

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

dinâmica
evolutiva

dinâmica
ecológica

dinâmica
evolutiva

mudanças na frequência
de um atributo na
população

a partir de alterações na
**frequência relativa
dos alelos**

dinâmica
ecológica

dinâmica
evolutiva

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

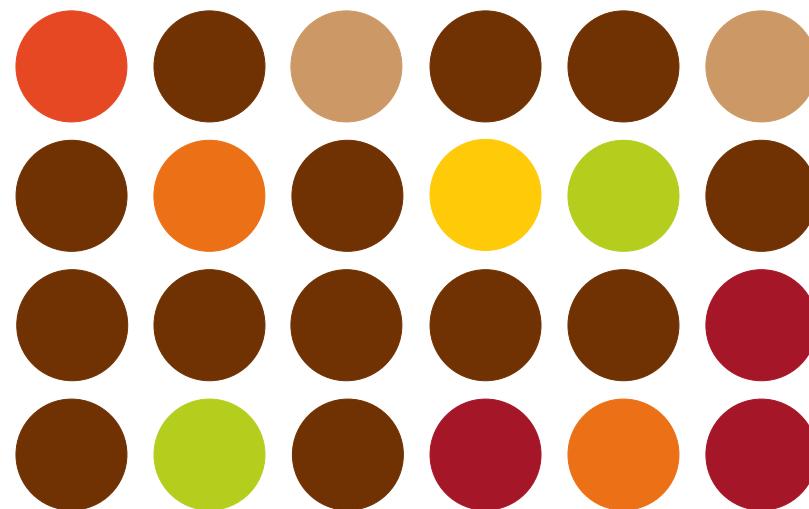
- **seleção**
- deriva ecológica
- migração
- especiação

dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

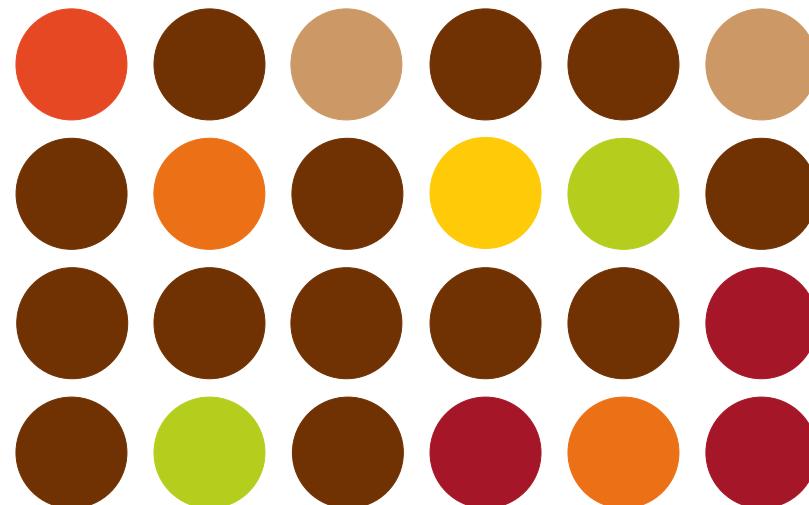
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- seleção
- deriva genética
- fluxo gênico
- mutação



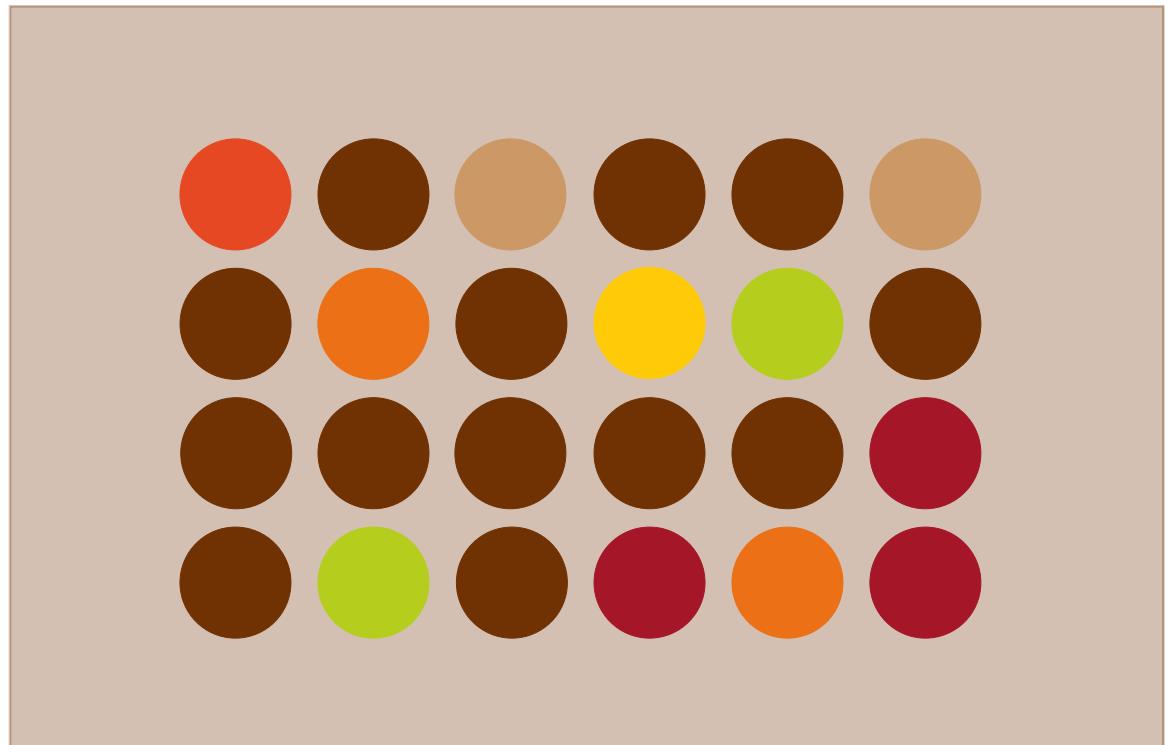
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- **seleção**
- deriva genética
- fluxo gênico
- mutação



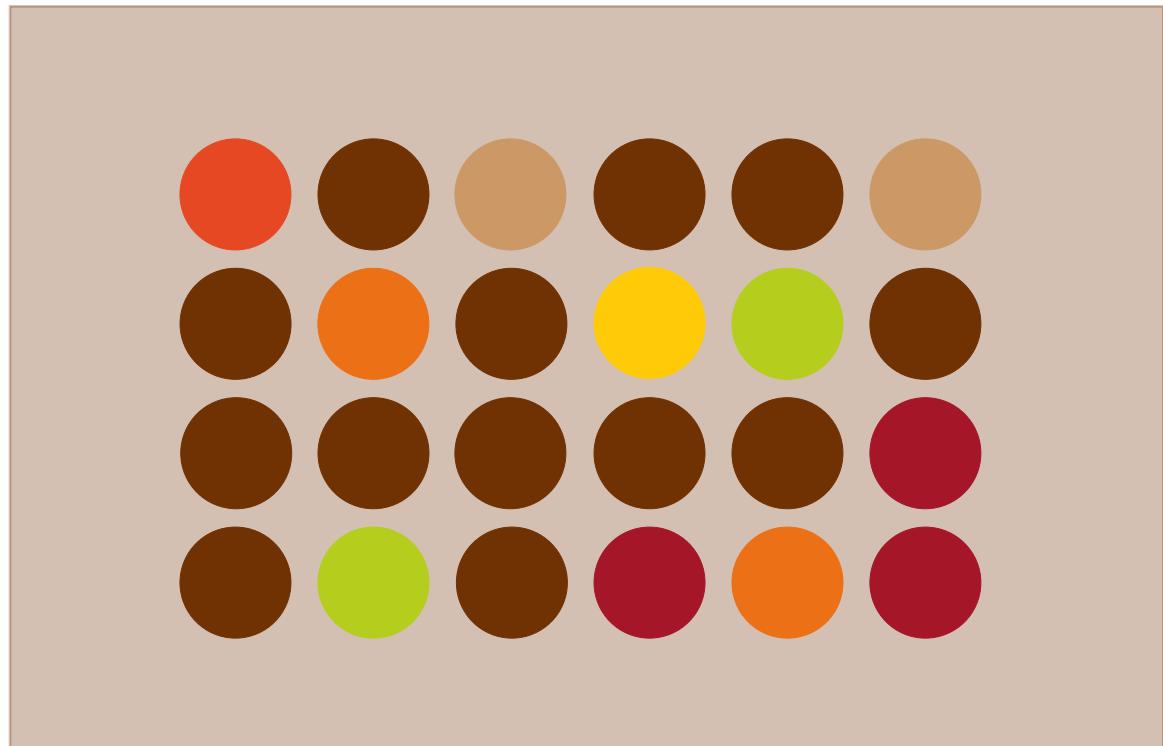
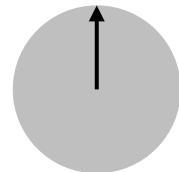
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- **seleção**
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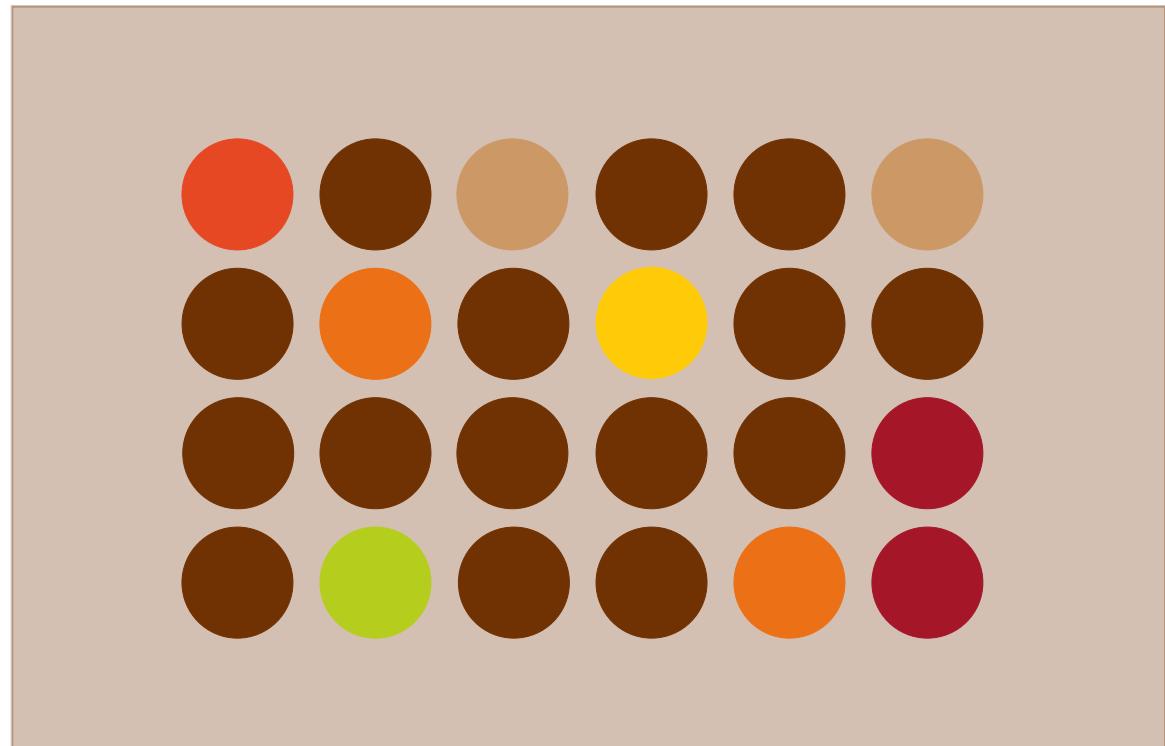
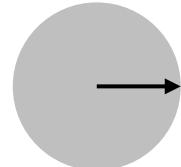
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- **seleção**
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- mutação



