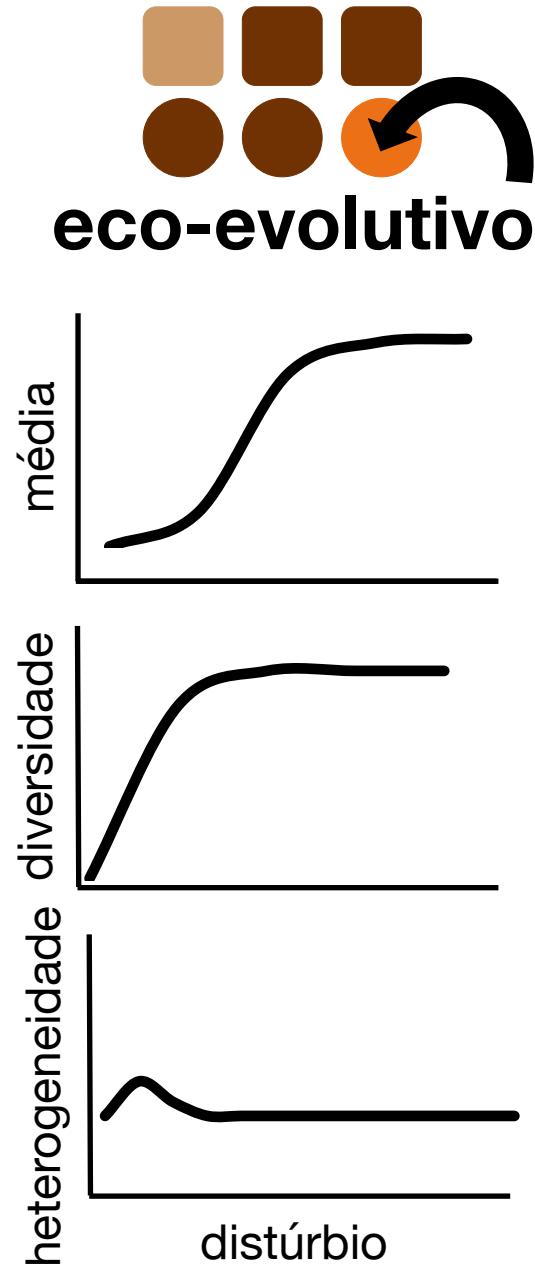
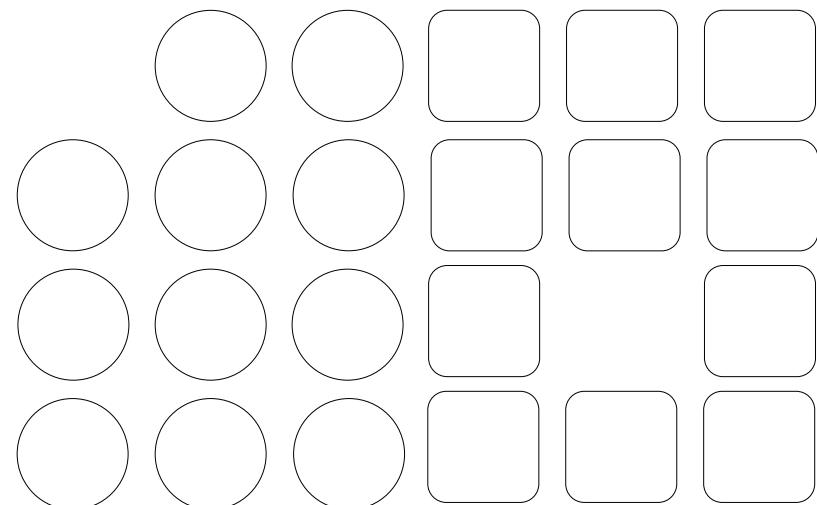
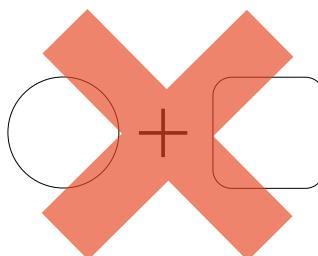
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = isolamento reprodutivo



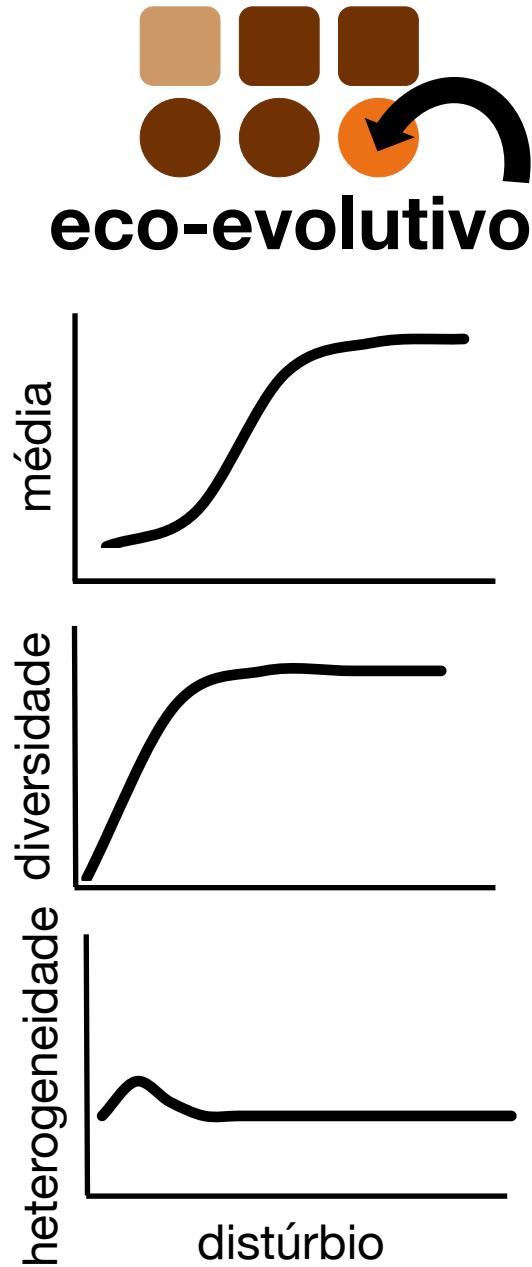
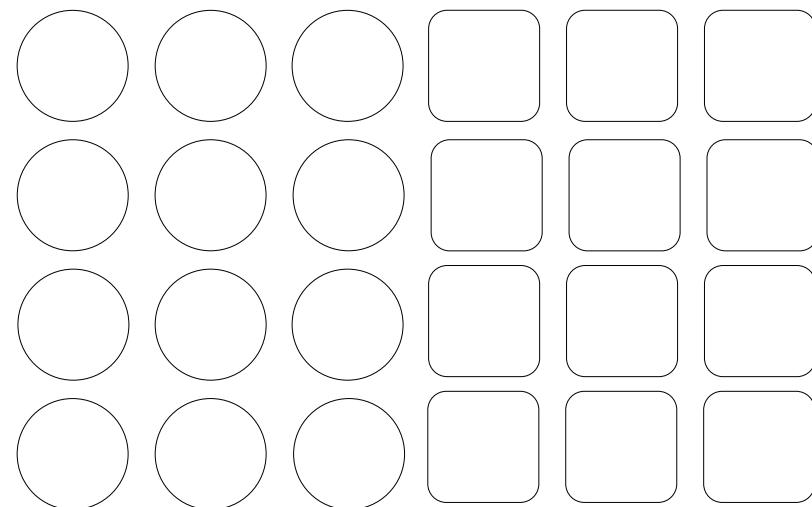
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cenário eco-evolutivo = isolamento reprodutivo



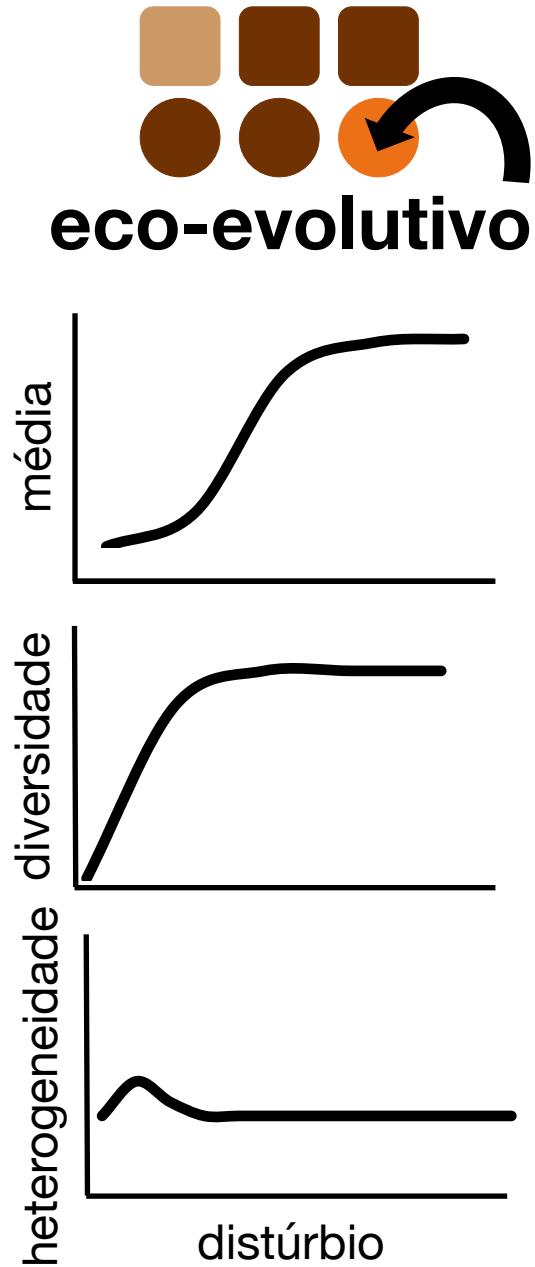
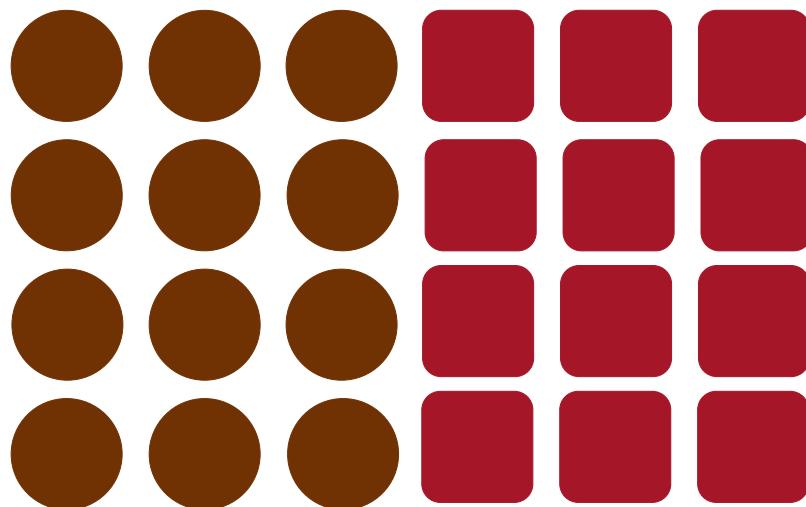
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cenário eco-evolutivo = isolamento reprodutivo



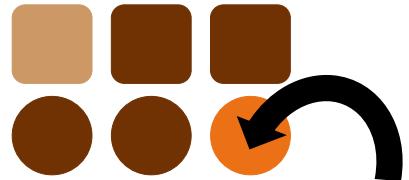
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cenário eco-evolutivo = isolamento reprodutivo

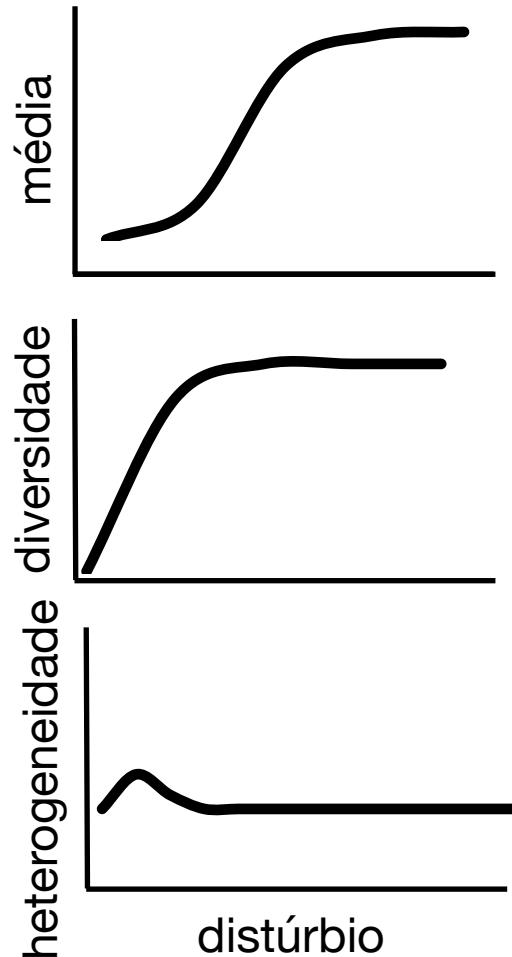


# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação

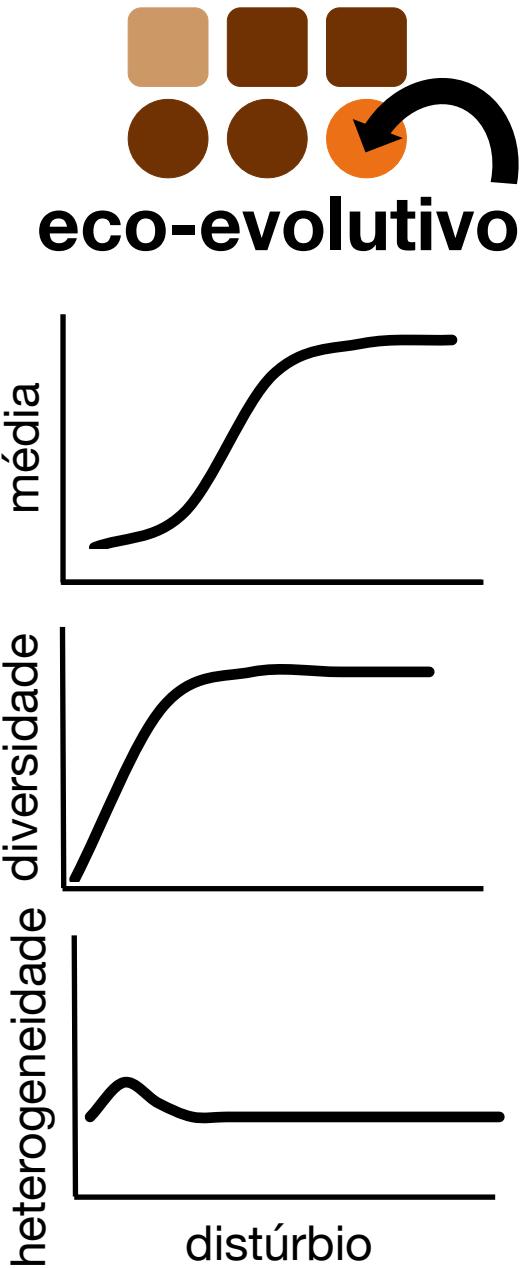
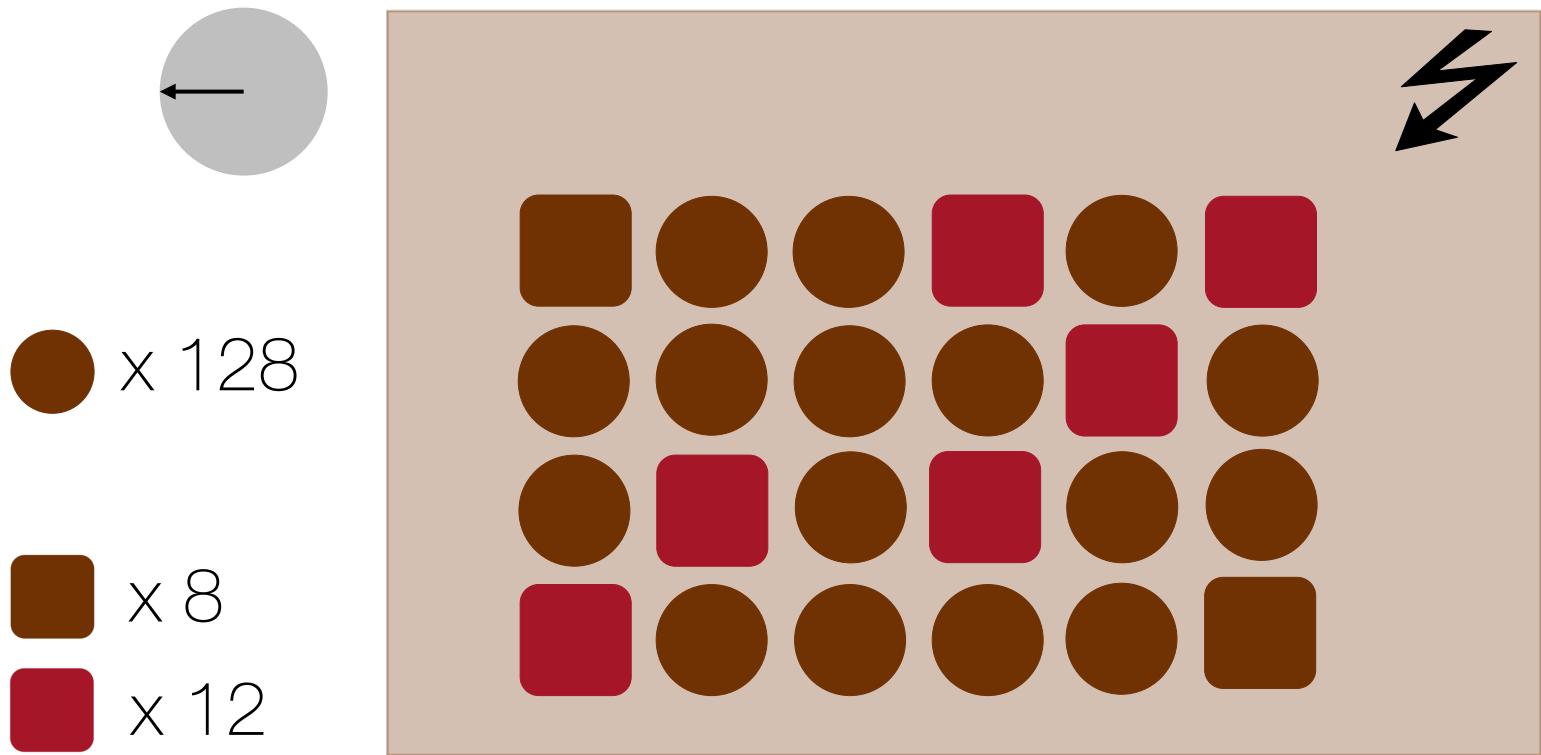


**eco-evolutivo**



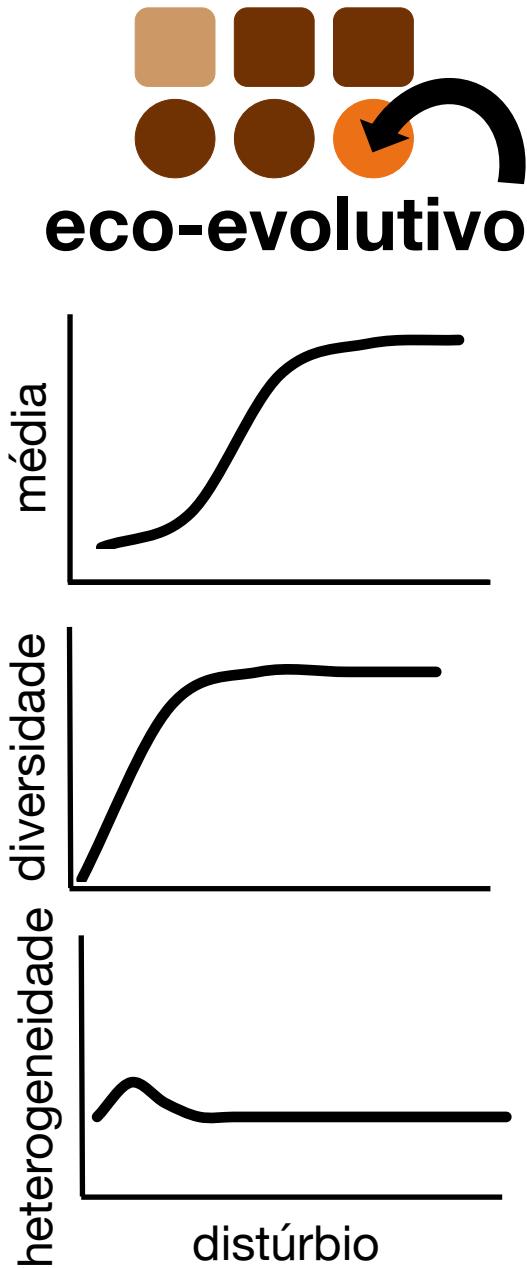
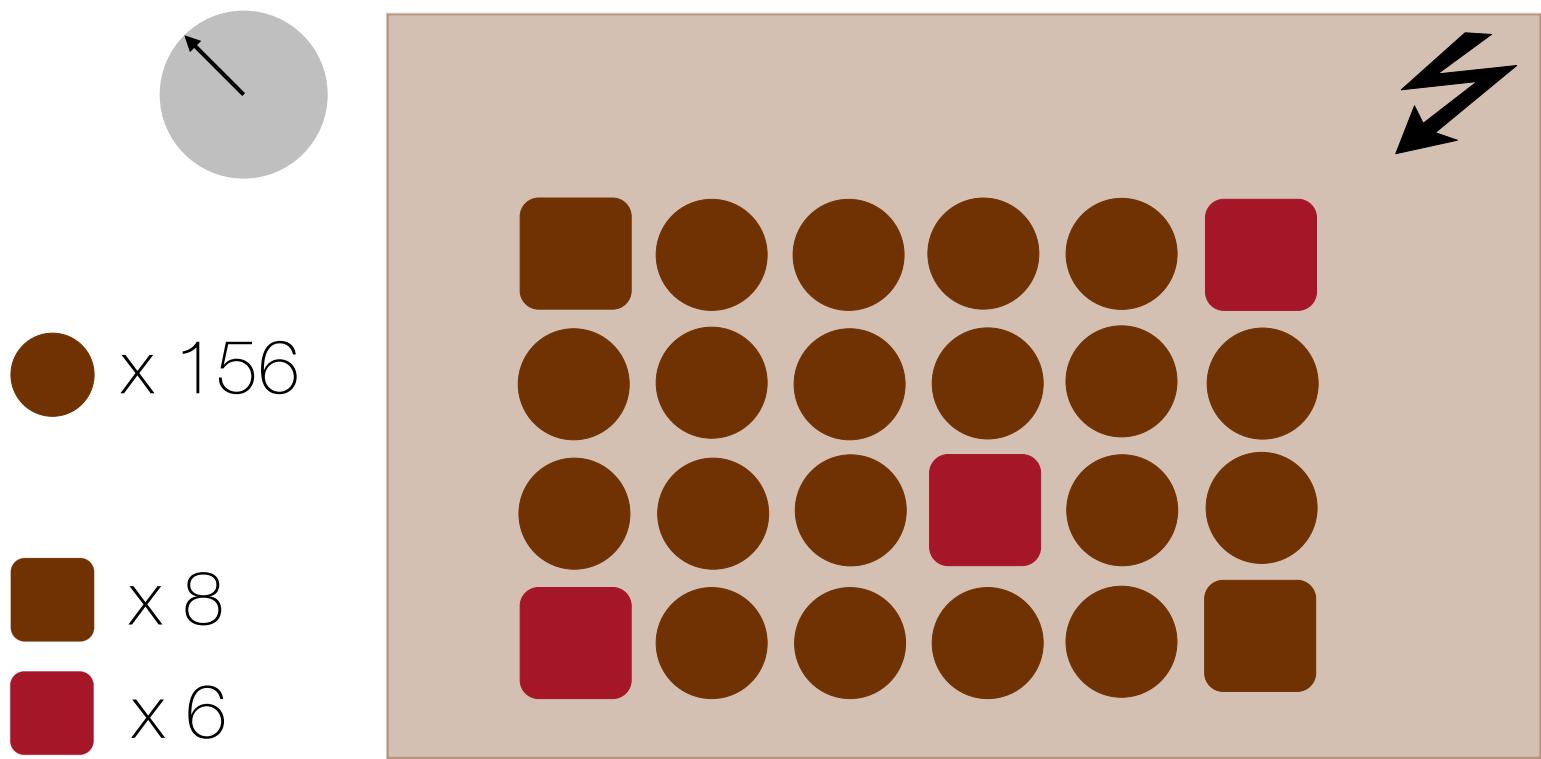
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação



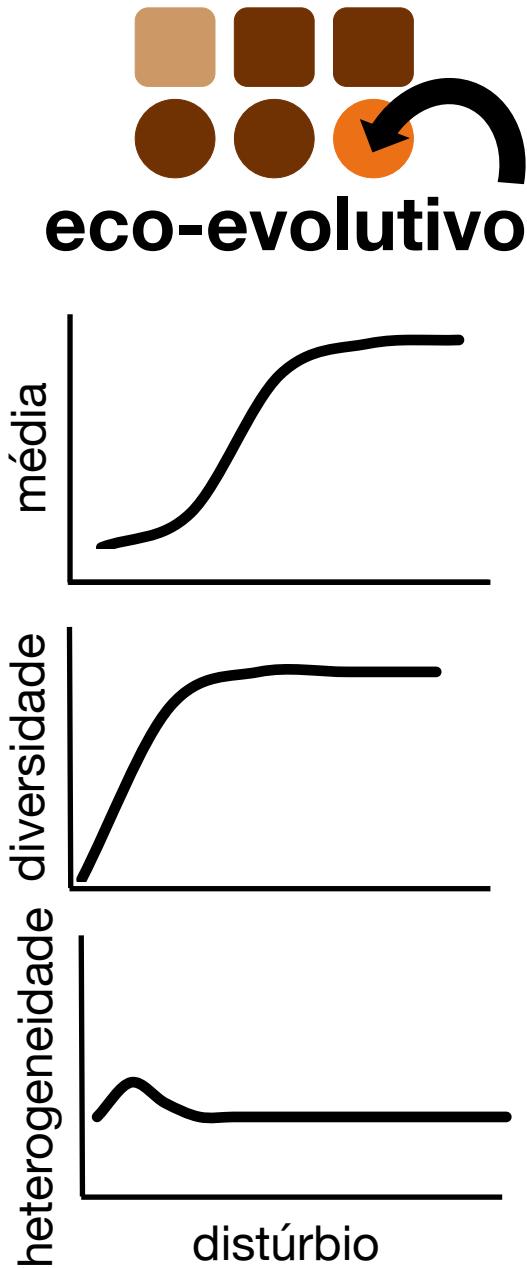
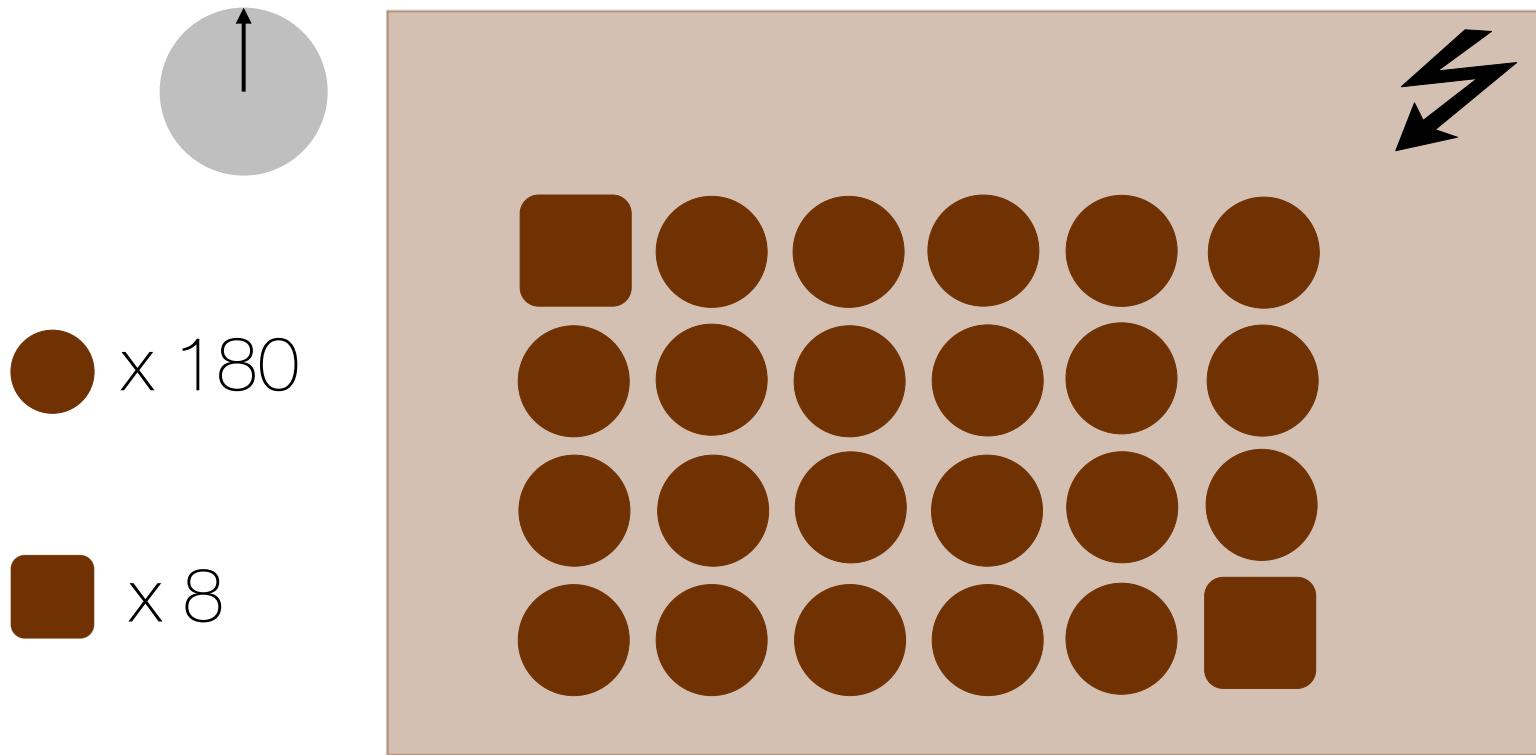
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação