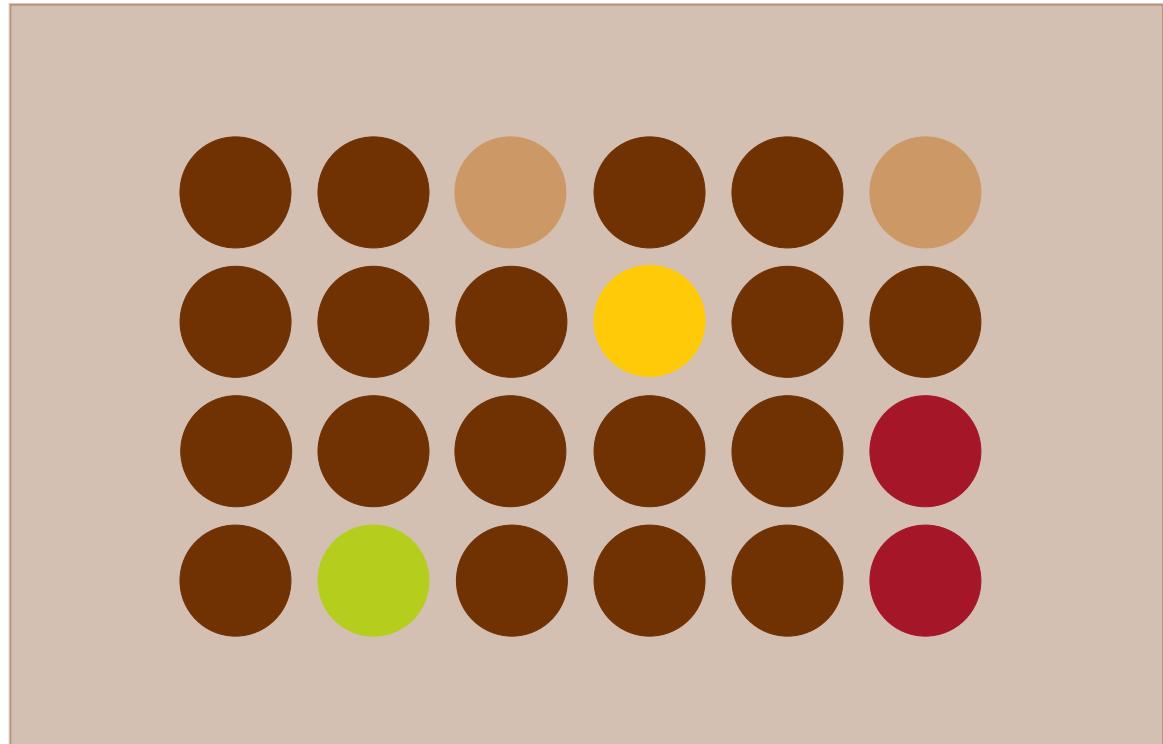
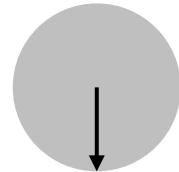
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- **seleção**
- deriva genética
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- mutação



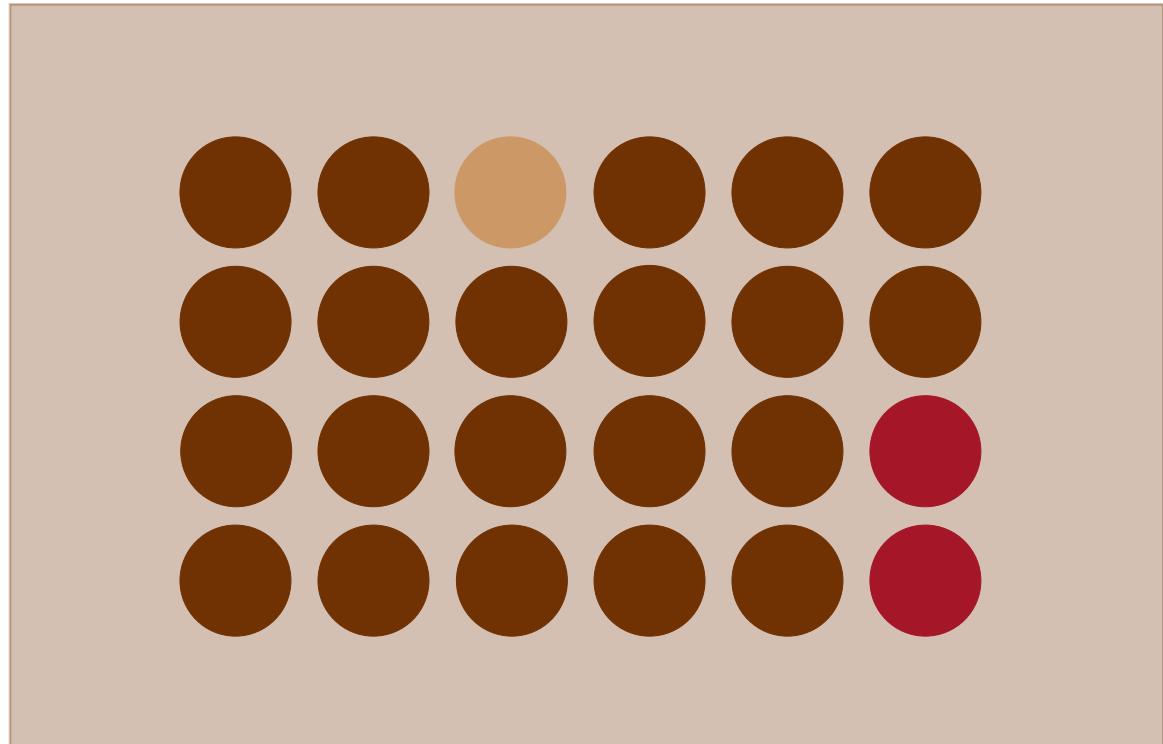
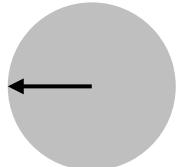
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- mutação



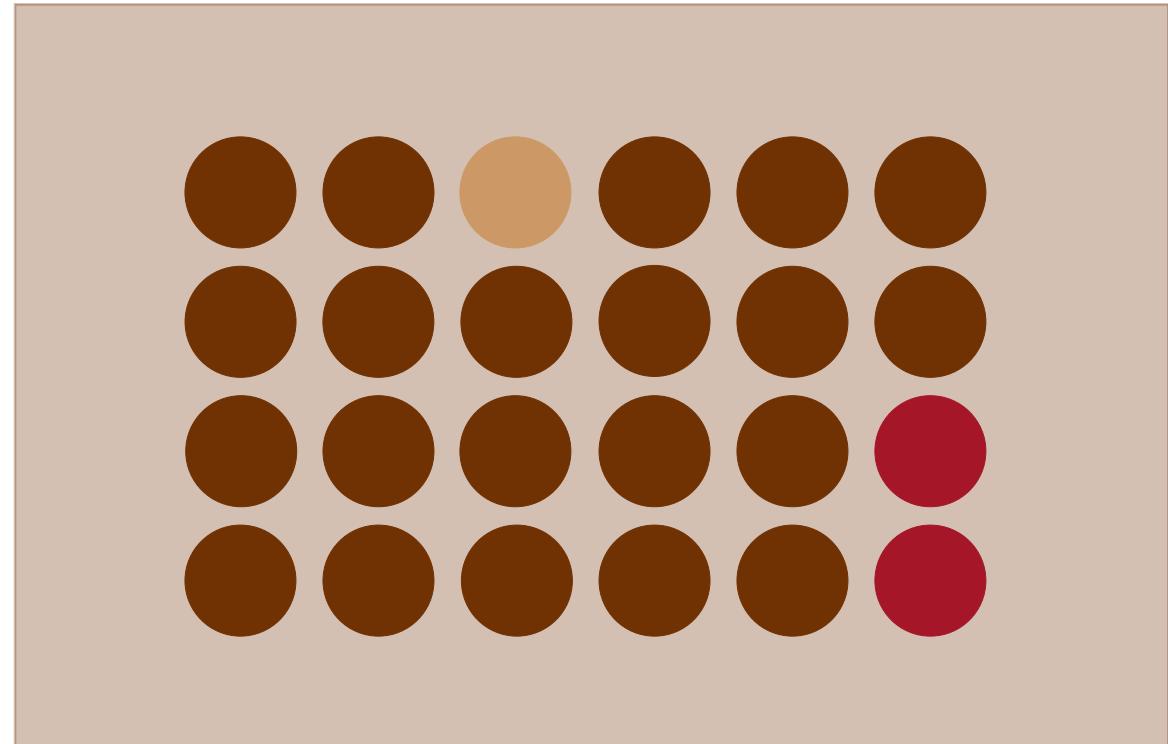
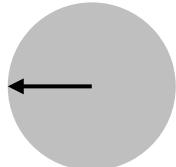
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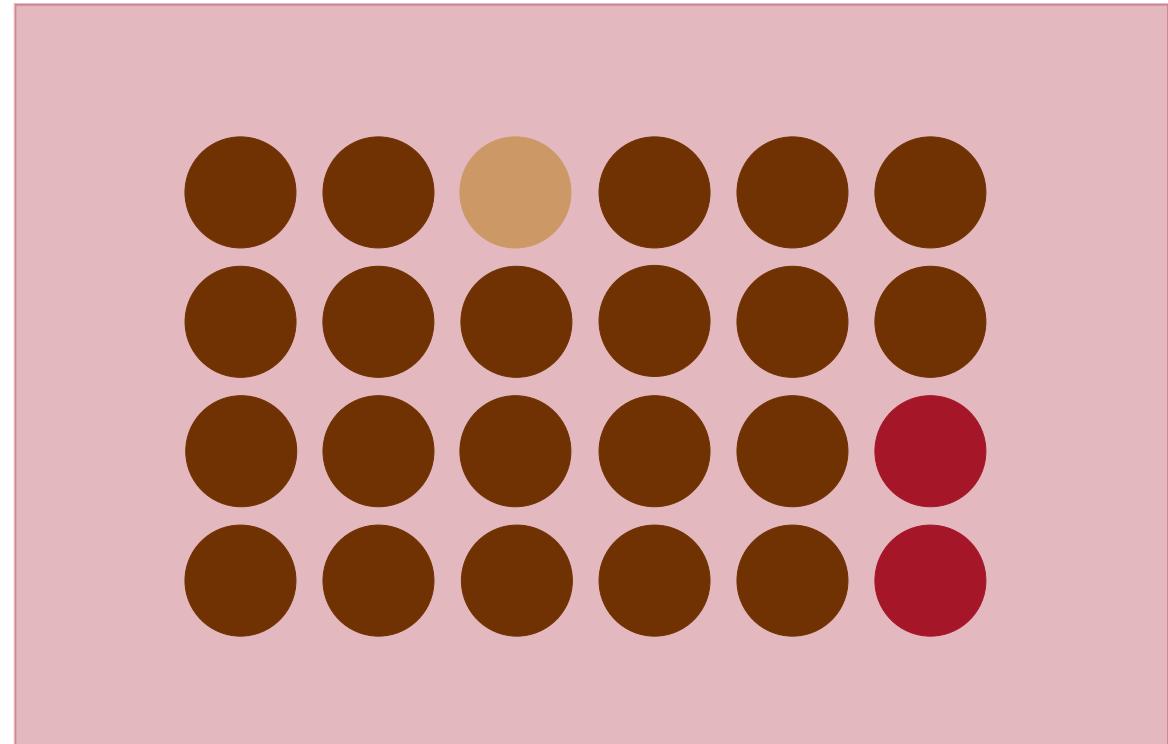
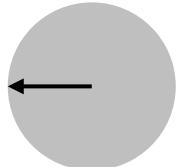
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- seleção
- **deriva genética**
- fluxo gênico
- mutação



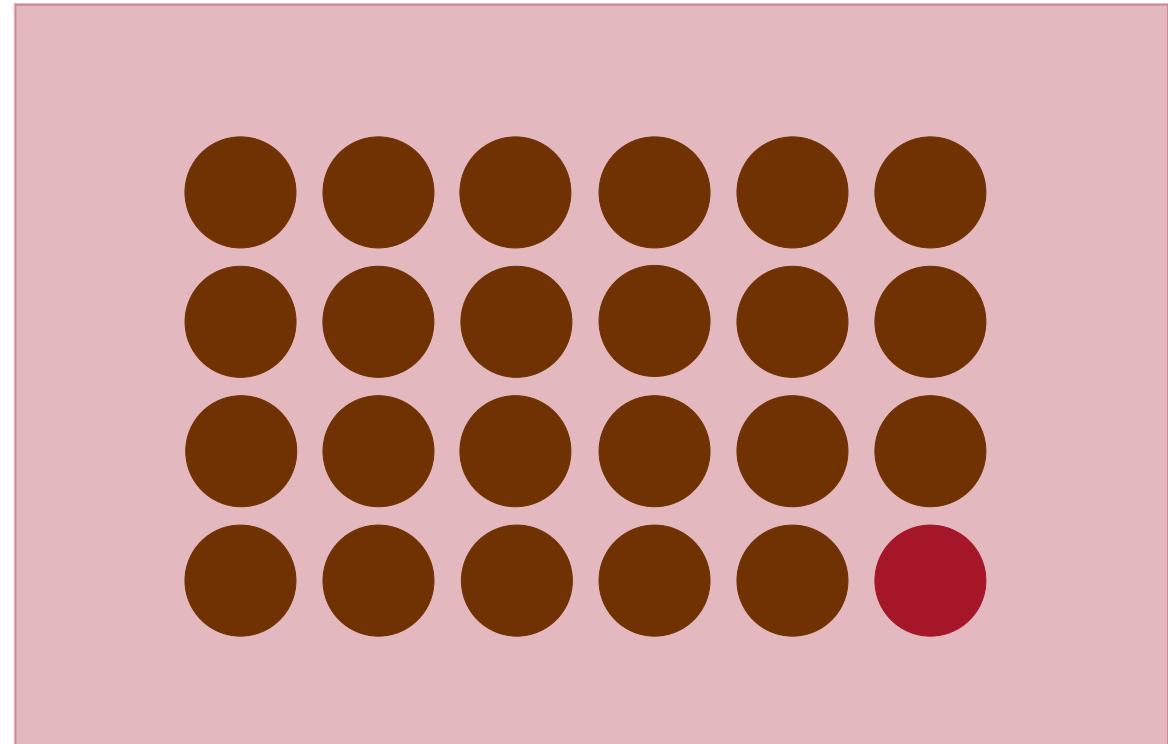
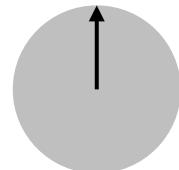
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- seleção
- **deriva genética**
- fluxo gênico
- mutação



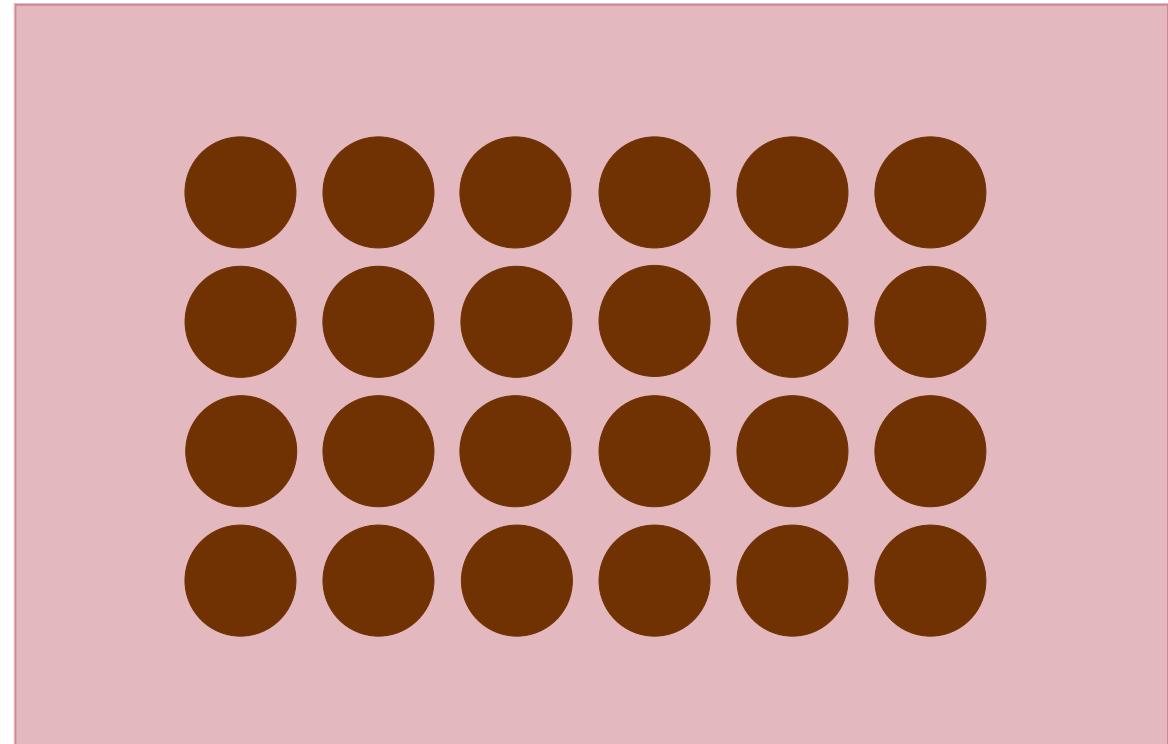
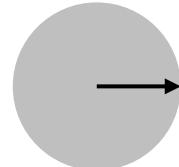
dinâmica evolutiva

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



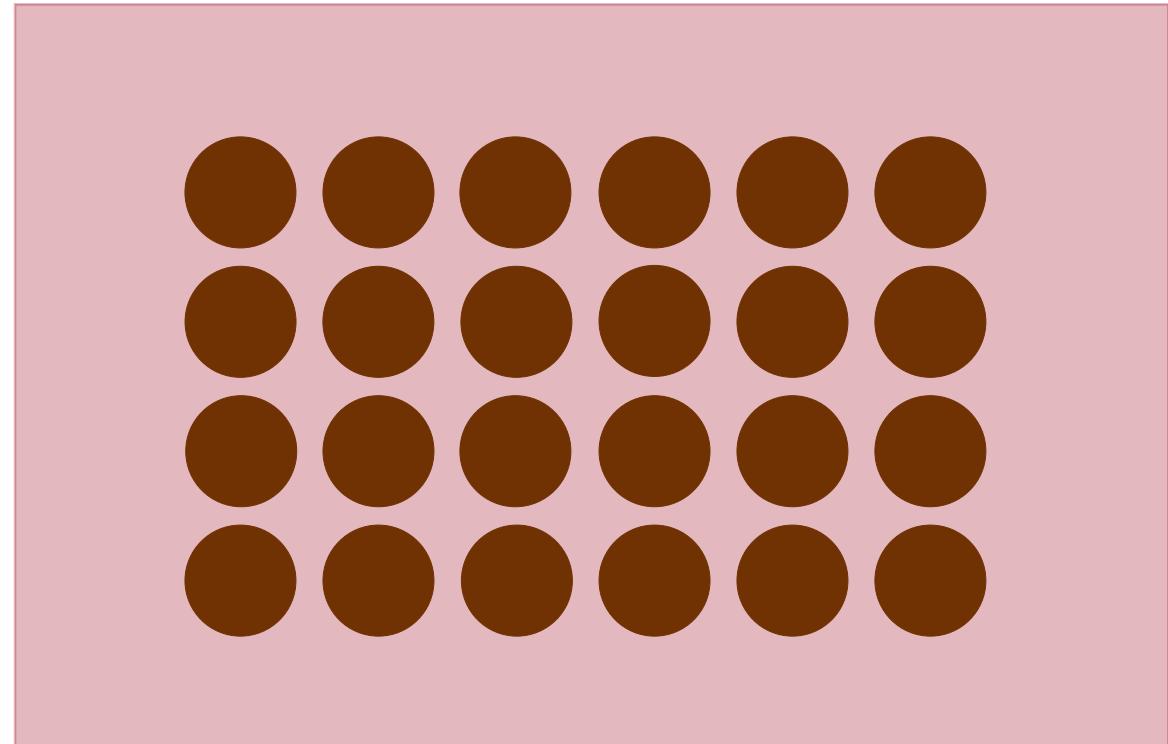
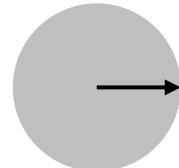
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- fluxo gênico
- mutação