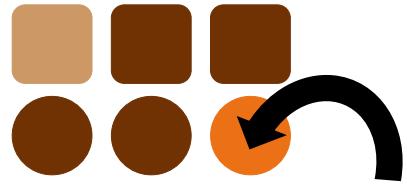
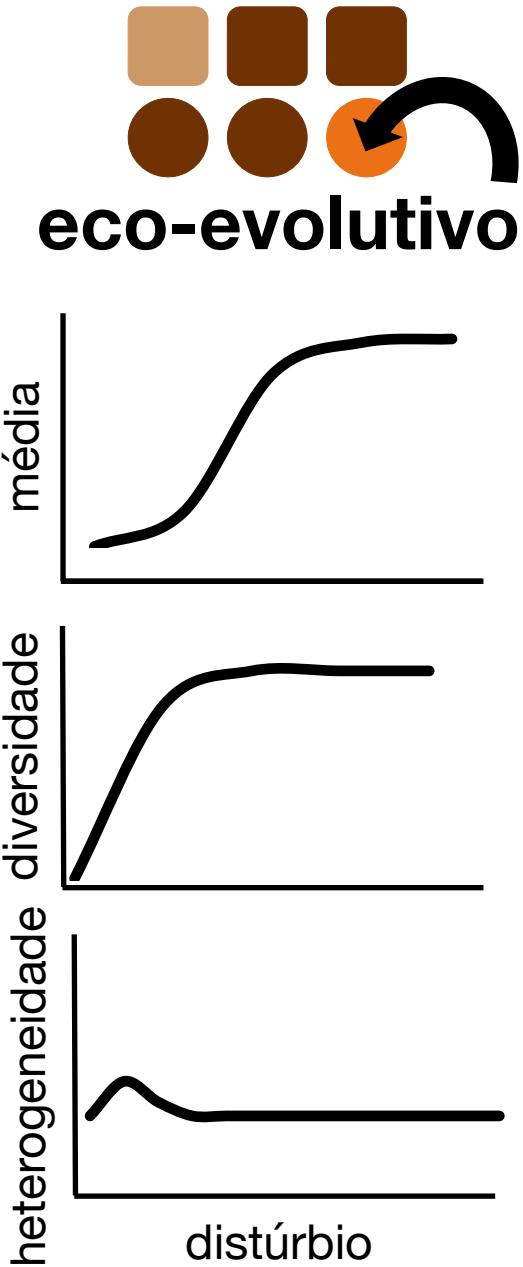
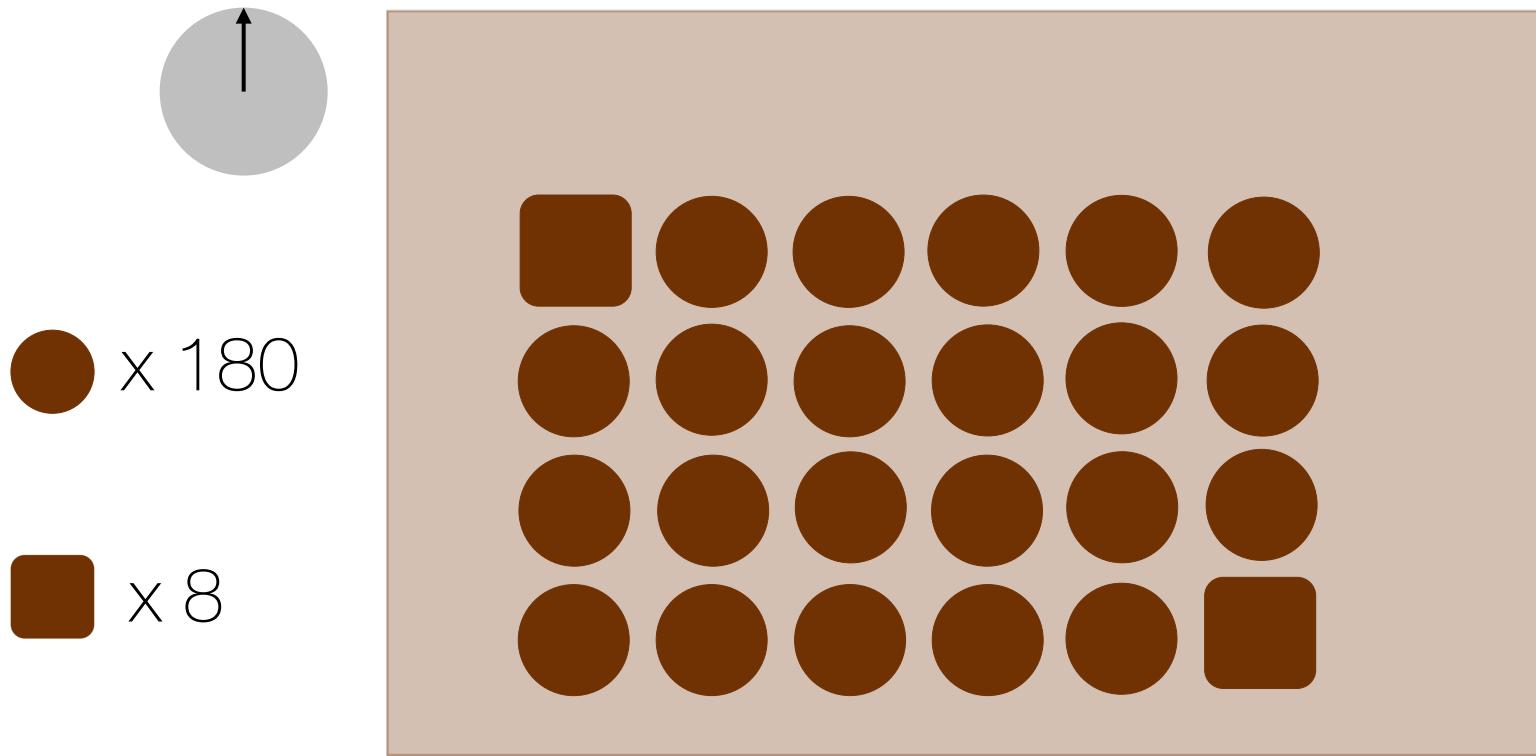
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação



# coexistência de estratégias mediada pelo distúrbio

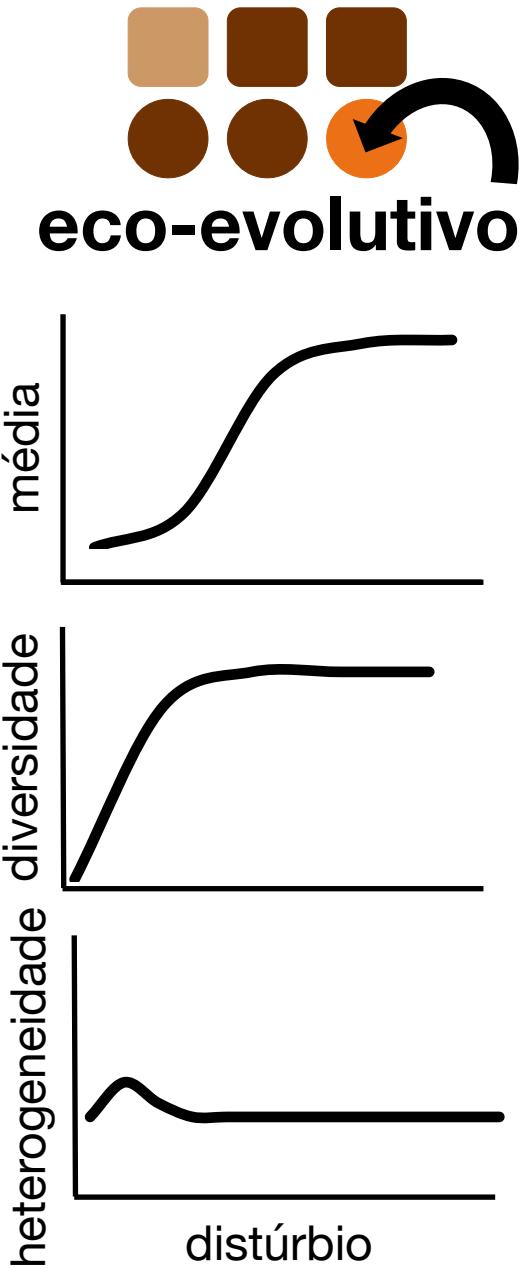
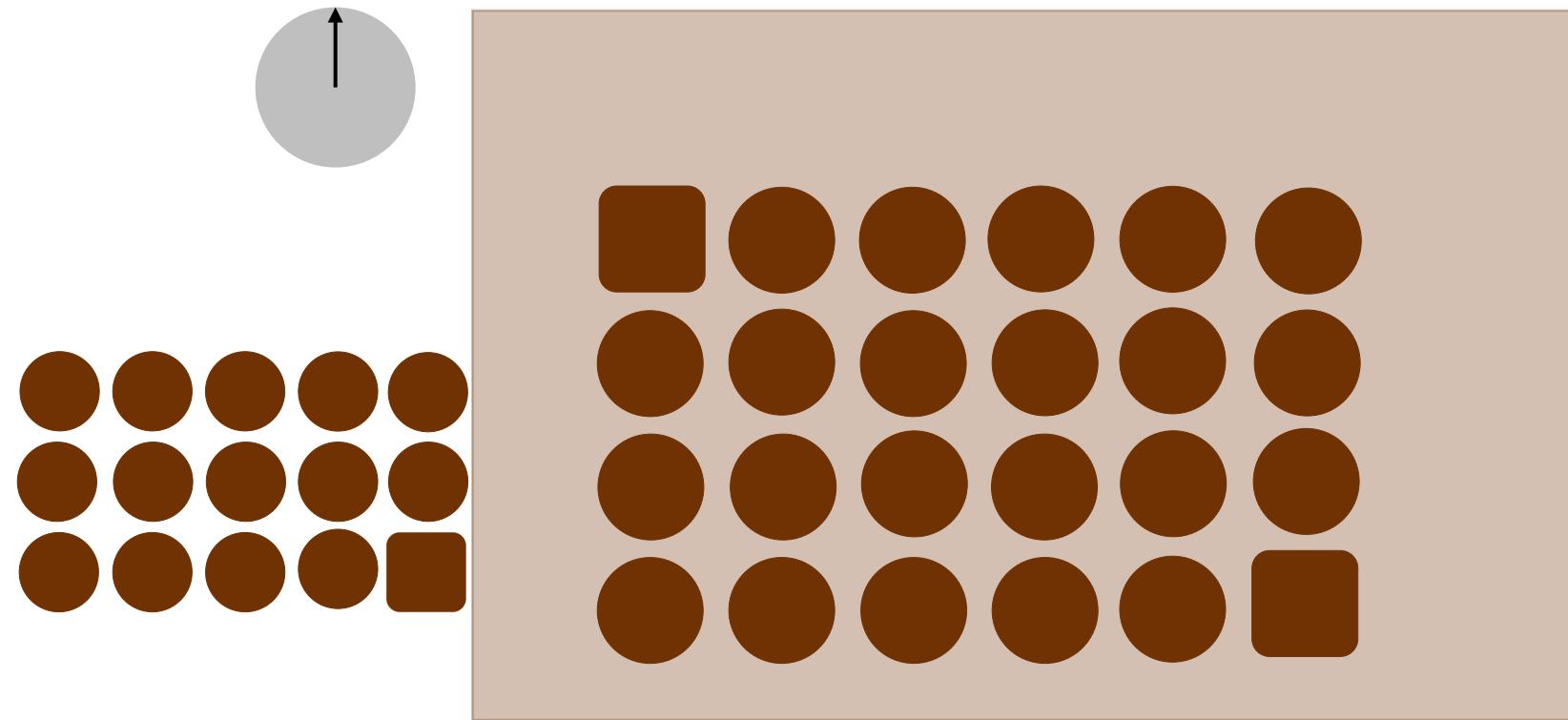
cenário eco-evolutivo = mutação



**eco-evolutivo**

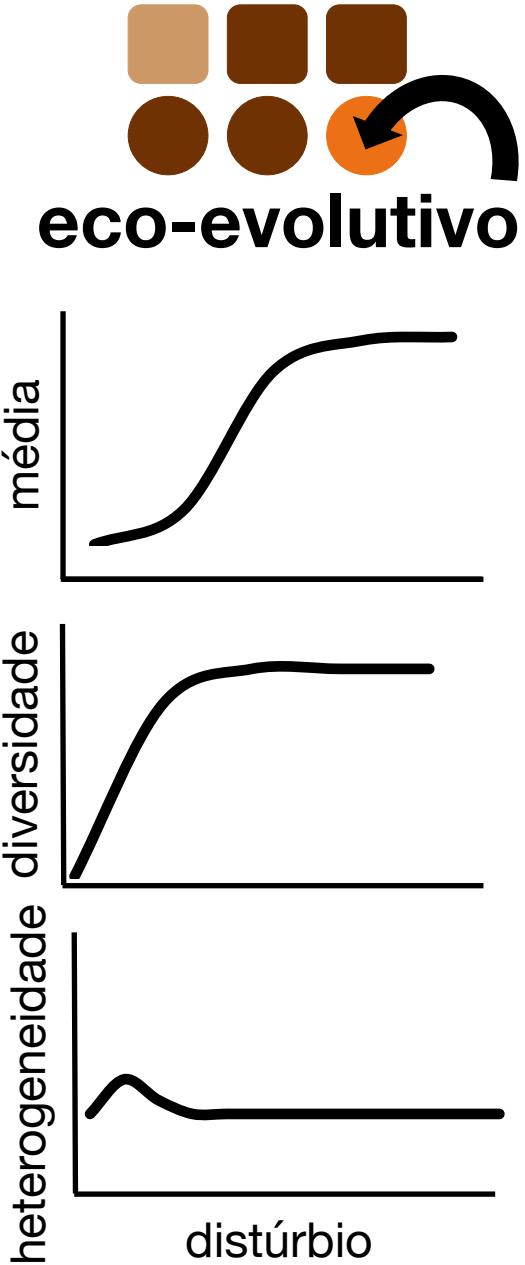
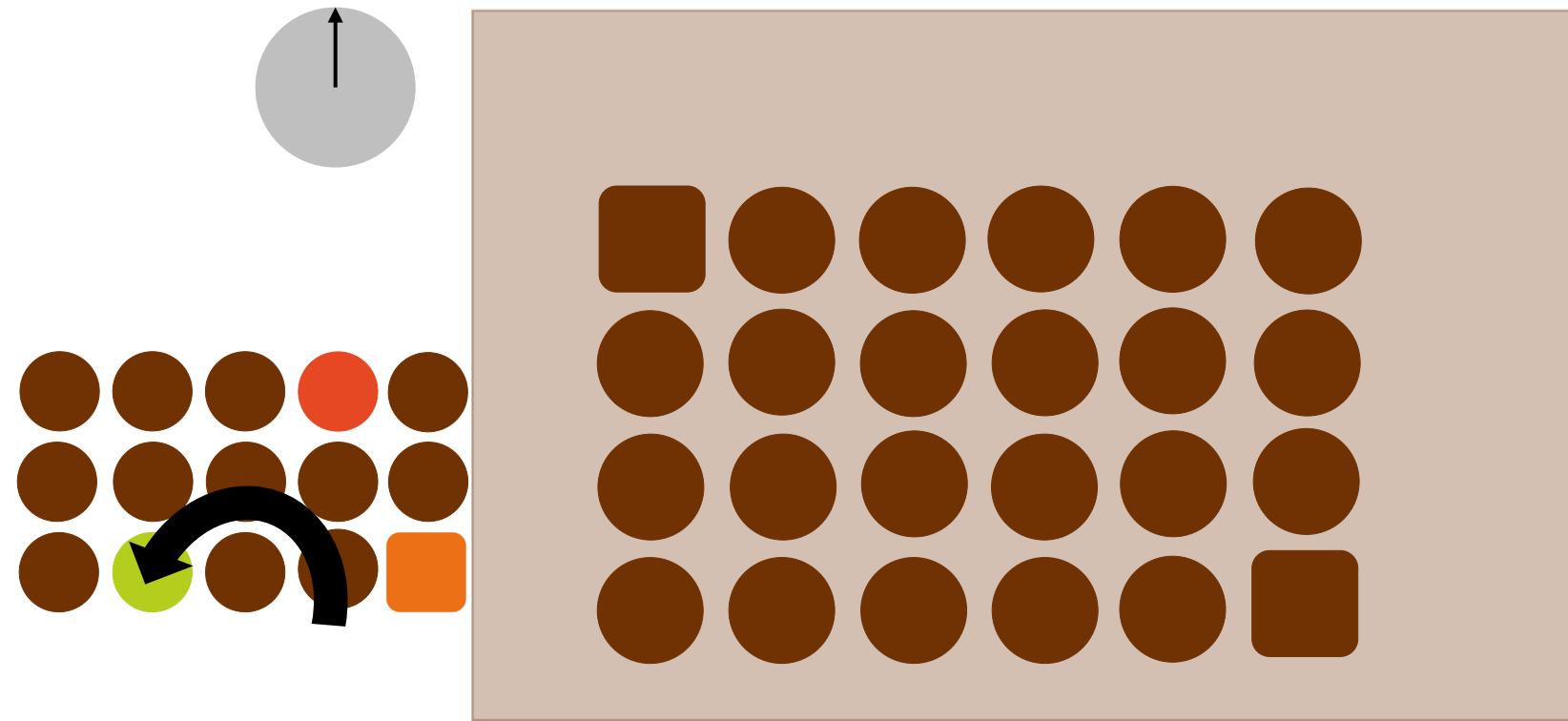
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação



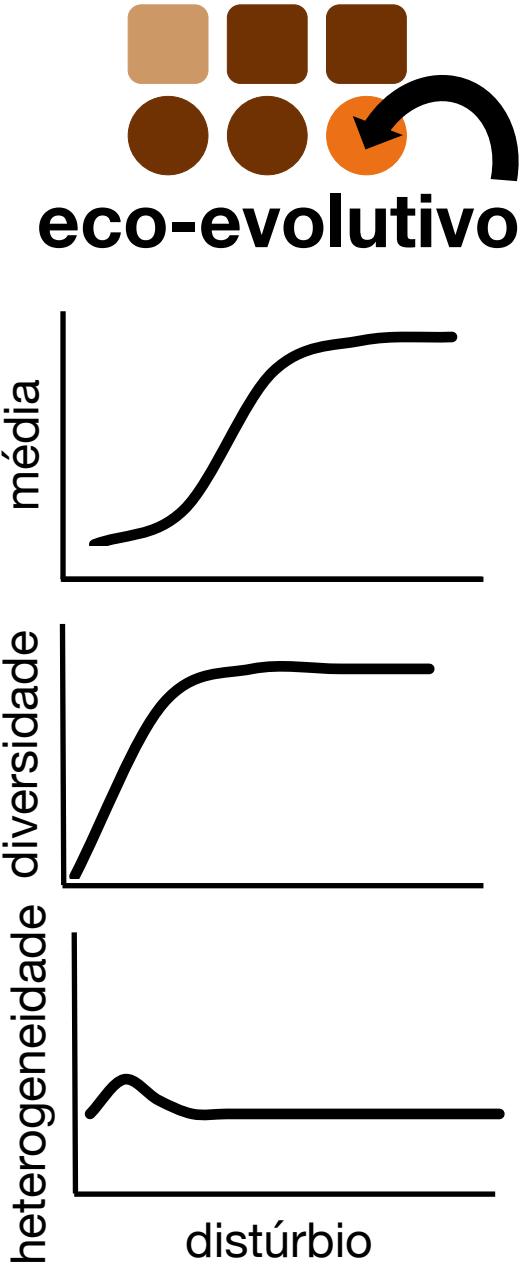
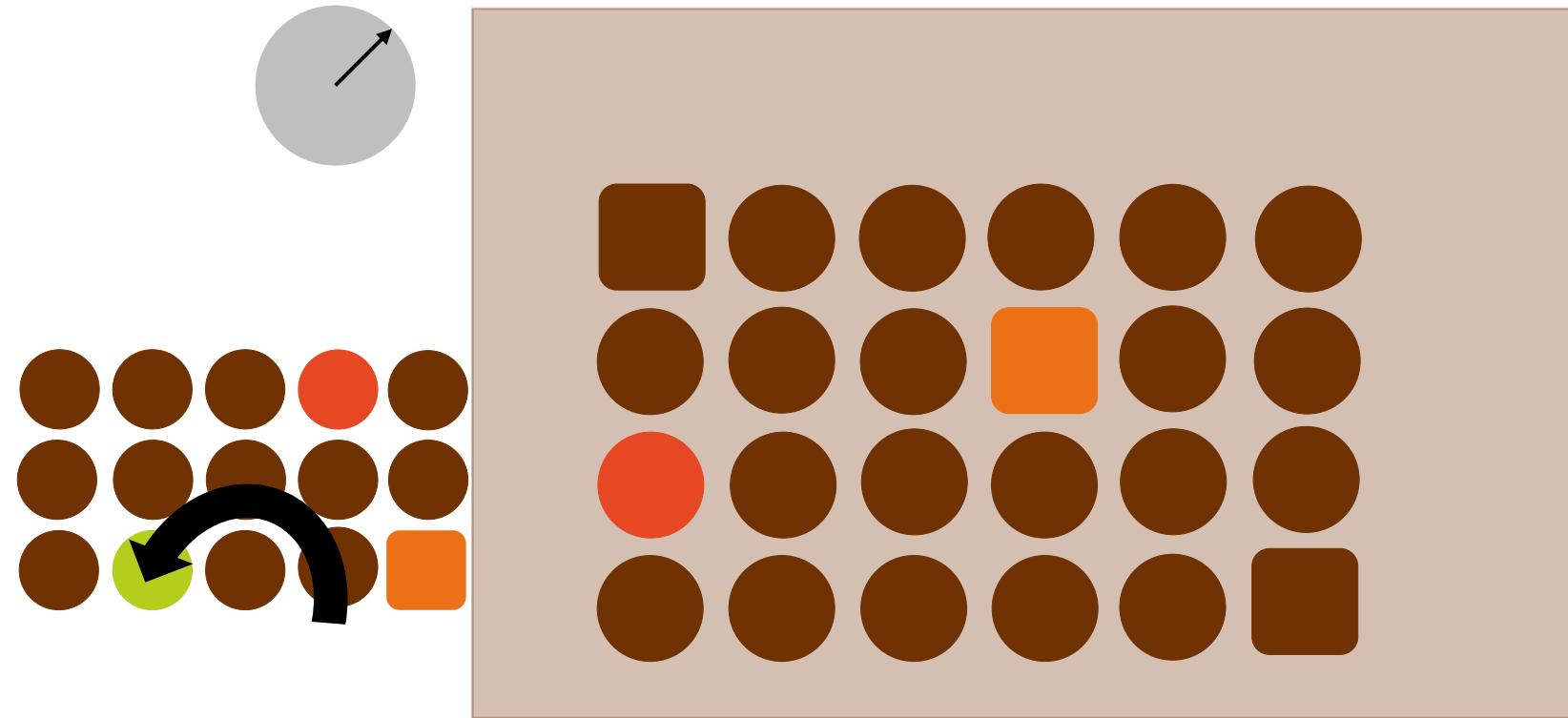
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação



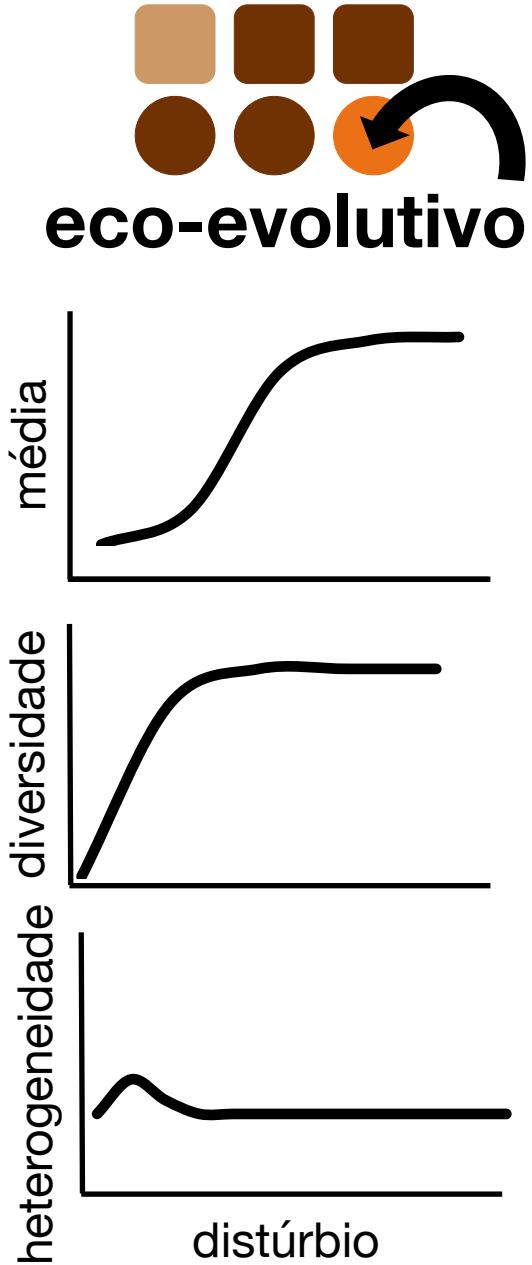
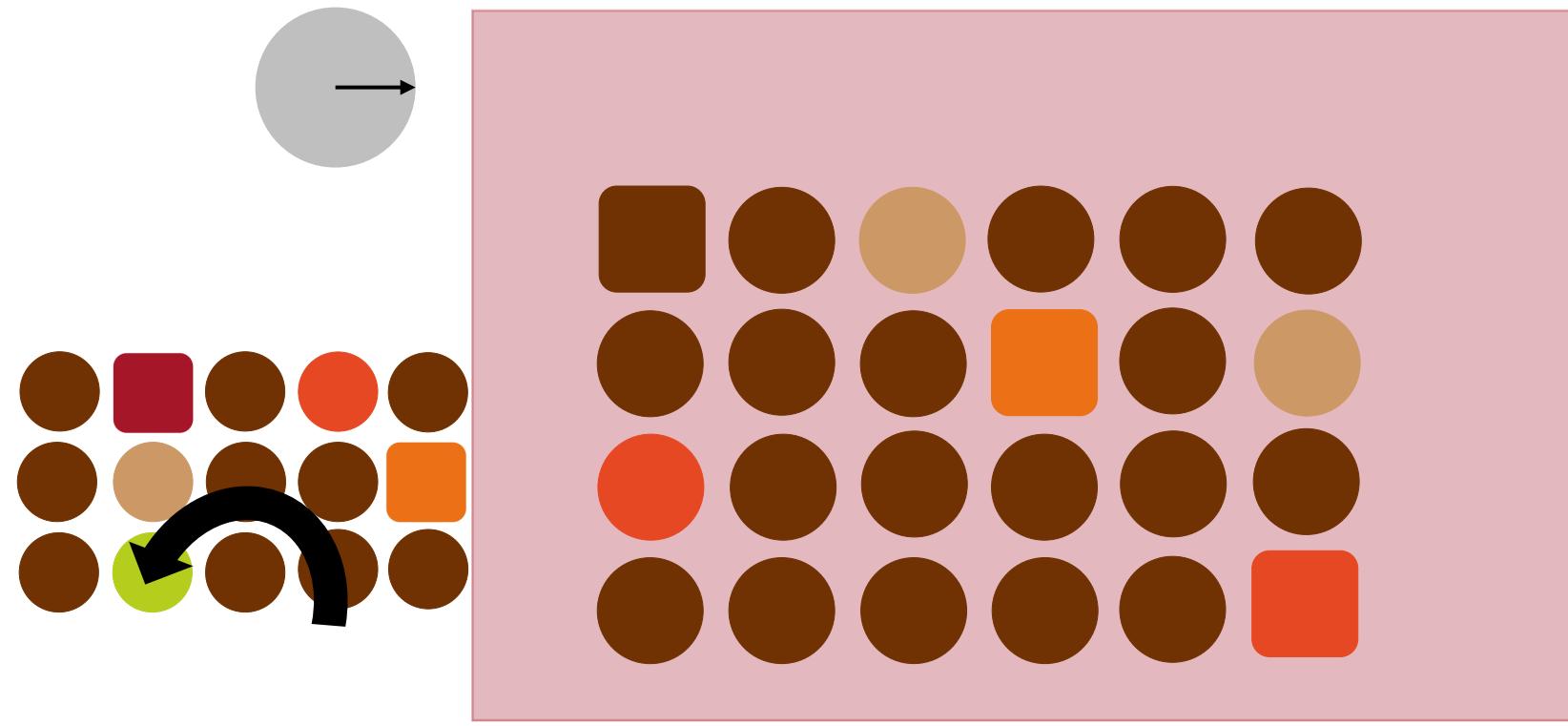
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cenário eco-evolutivo = mutação



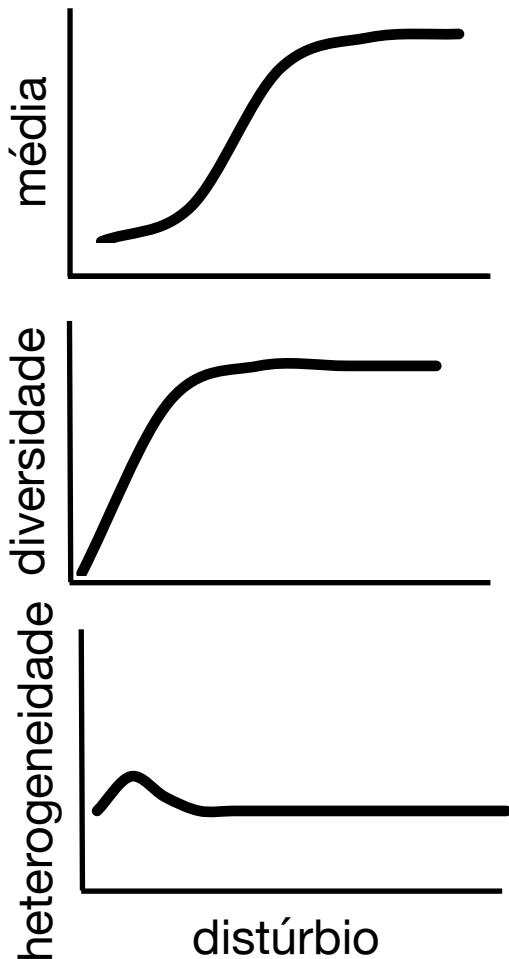
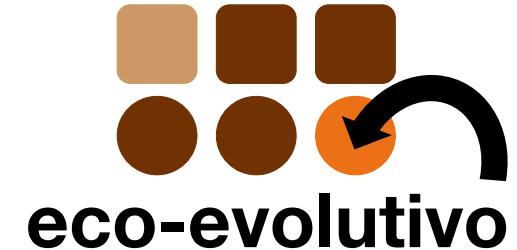
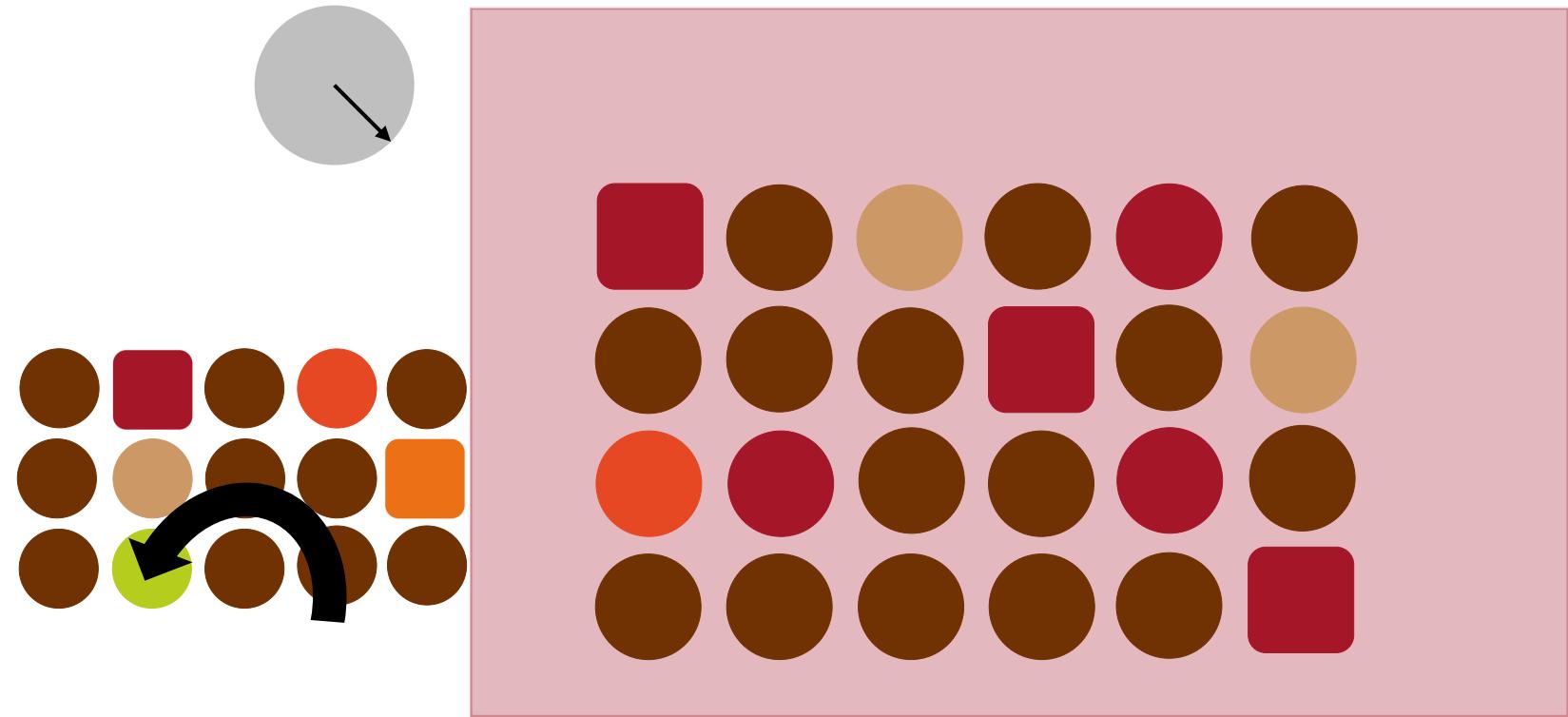
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação



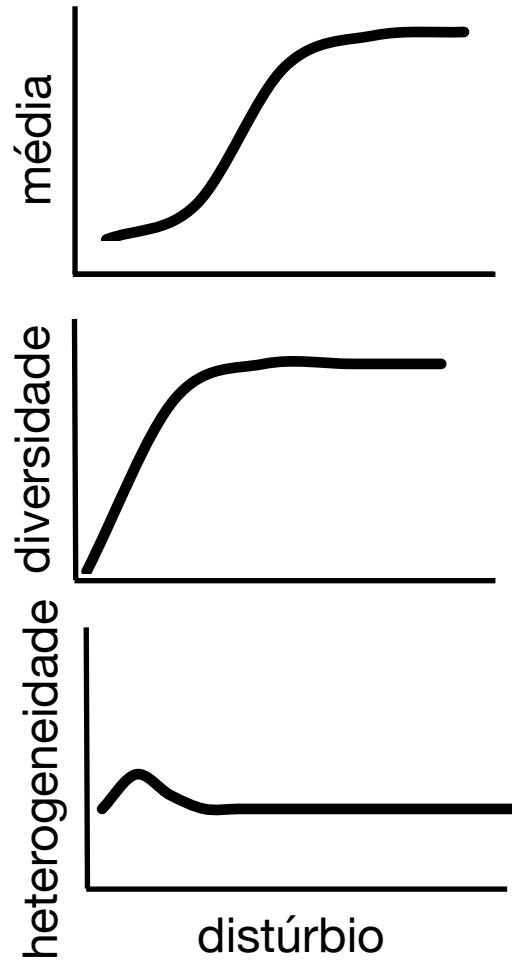
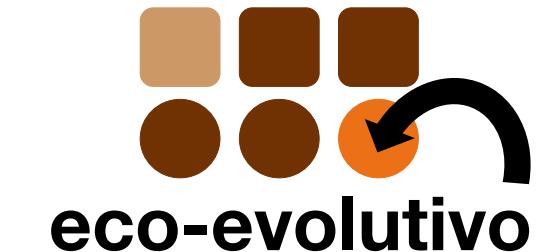
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação