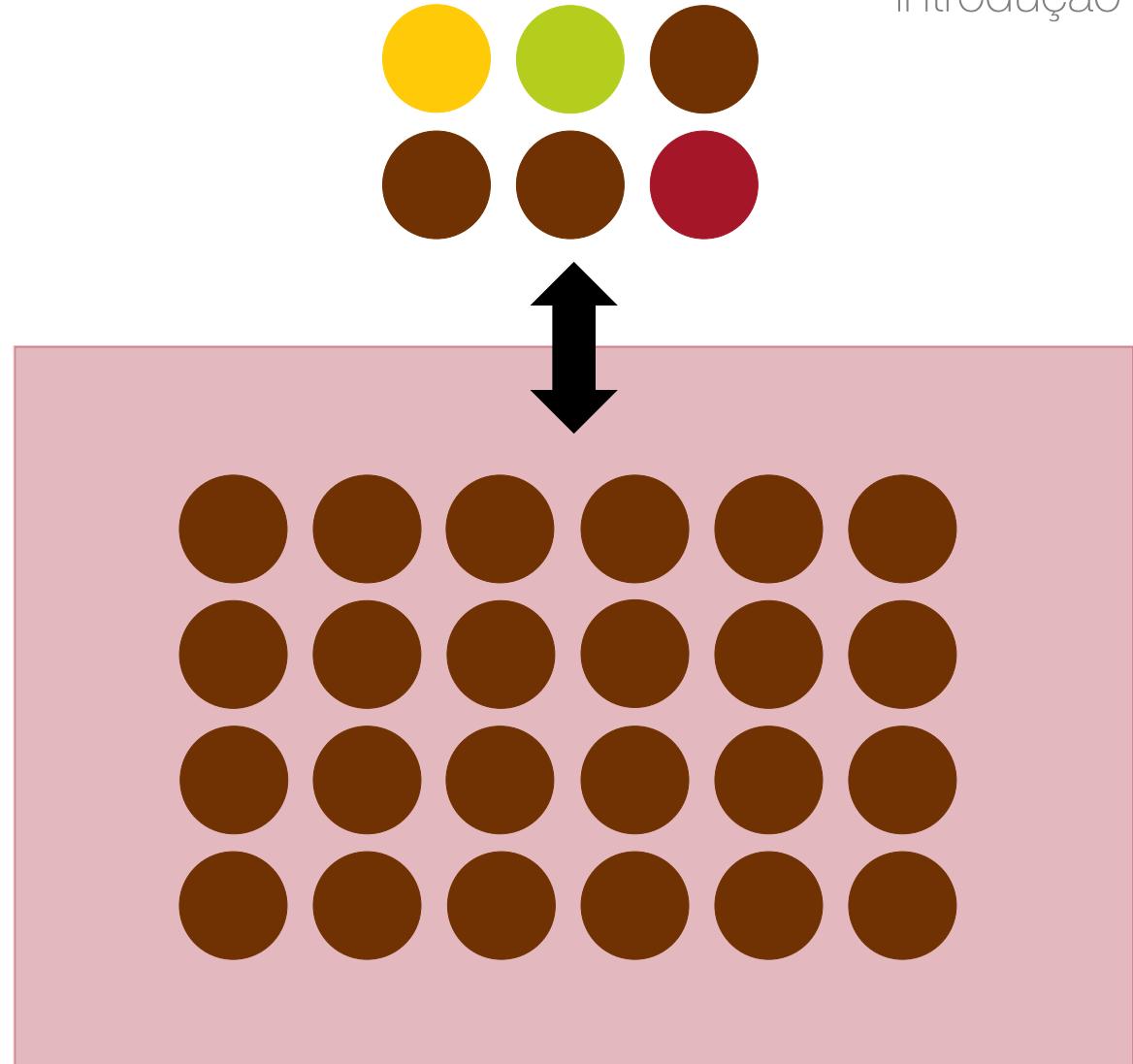
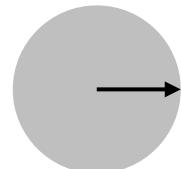
dinâmica evolutiva

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



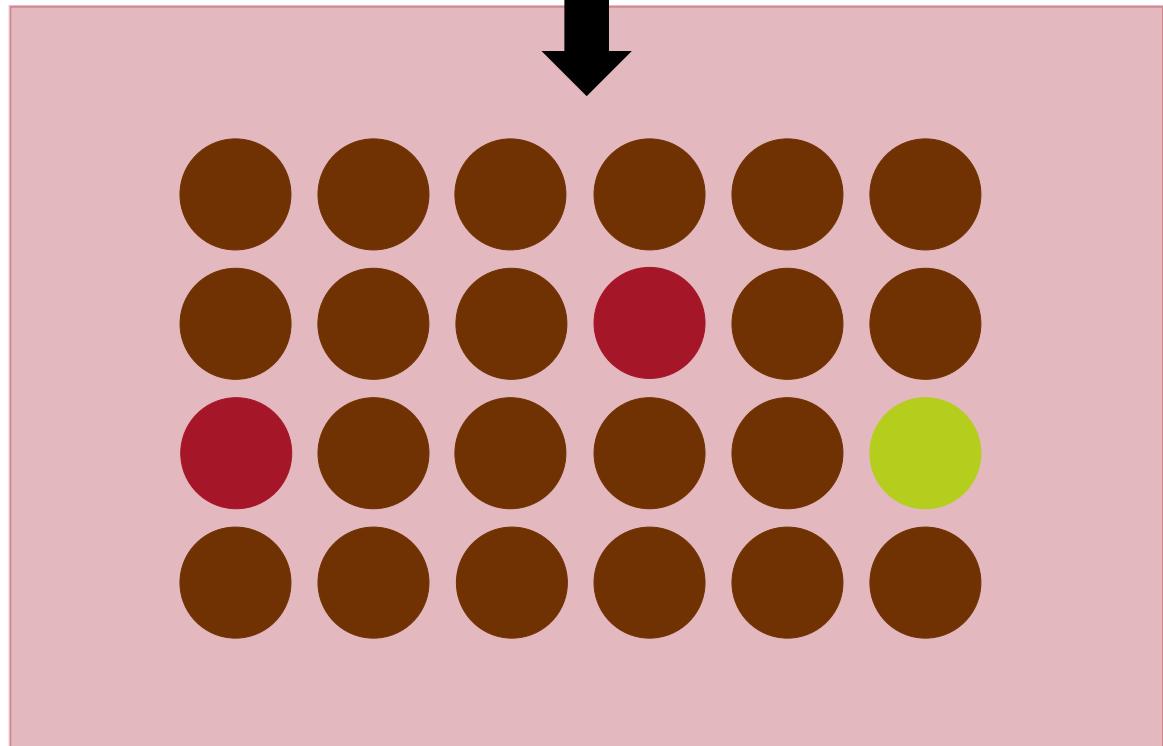
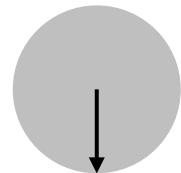
dinâmica evolutiva

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



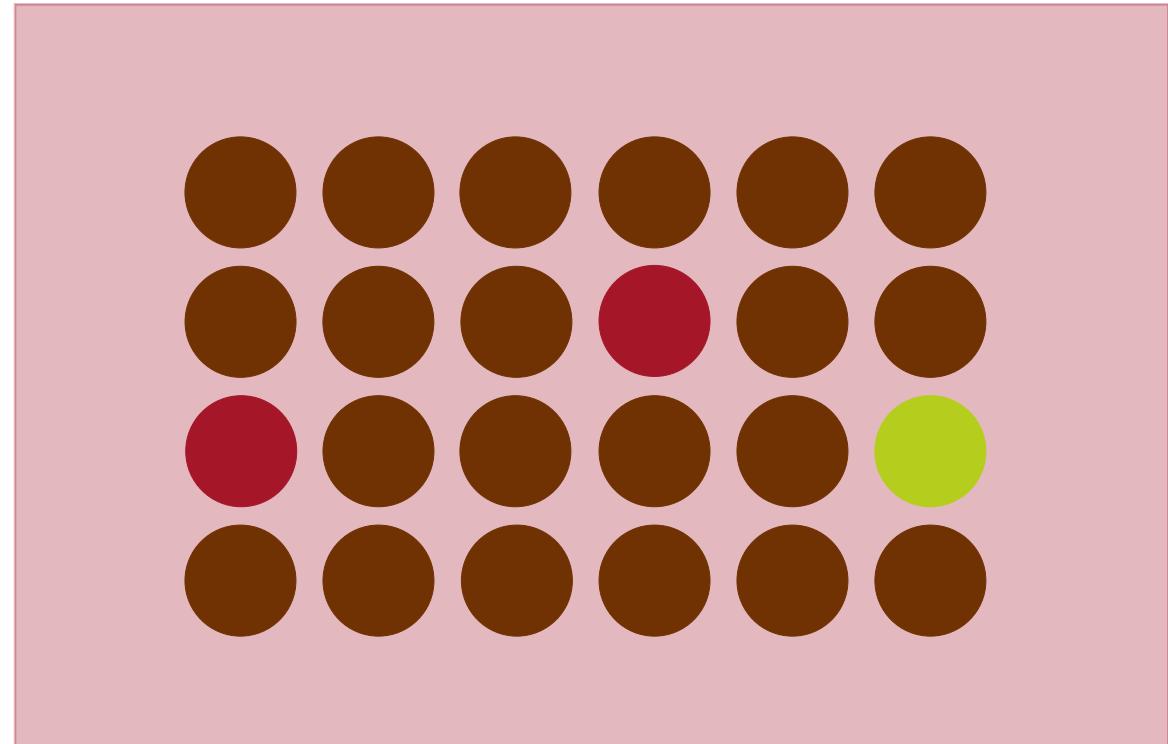
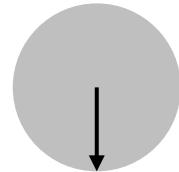
dinâmica evolutiva

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



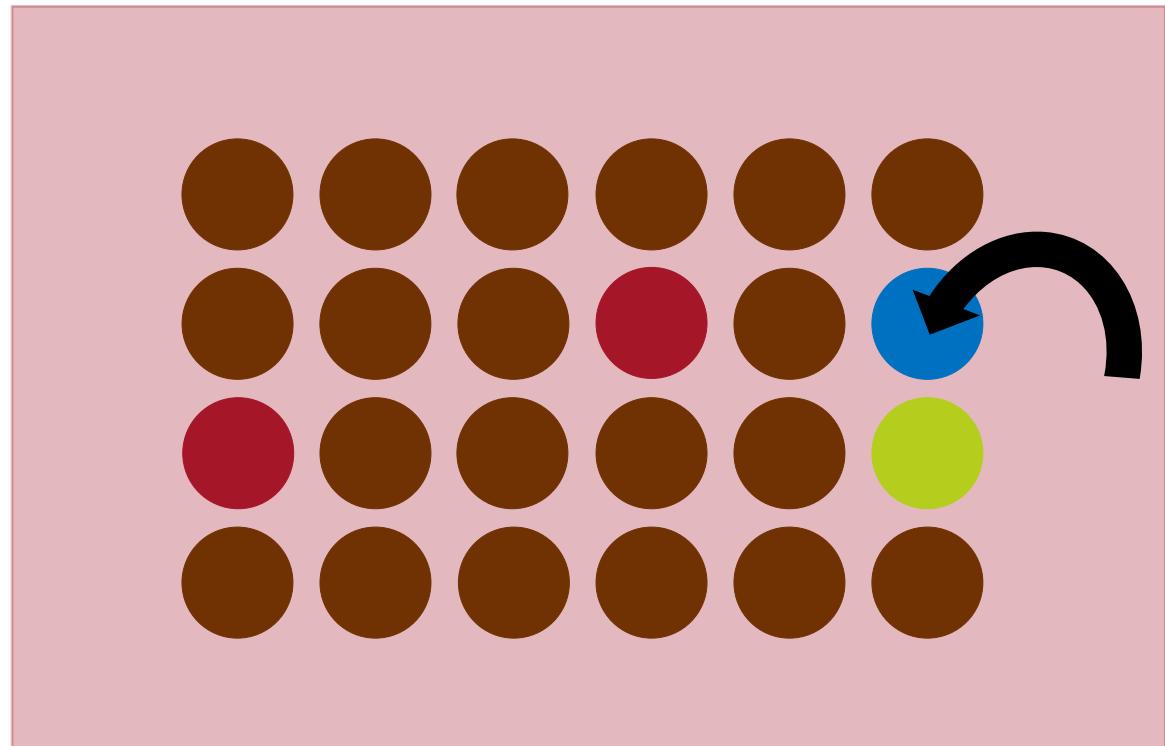
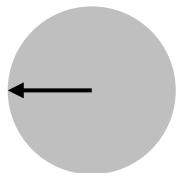
dinâmica evolutiva