# coexistência de estratégias mediada pelo distúrbio

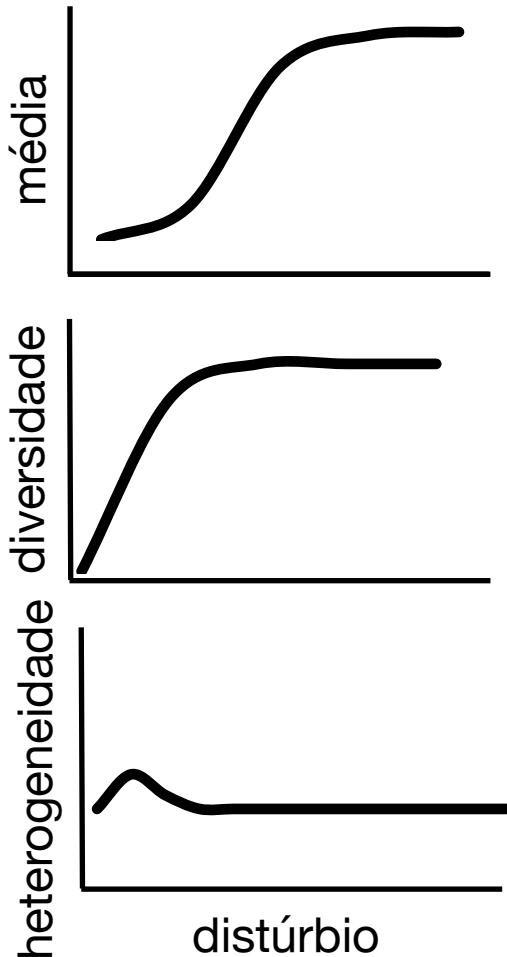
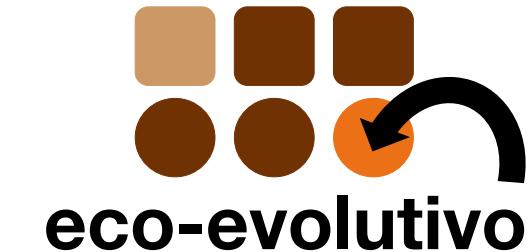
*storage effect:*



# coexistência de estratégias mediada pelo distúrbio

*storage effect:*

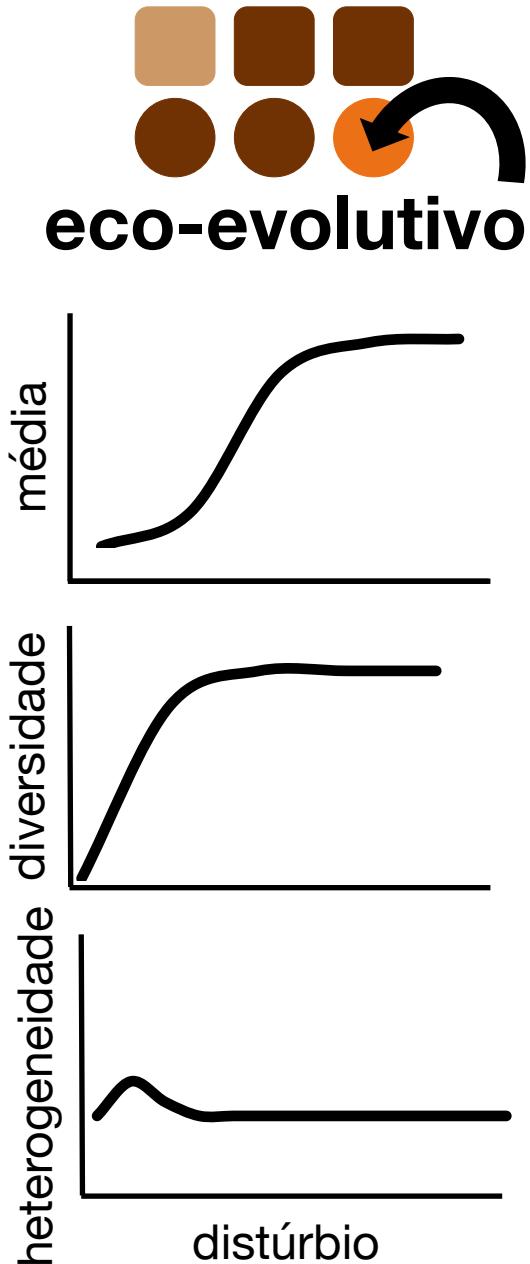
- diferença na resposta ao ambiente



# coexistência de estratégias mediada pelo distúrbio

*storage effect:*

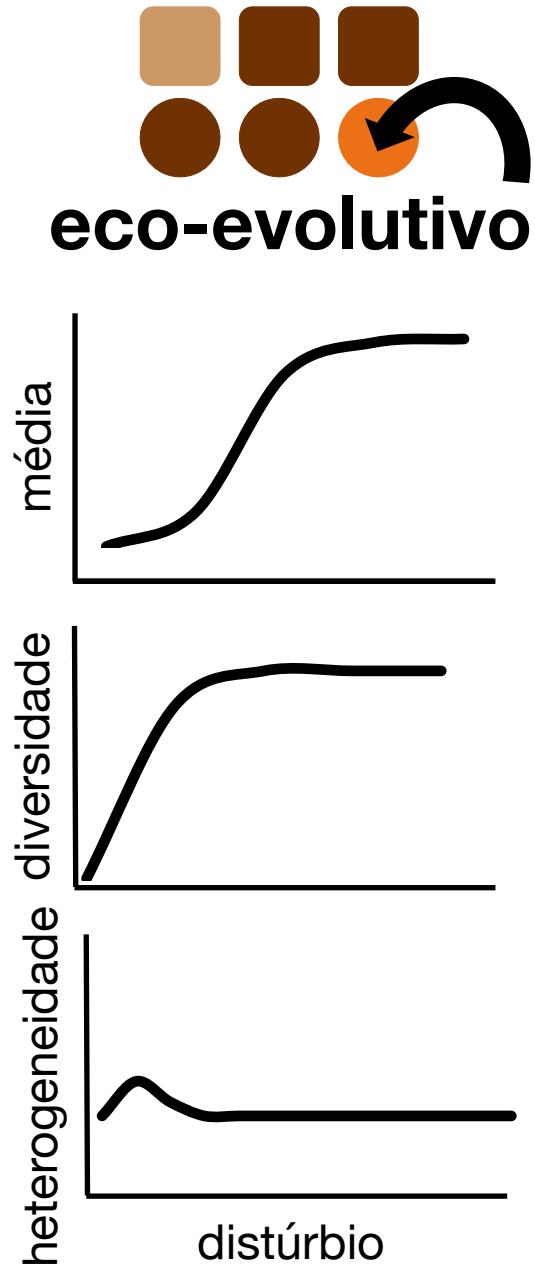
- diferença na resposta ao ambiente
- crescimento populacional tamponado



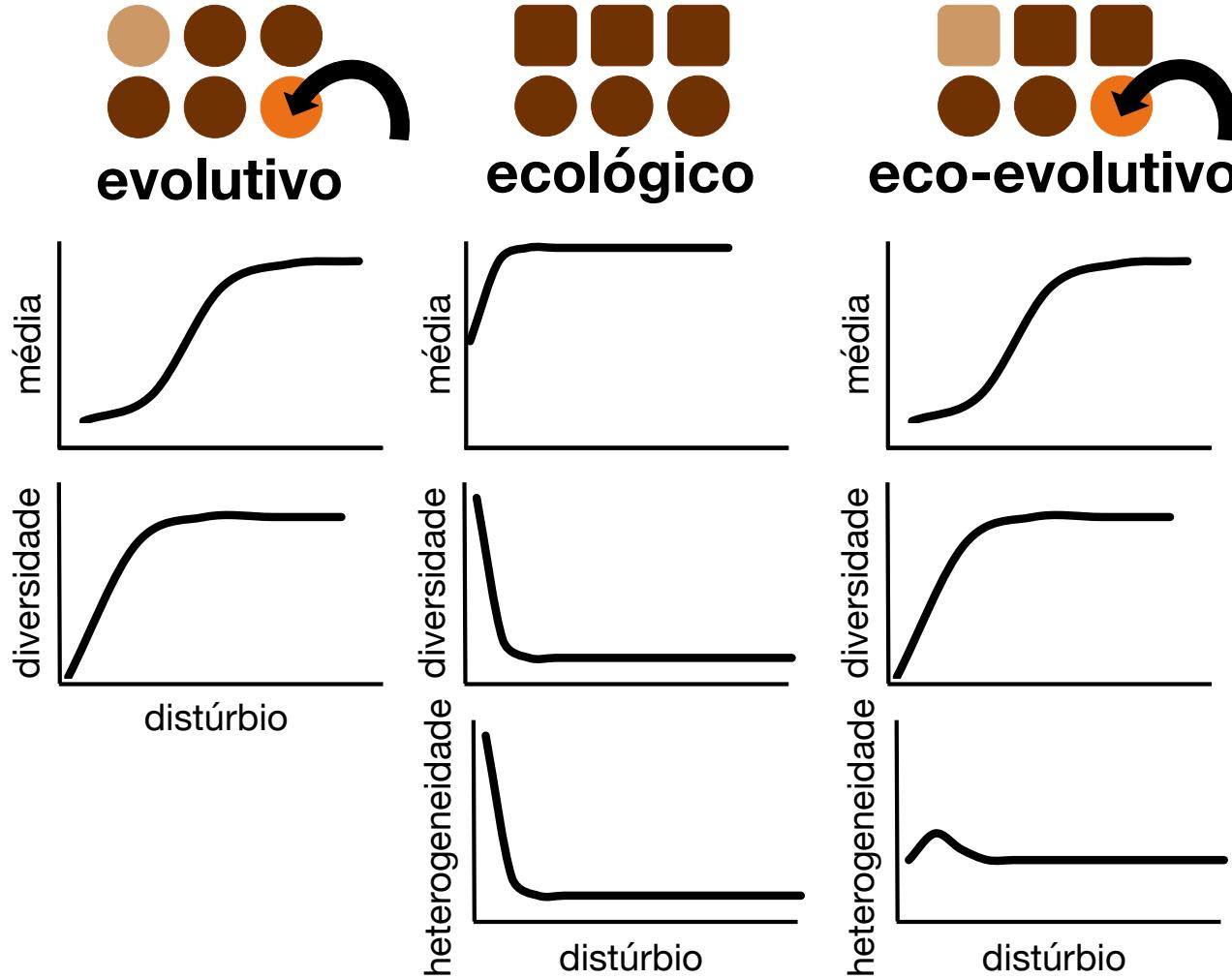
# coexistência de estratégias mediada pelo distúrbio

*storage effect:*

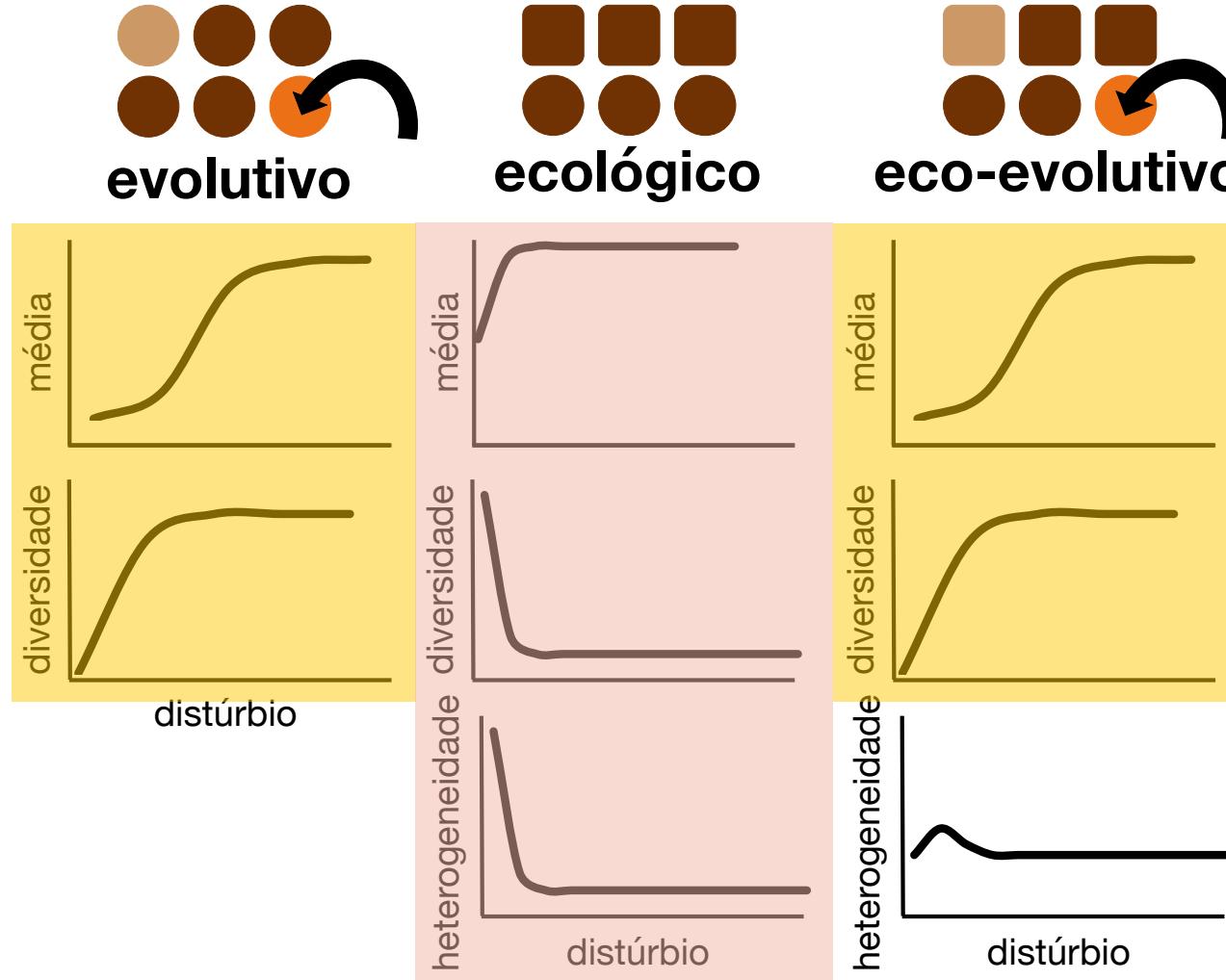
- diferença na resposta ao ambiente  
(isolamento reprodutivo das espécies)
- crescimento populacional tamponado  
(mutação)



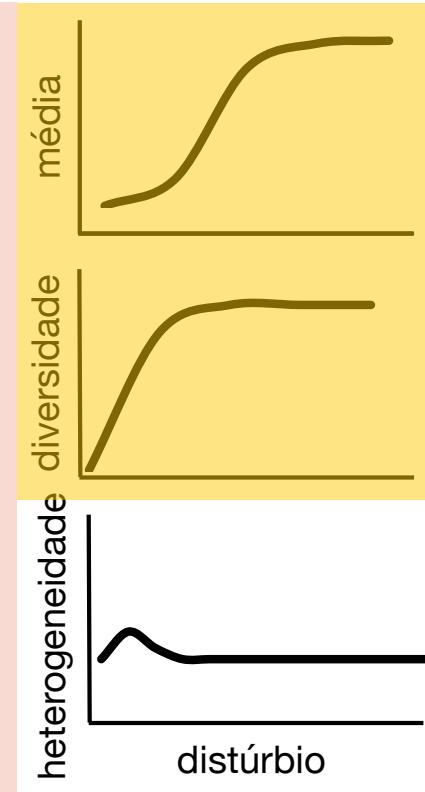
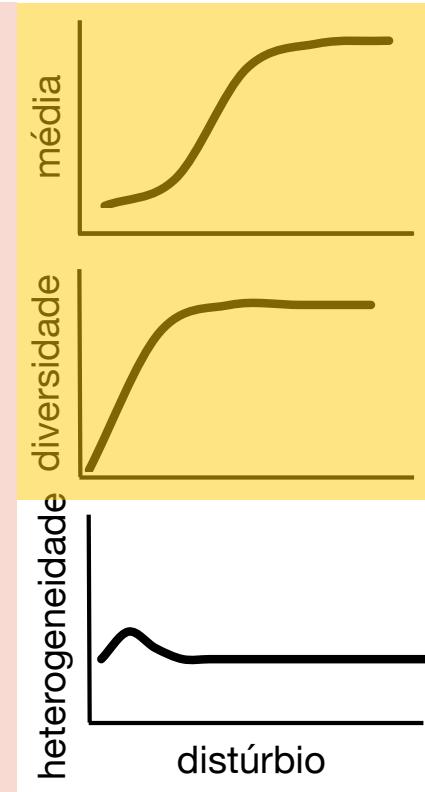
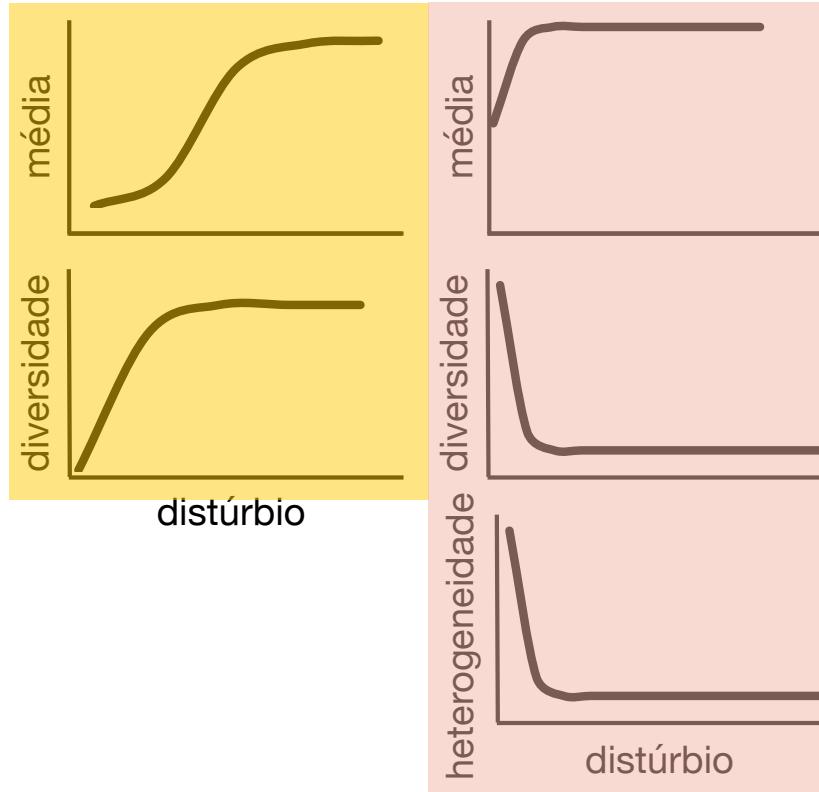
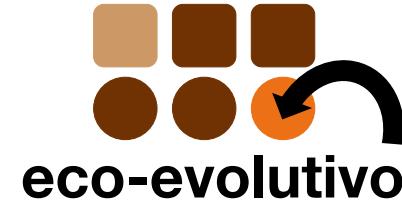
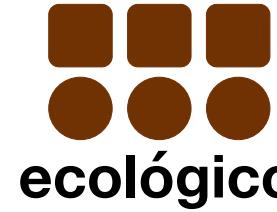
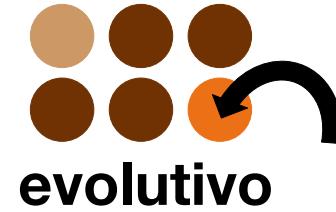
# cenários



# cenários

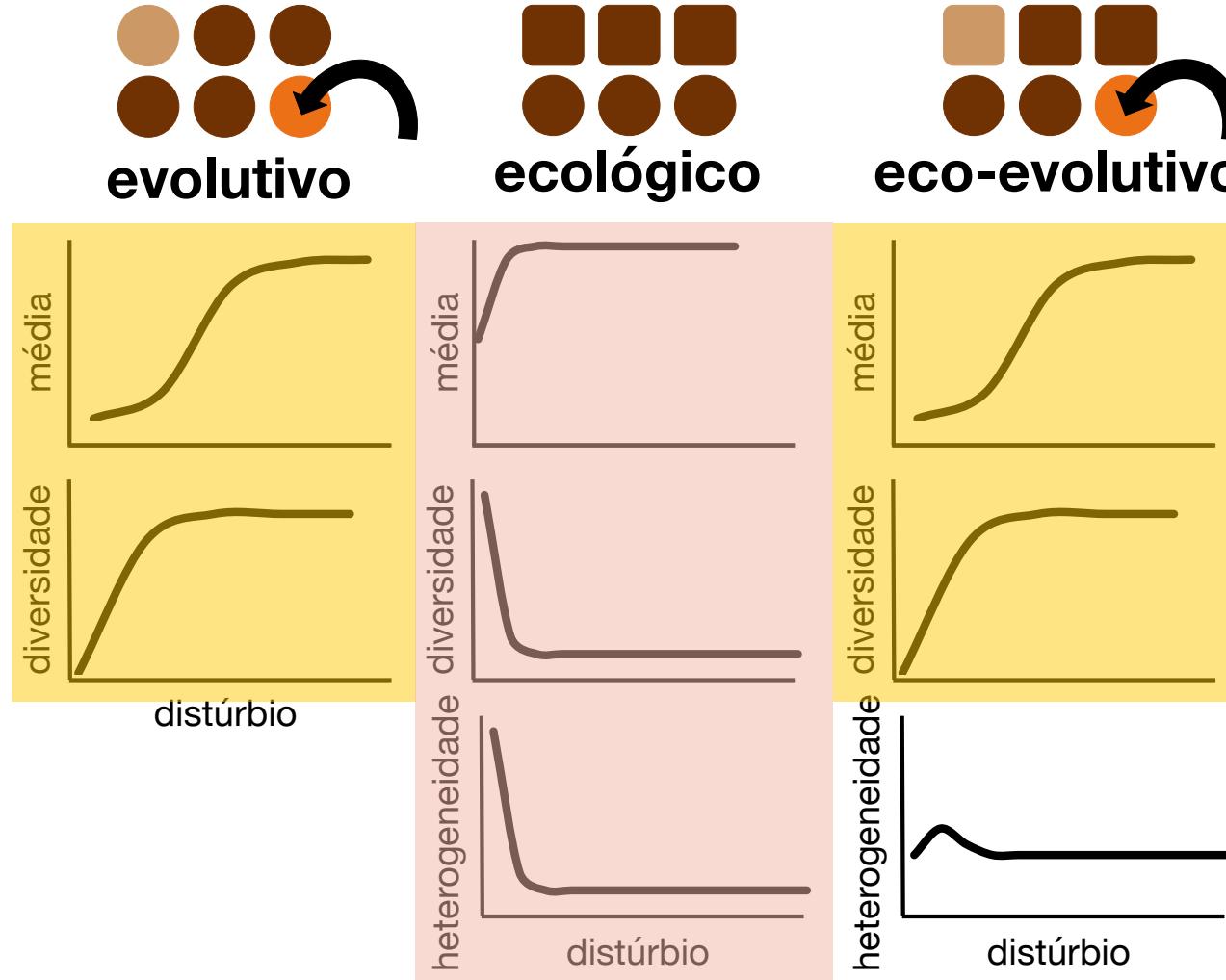


# cenários



# mutação

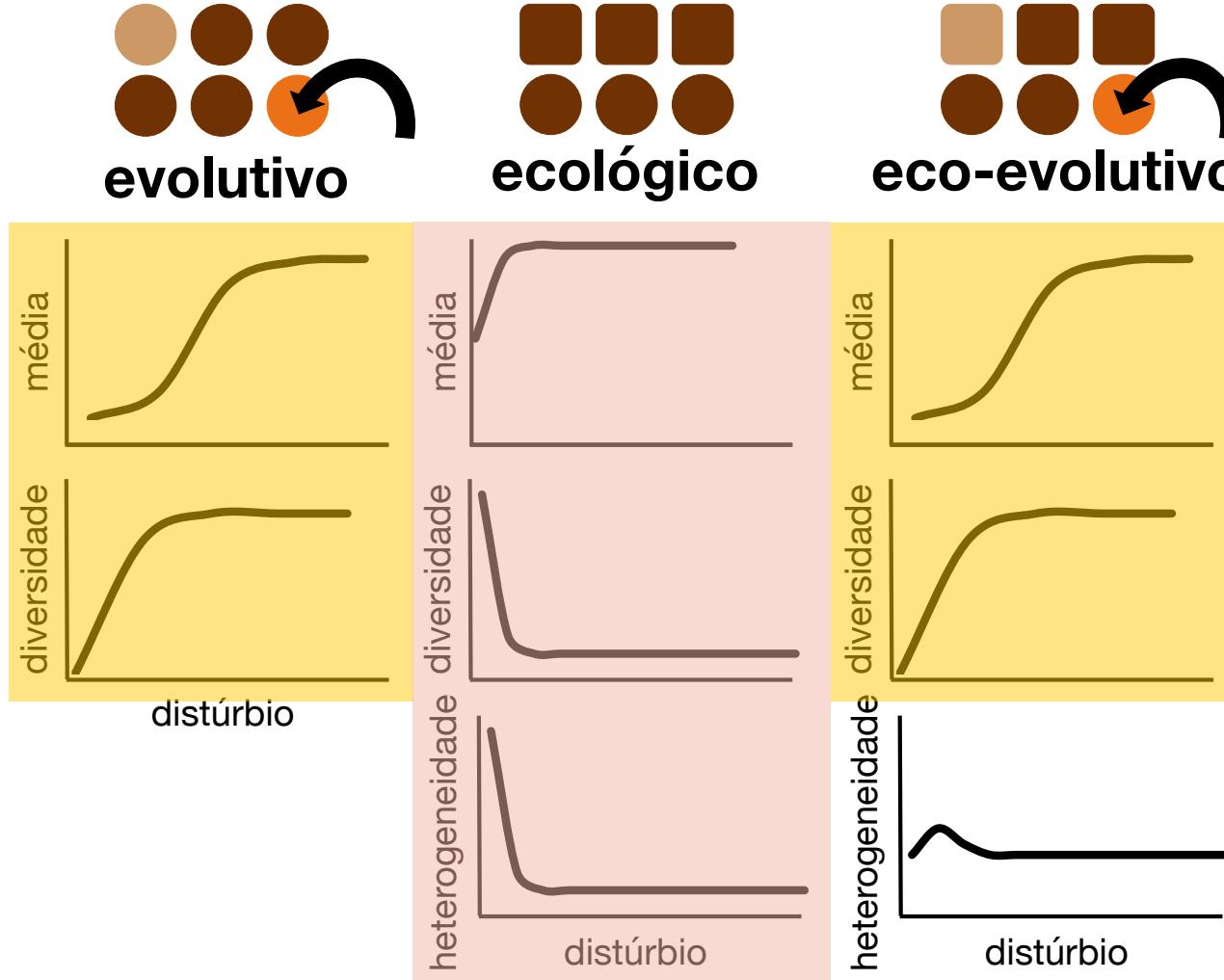
# cenários



# mutação

- é o único processo de entrada de variação (vs. exclusão competitiva e seleção e vs. deriva)

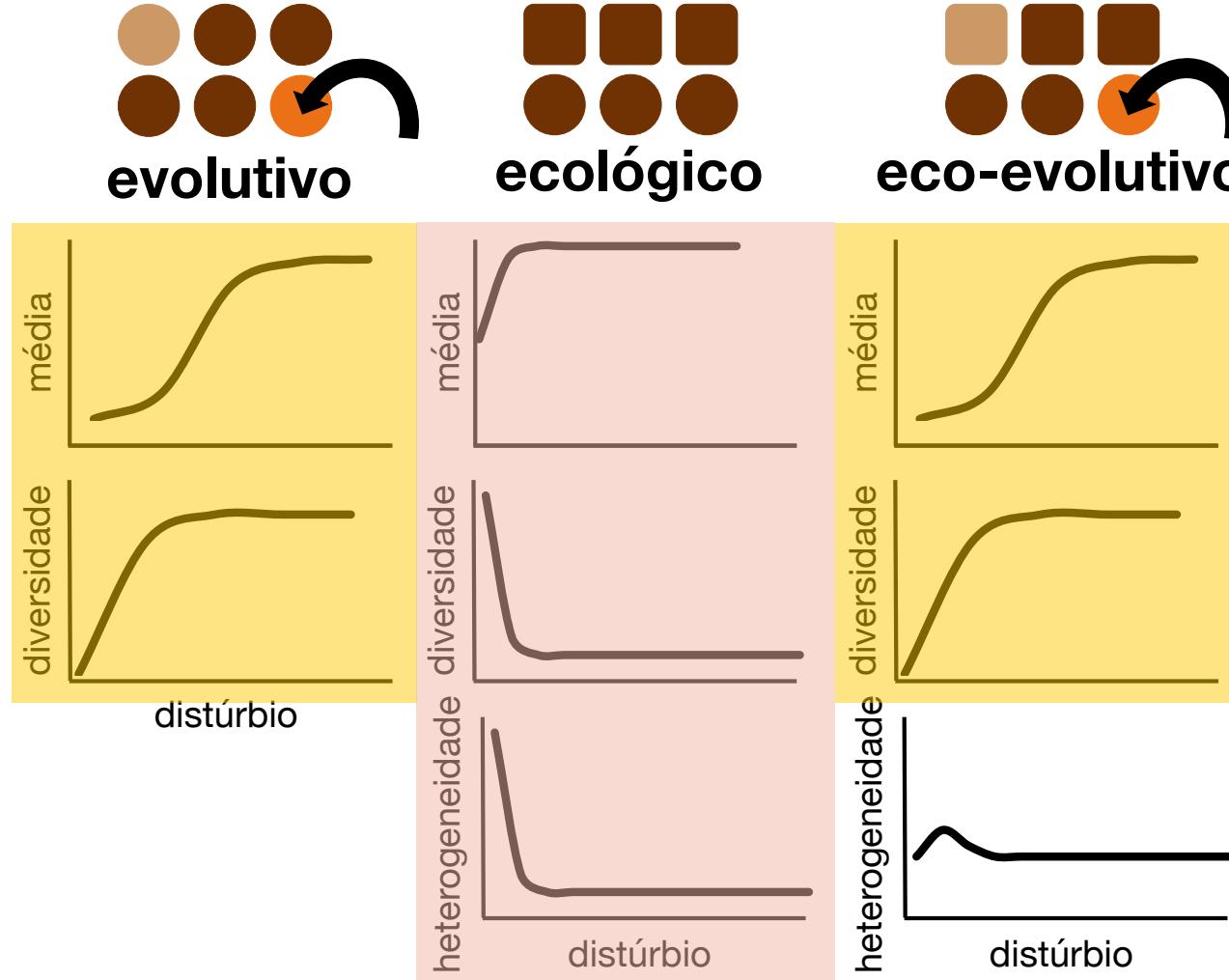
# cenários



# mutação

- é o único processo de entrada de variação (vs. exclusão competitiva e seleção e vs. deriva)
- cria novas estratégias e pode resgatar estratégias extintas ou quase extintas