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



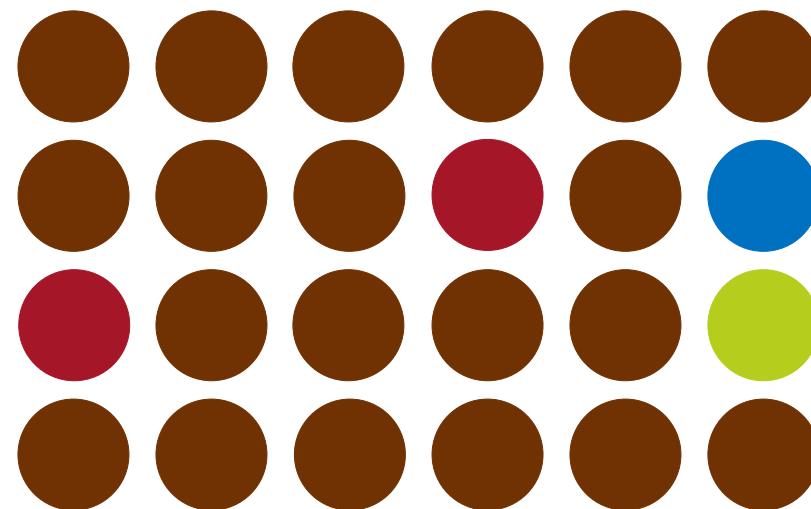
dinâmica evolutiva

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



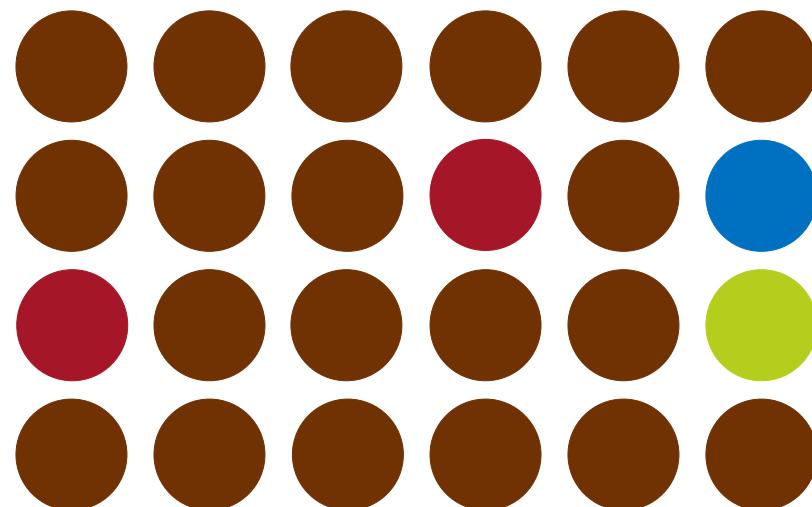
dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação



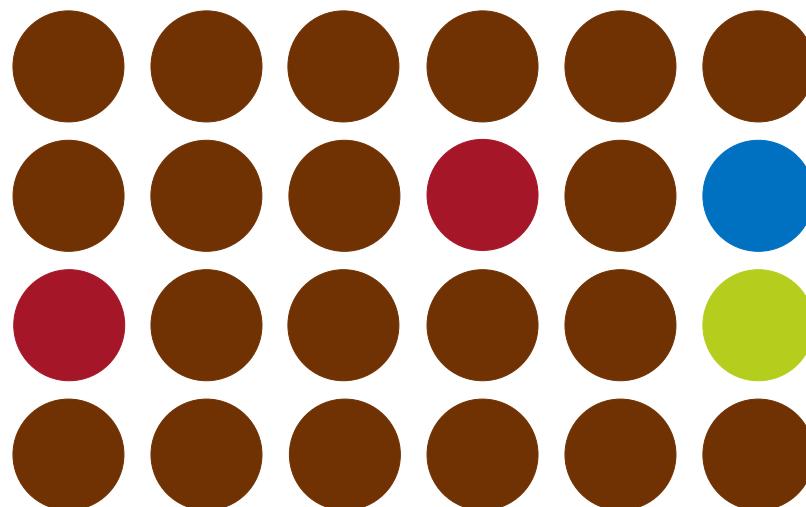
dinâmica evolutiva

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



dinâmica evolutiva

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

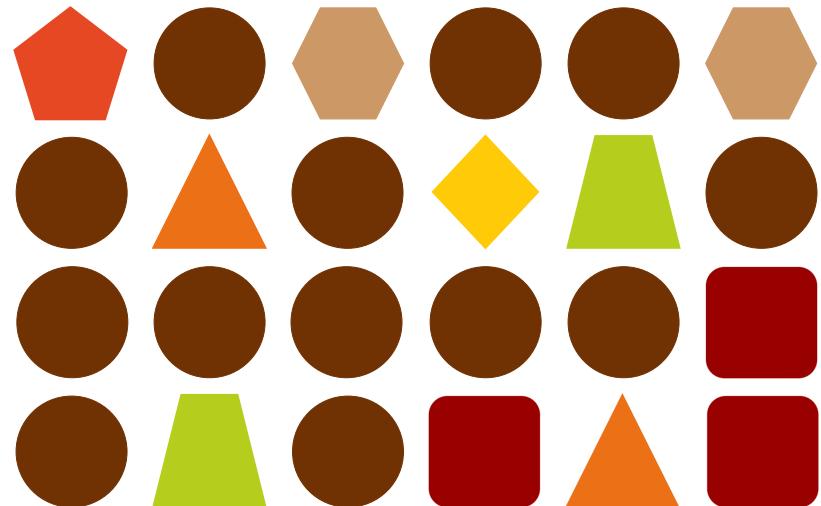




dinâmica ecológica

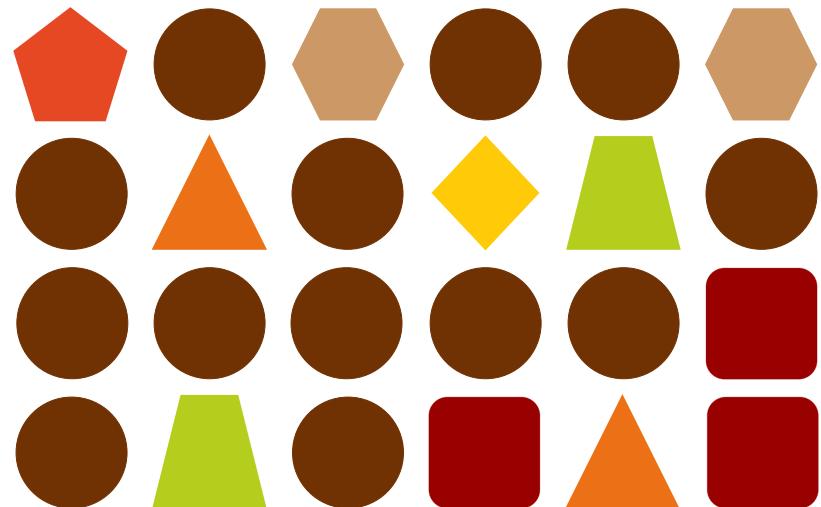
- seleção
- deriva ecológica
- migração
- especiação

dinâmica ecológica



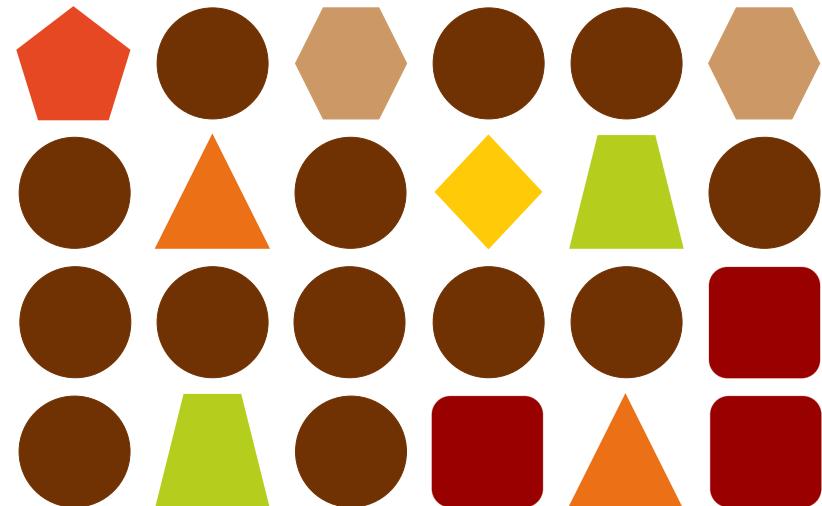
- seleção
- deriva ecológica
- migração
- especiação

dinâmica ecológica



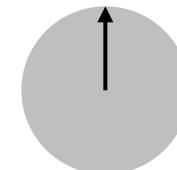
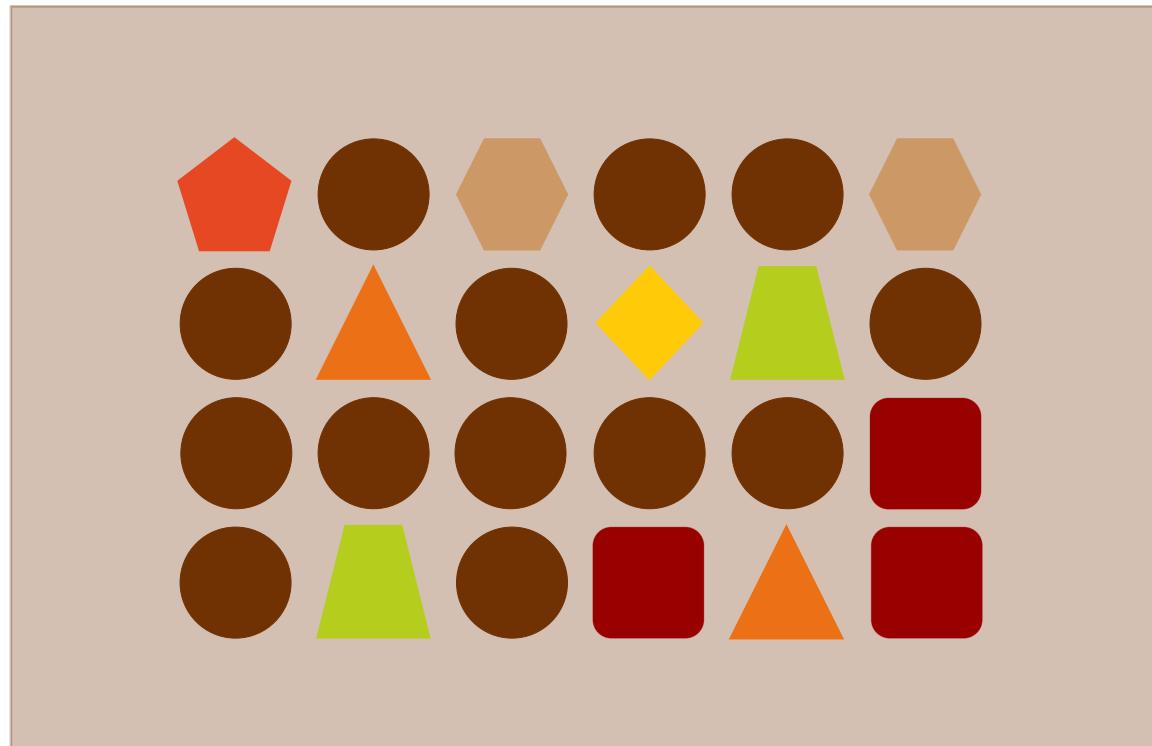
- **seleção**
- deriva ecológica
- migração
- especiação

dinâmica ecológica



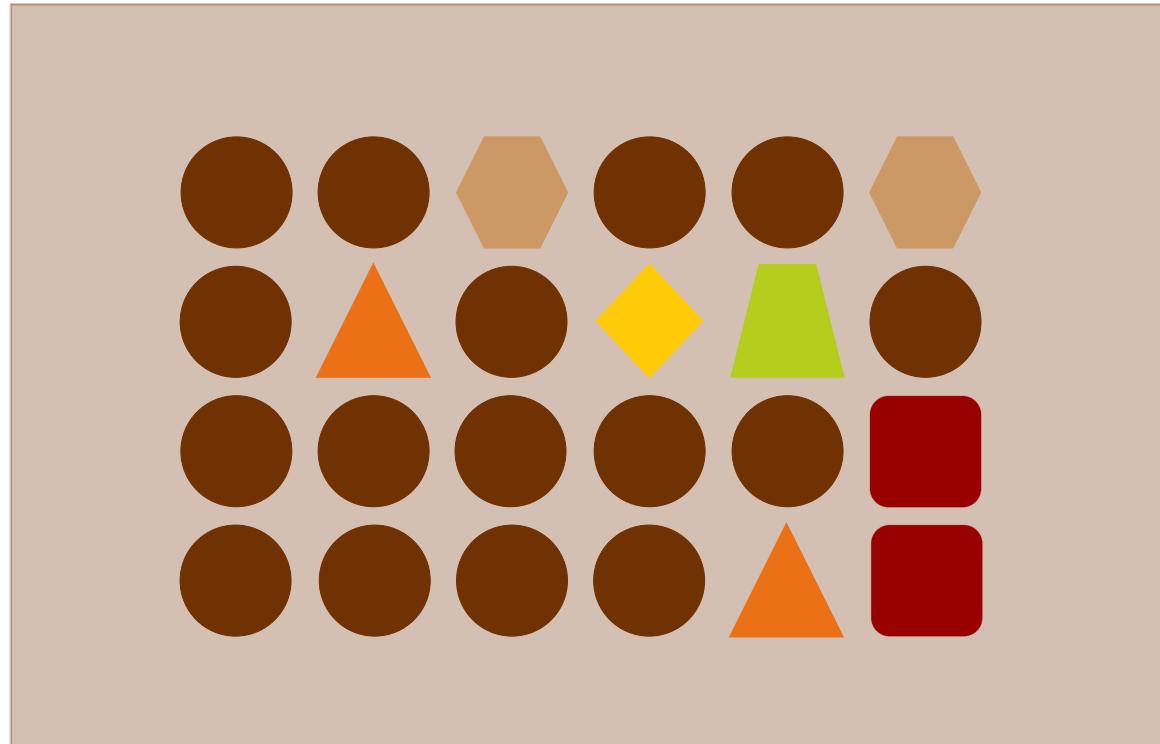
- **exclusão competitiva**
- deriva ecológica
- migração
- especiação

dinâmica ecológica

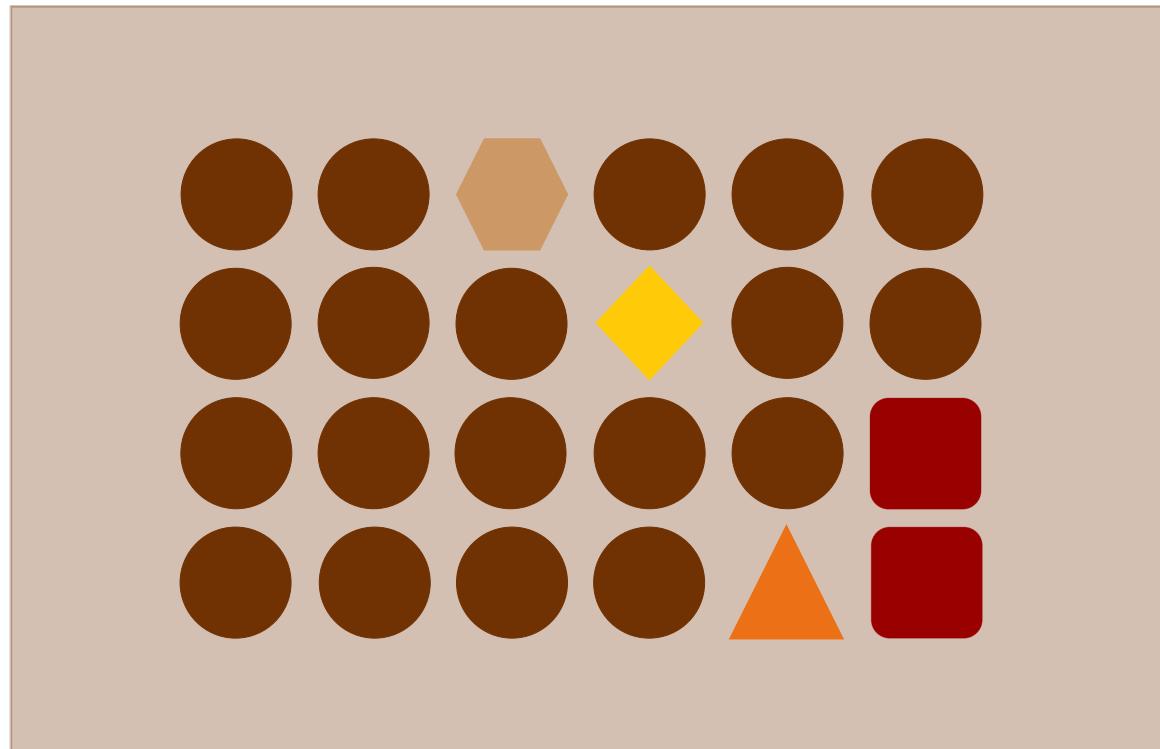


- **exclusão competitiva**
 - deriva ecológica
 - migração
 - especiação

dinâmica ecológica



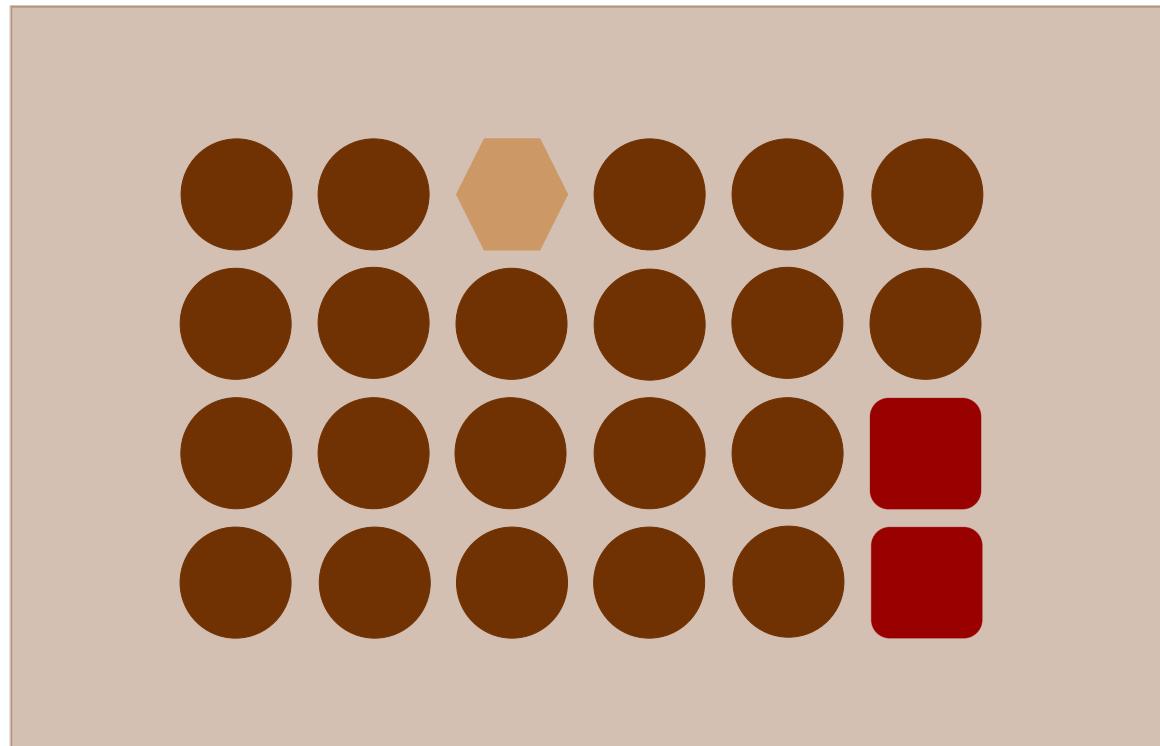
- **exclusão competitiva**
 - deriva ecológica
 - migração
 - especiação