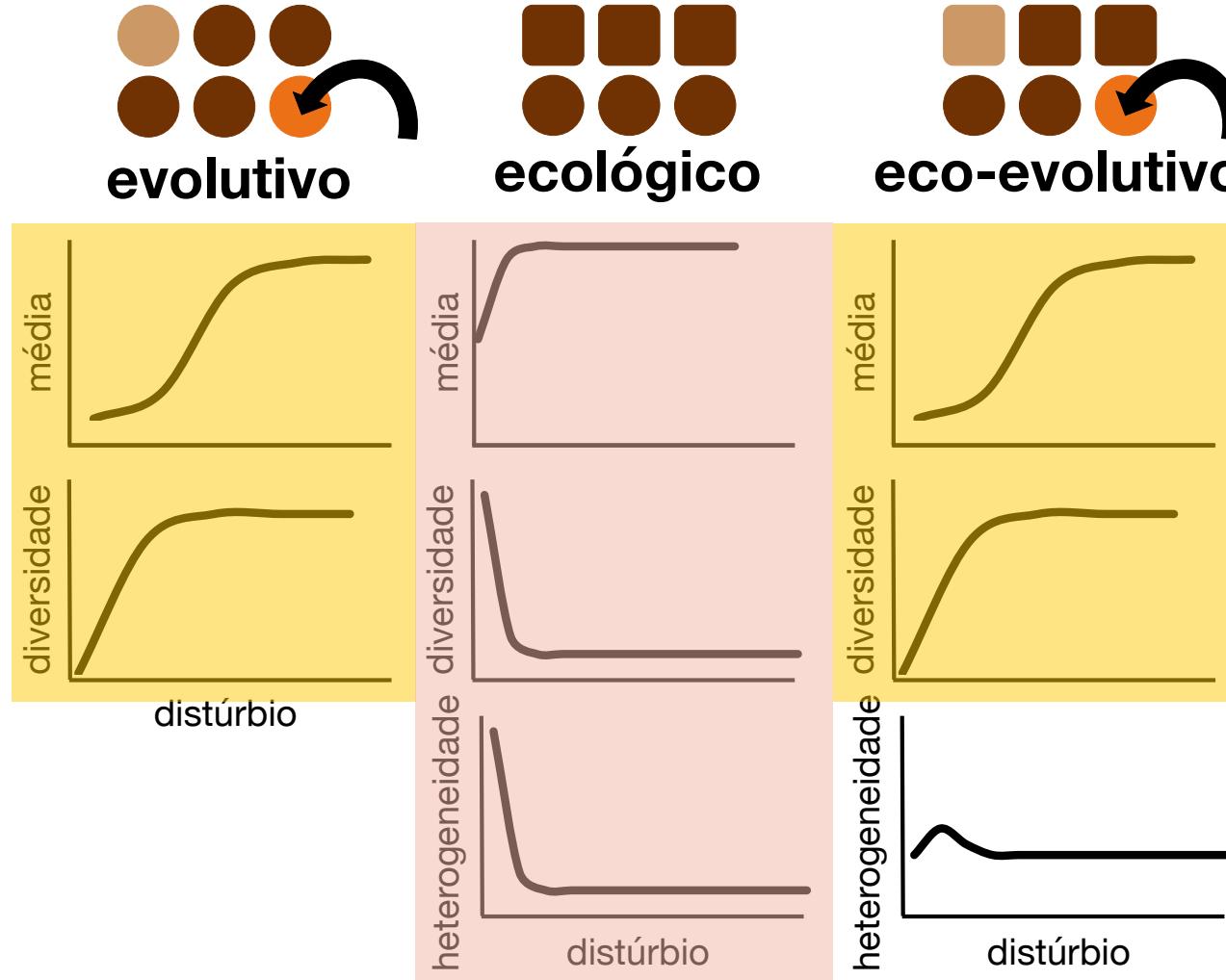
# cenários



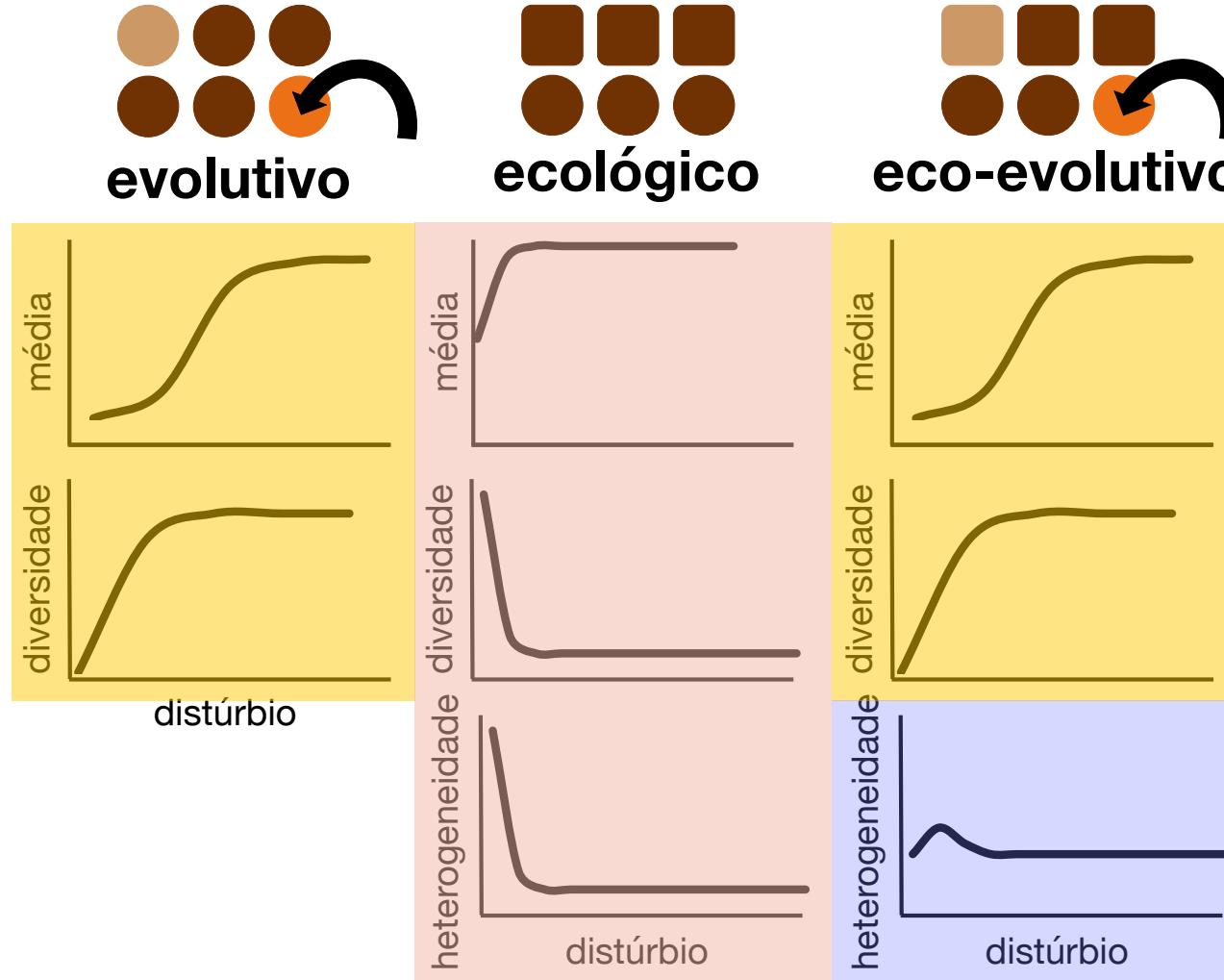
# mutação

- é o único processo de entrada de variação (vs. exclusão competitiva e seleção e vs. deriva)
- cria novas estratégias e pode resgatar estratégias extintas ou quase extintas
- permite resposta contínua às pressões variadas ao longo do tempo

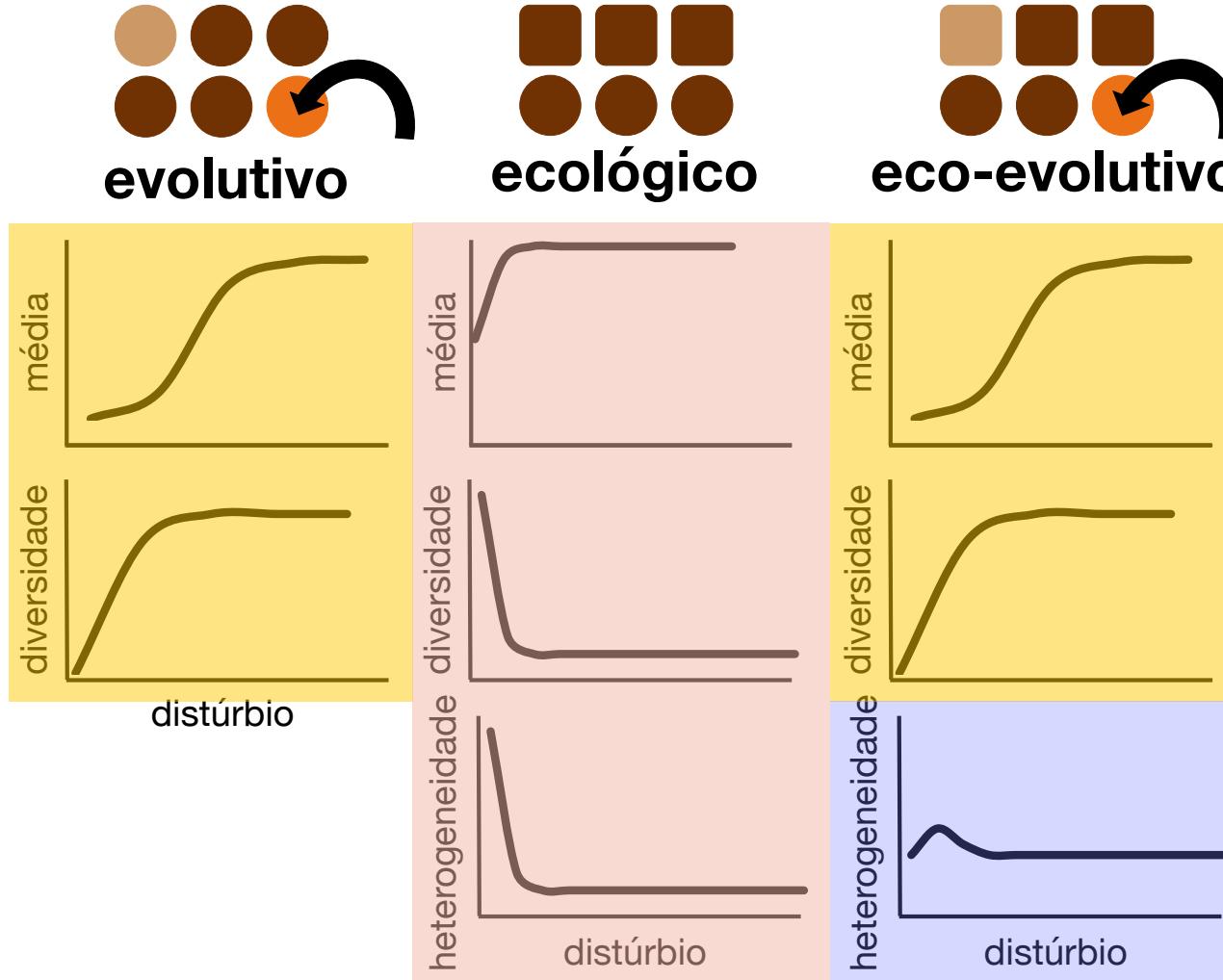
# cenários



# cenários

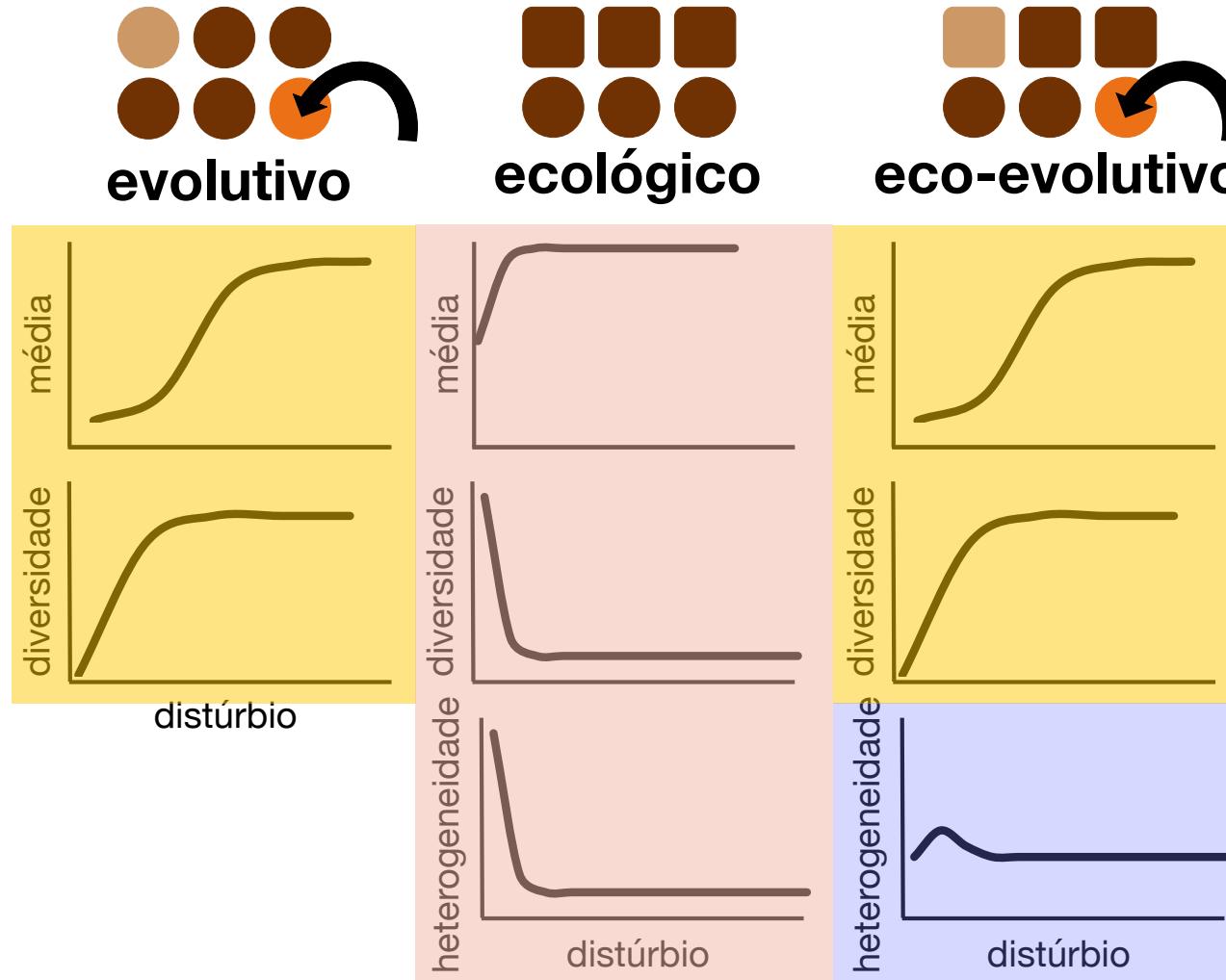


# cenários



# interação eco-evo

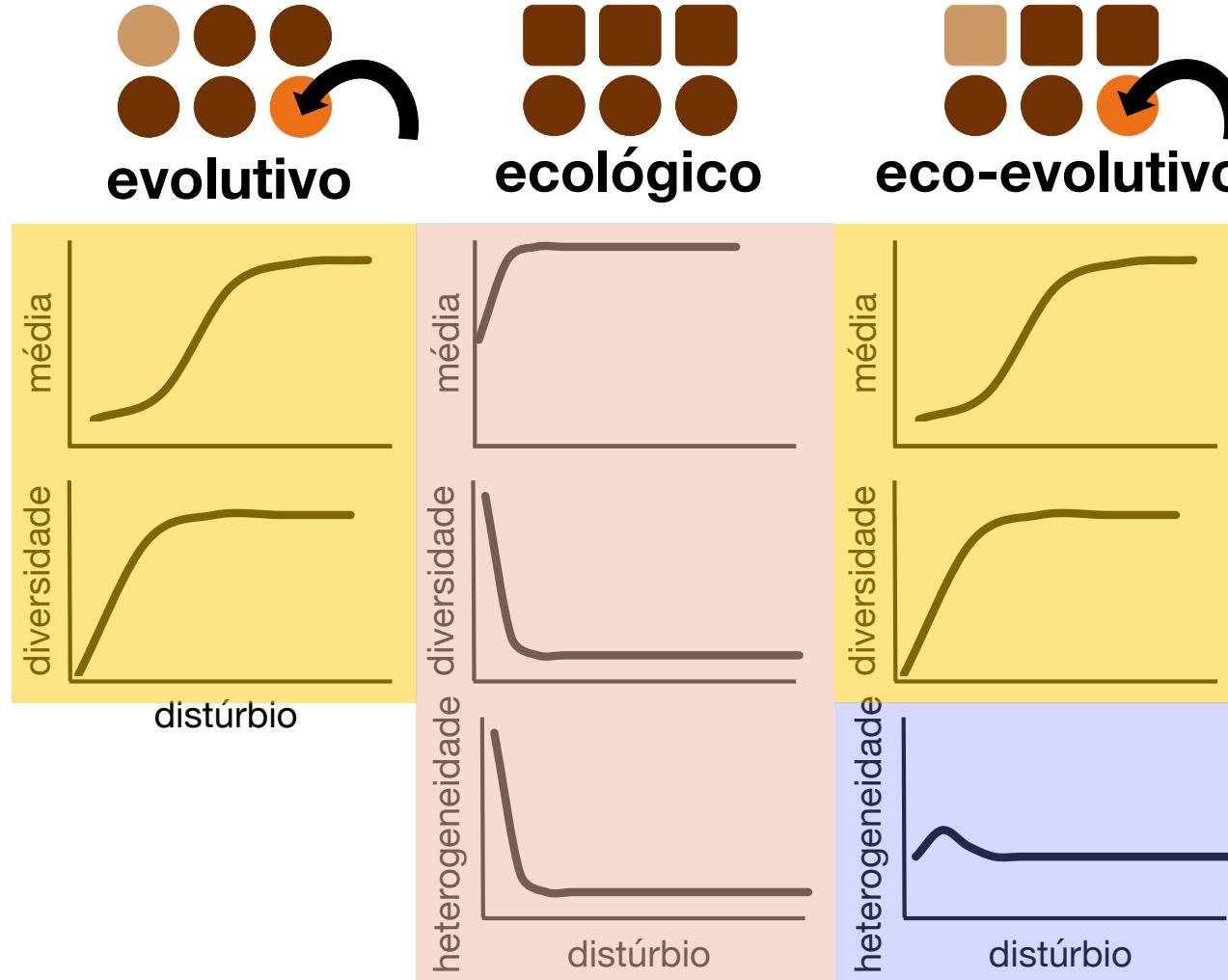
# cenários



# interação eco-evo

- entrada de variação por mutação
- competição entre linhagens isoladas (espécies diferentes)