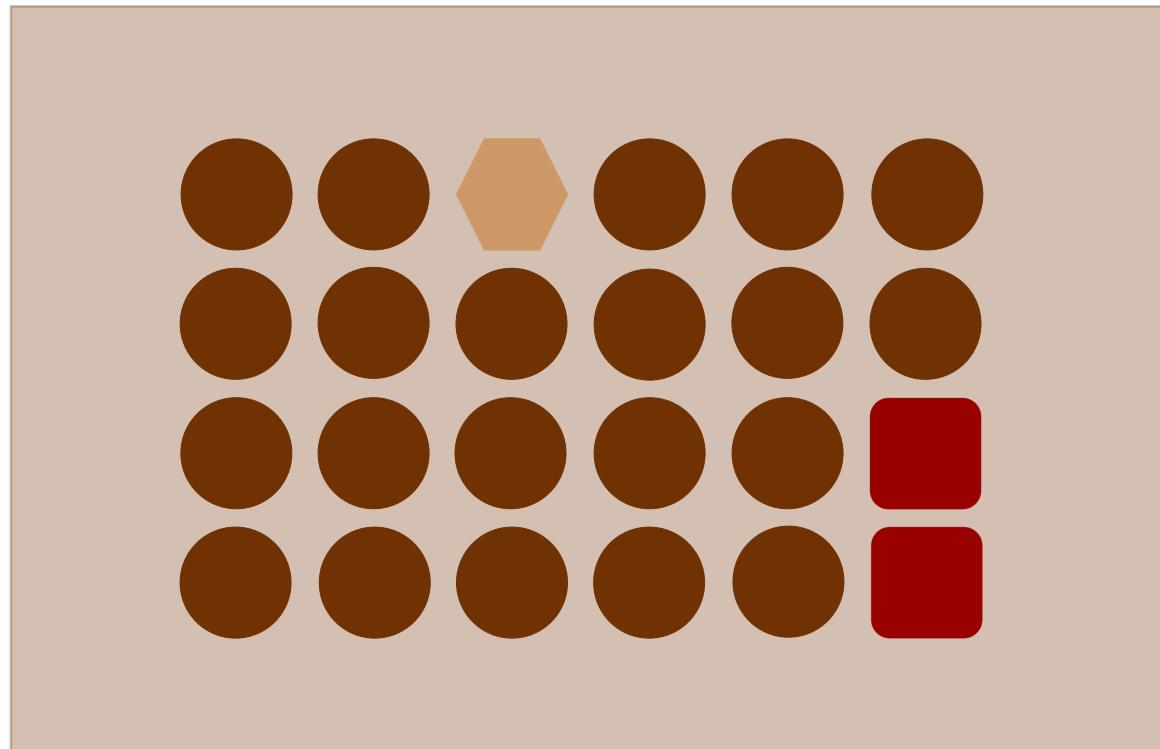
dinâmica ecológica

- **exclusão competitiva**
 - deriva ecológica
 - migração
 - especiação

dinâmica ecológica

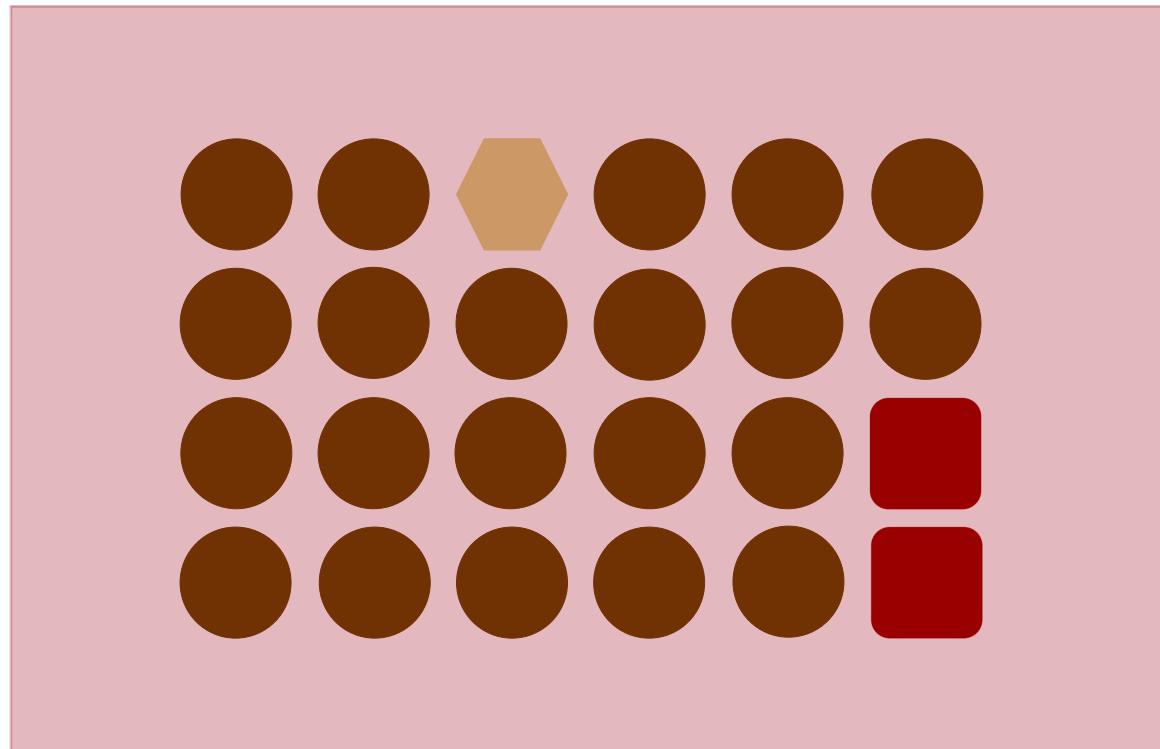


- **exclusão competitiva**
 - deriva ecológica
 - migração
 - especiação



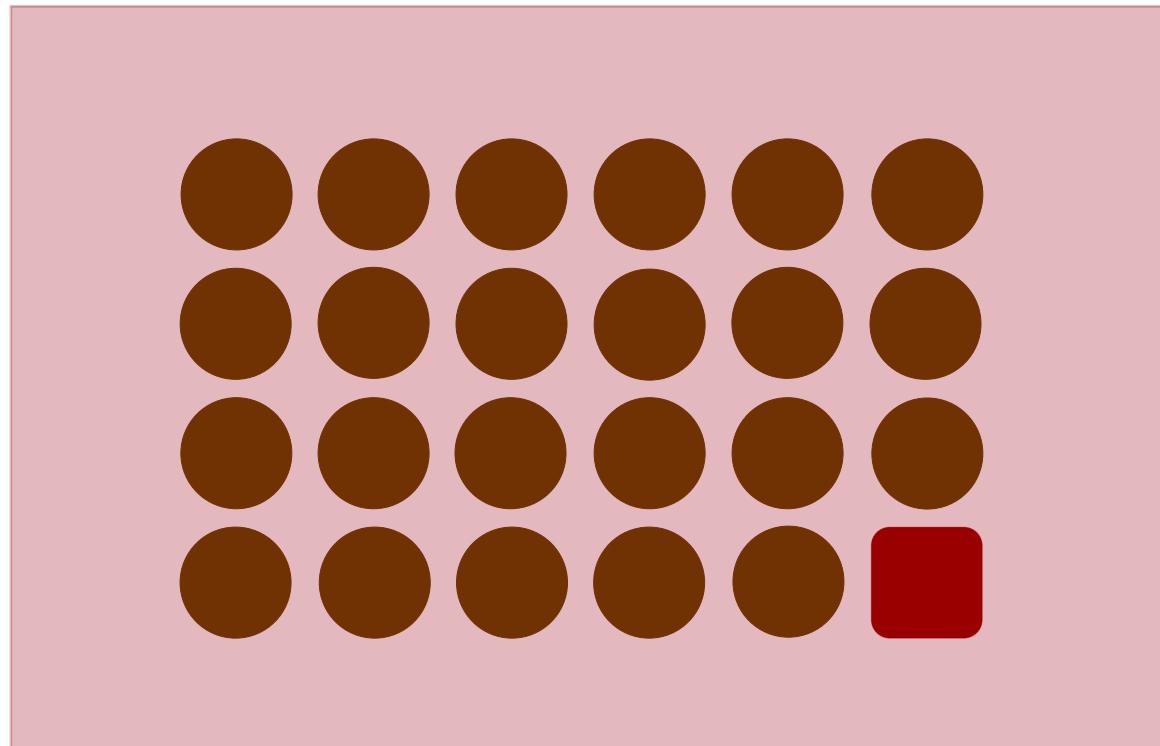
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- exclusão competitiva
- **deriva ecológica**
- migração
- especiação



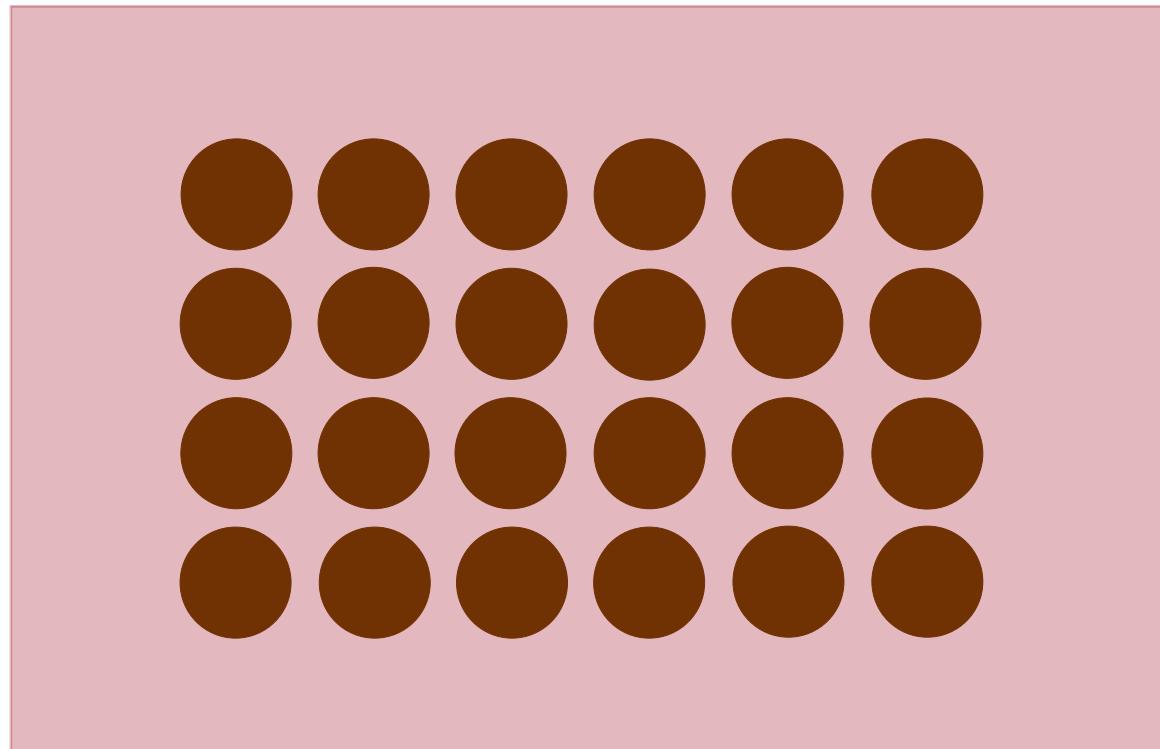
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- exclusão competitiva
- **deriva ecológica**
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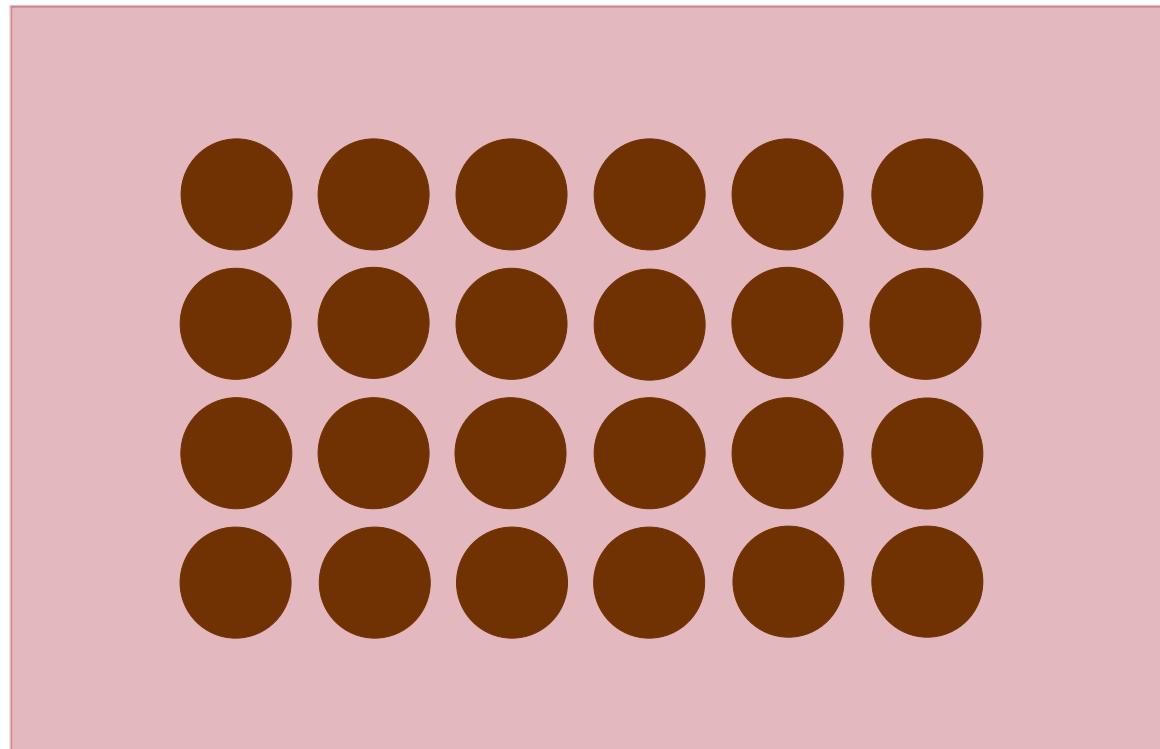
dinâmica ecológica