# cenários



# interação eco-evo

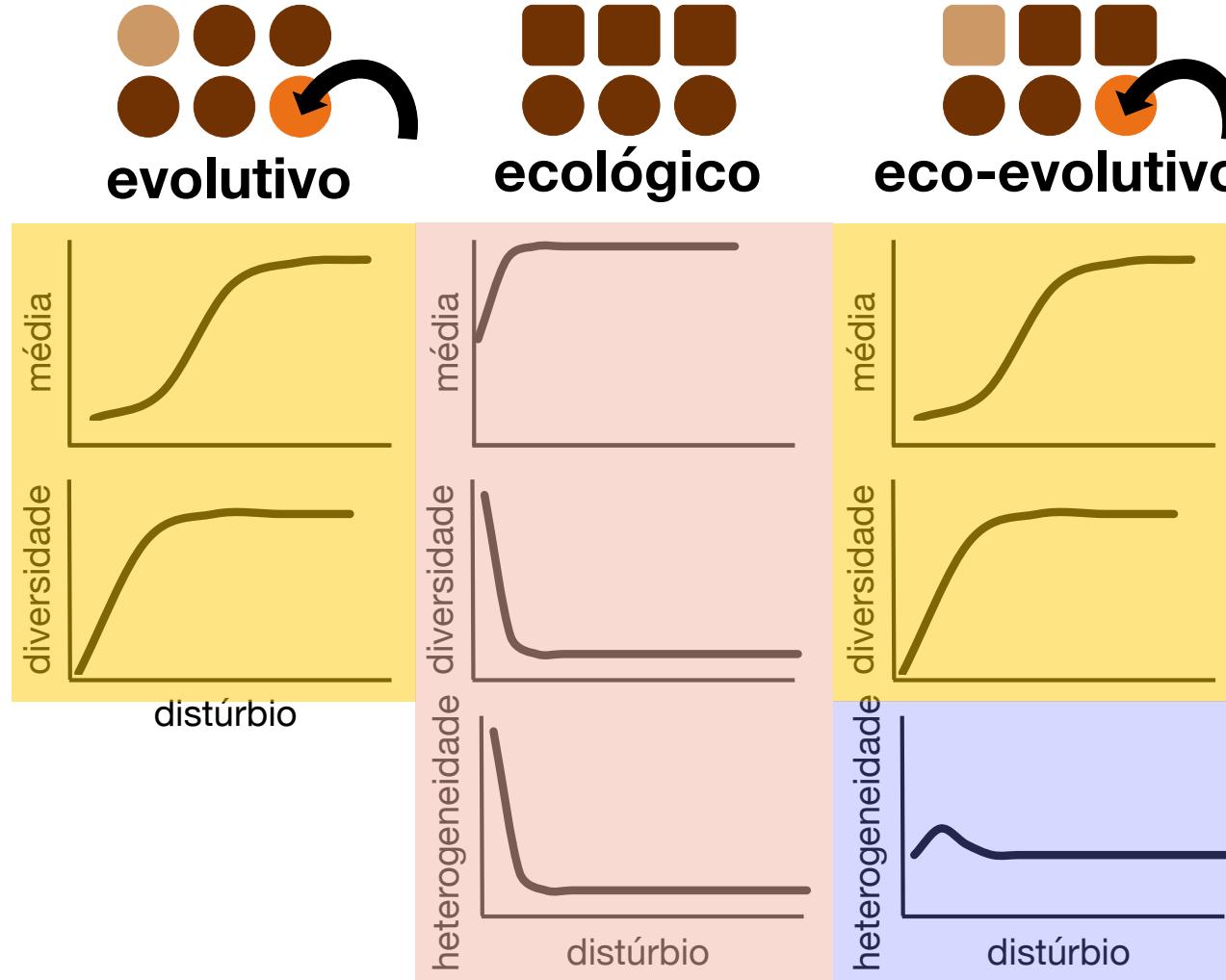
- entrada de variação por mutação
- competição entre linhagens isoladas (espécies diferentes)
- coexistência de estratégias distintas mediadas por distúrbio



## Ecologia

- desconsidera adaptação
- possíveis consequências:
  - gerar previsões erradas
  - relacionar padrões a processos equivocados

# cenários



ainda assim...

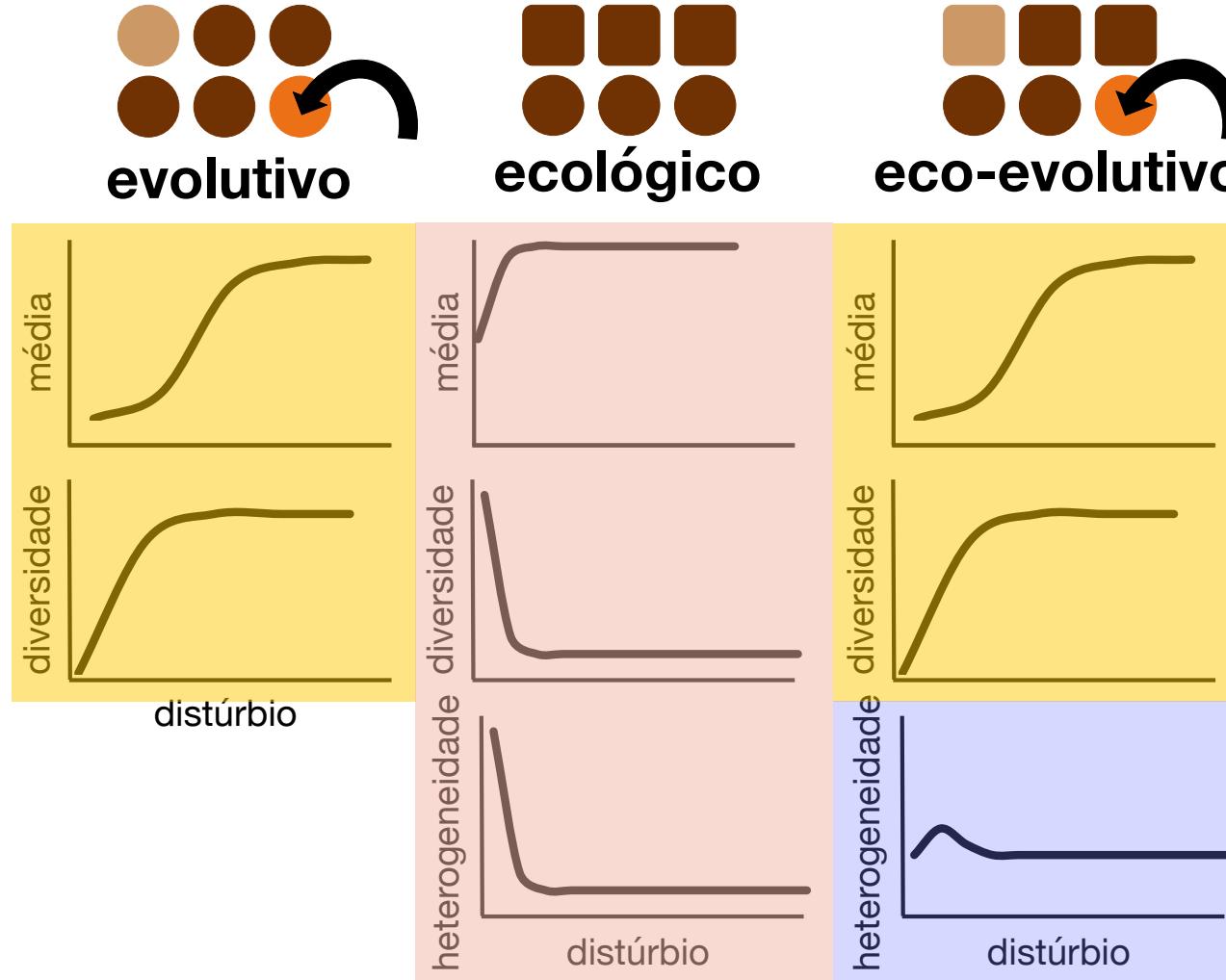
## Ecologia

- desconsidera adaptação
- possíveis consequências:
  - gerar previsões erradas quanto à diversidade
  - relacionar padrões a processos equivocados

## Biologia Evolutiva

- desconsidera contexto multiespecífico
- possíveis consequências:
  - gerar previsões erradas quanto à estratégia média das populações
    - não acessar padrões que emergem em escalas maiores

# cenários



# conclusões

- 
- 
-

# conclusões

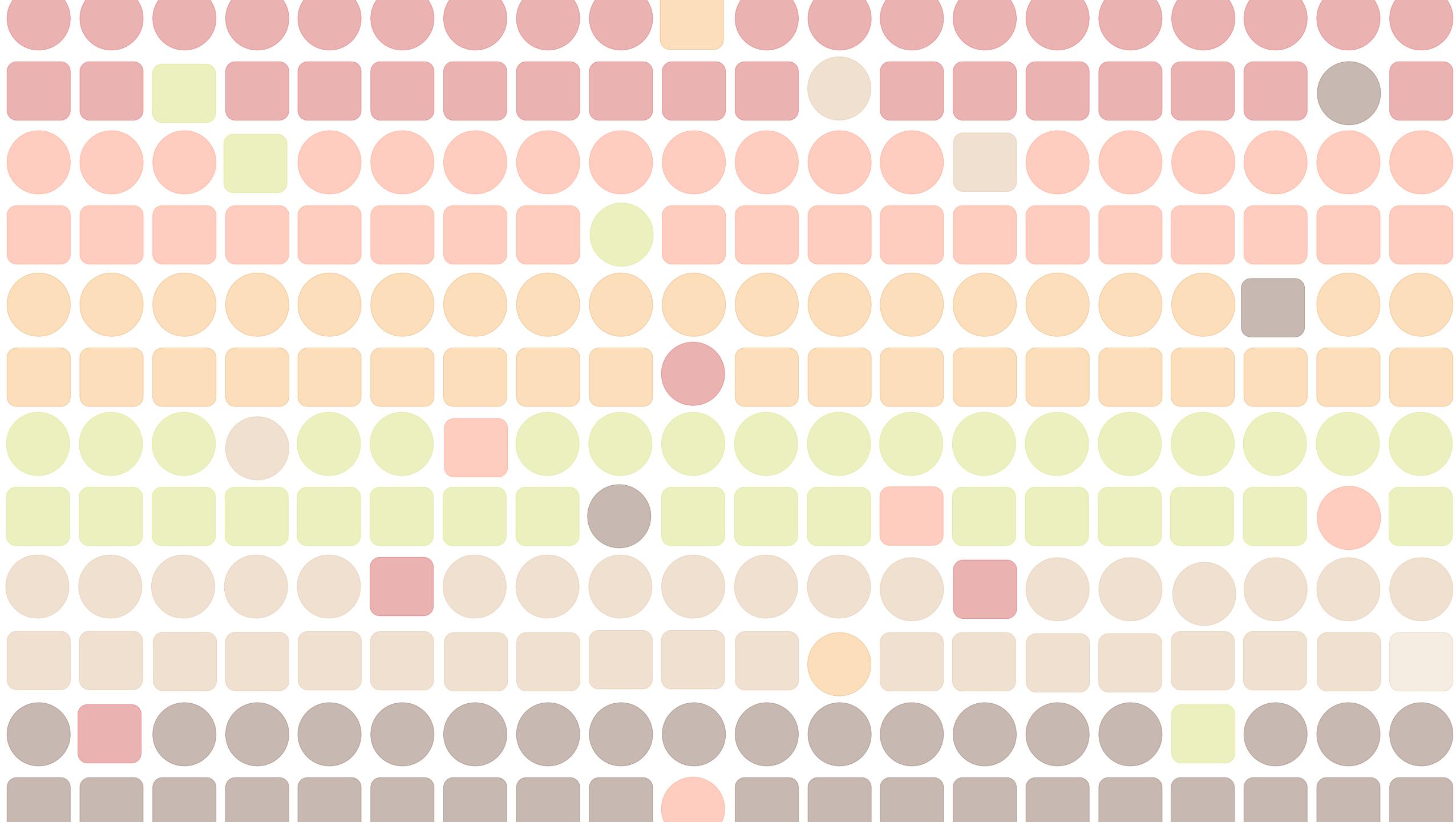
- efeito do **distúrbio** é diferente comparando dinâmicas **ecológicas** e **evolutivas**
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# conclusões

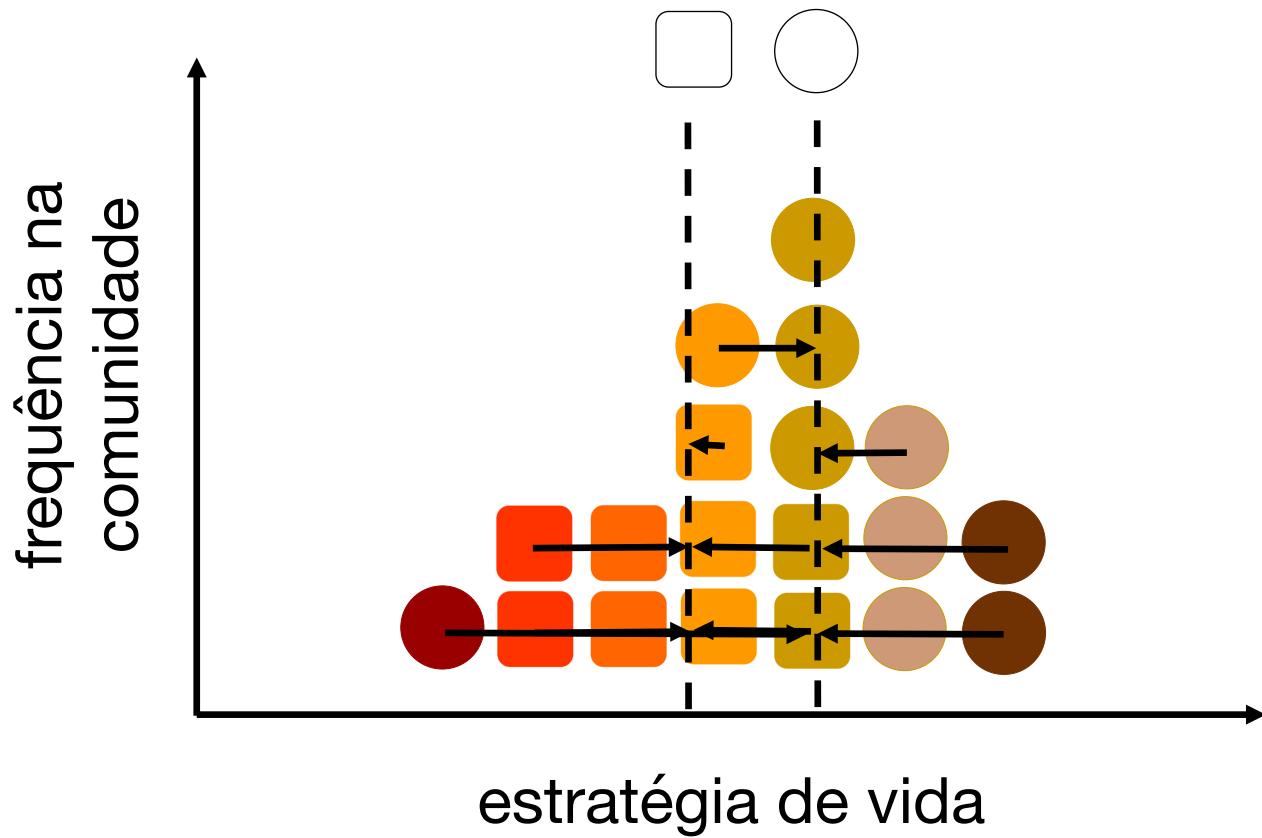
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- há padrões que emergem apenas em dinâmicas **eco-evolutivas**
-

# conclusões

- efeito do **distúrbio** é diferente comparando dinâmicas **ecológicas** e **evolutivas**
- há padrões que emergem apenas em dinâmicas **eco-evolutivas**
- o **distúrbio** deve ser estudado em dinâmicas **eco-evolutivas**



# variáveis de interesse



média da estratégia

variância total da estratégia

variância interespecífica da estratégia

**estratégia média**

**diversidade de estratégias**

**heterogeneidade interespecífica de estratégias**

variância

( heterogeneidade interespecífica de ) ~ estratéгias distúrbio