- exclusão competitiva
- **deriva ecológica**
- migração
- especiação



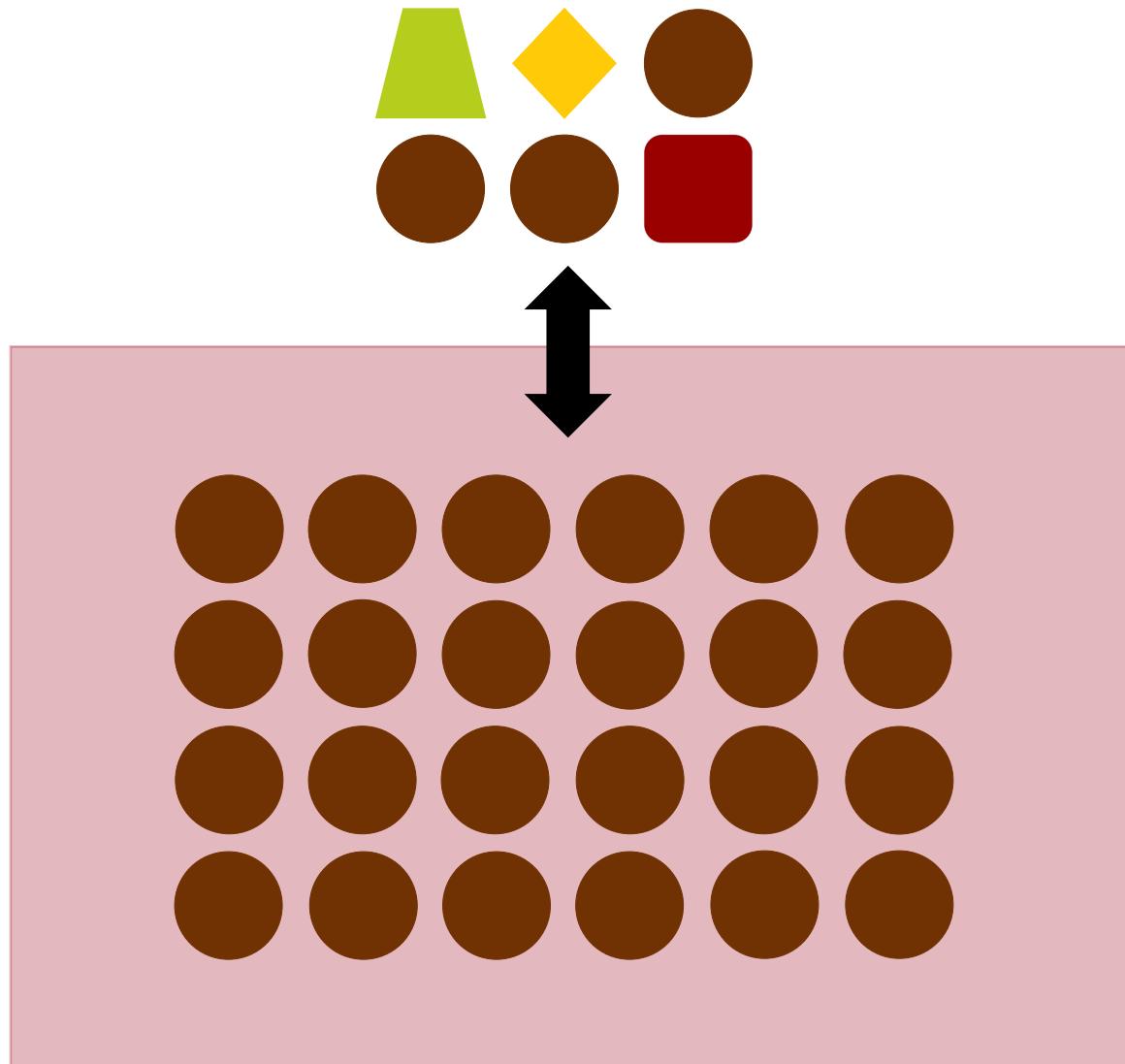
dinâmica ecológica

- exclusão competitiva
- **deriva ecológica**
- migração
- especiação



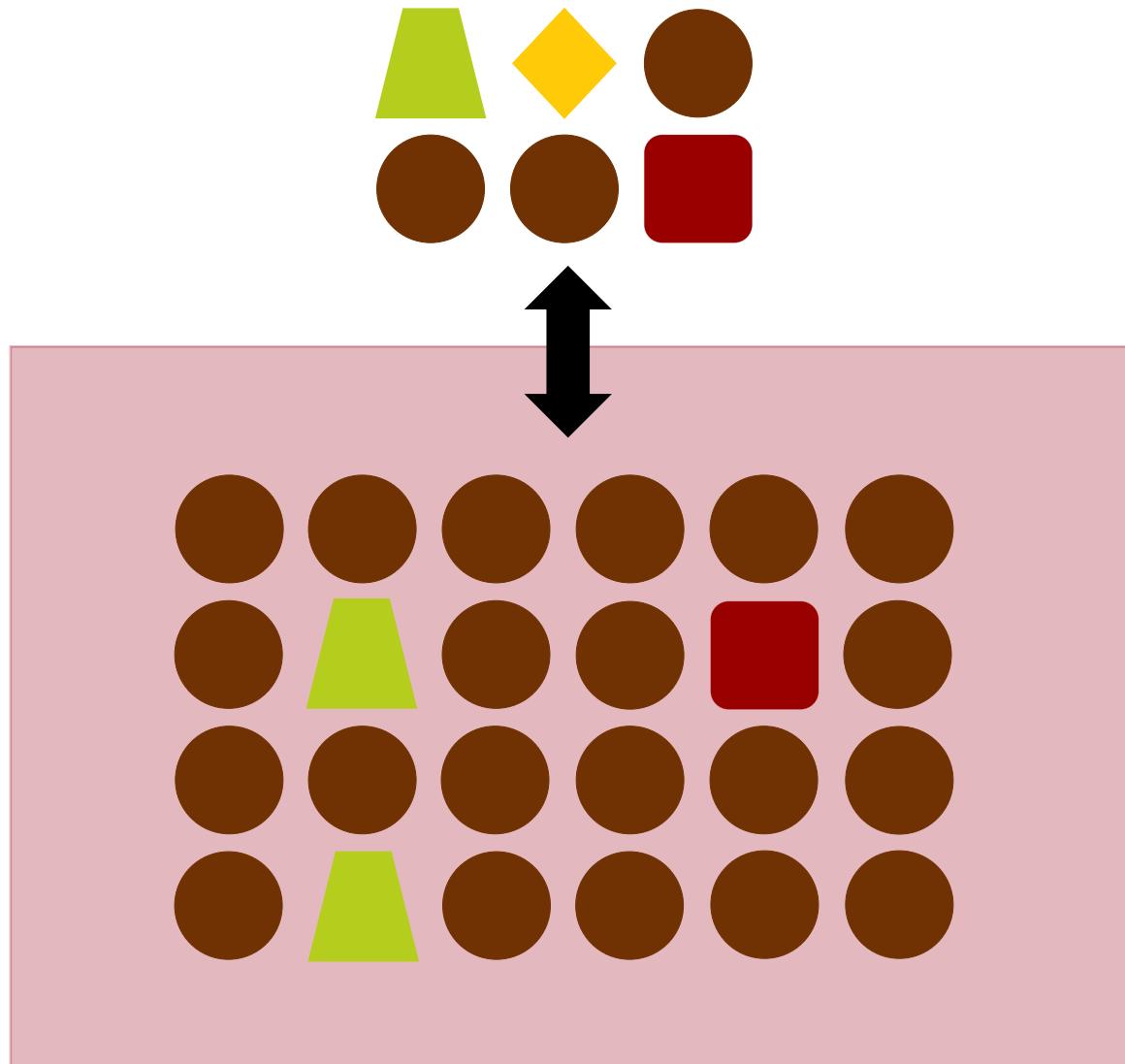
dinâmica ecológica

- exclusão competitiva
- deriva ecológica
- **migração**
- especiação



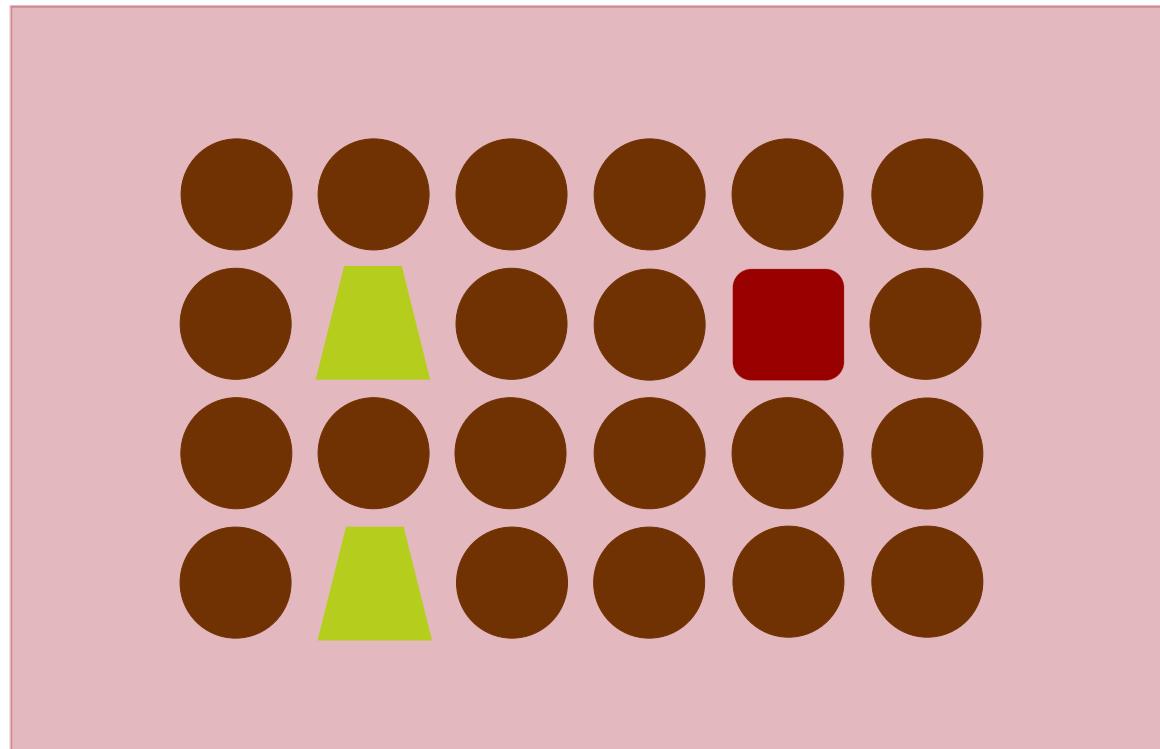
dinâmica ecológica

- exclusão competitiva
- deriva ecológica
- **migração**
- especiação



dinâmica ecológica

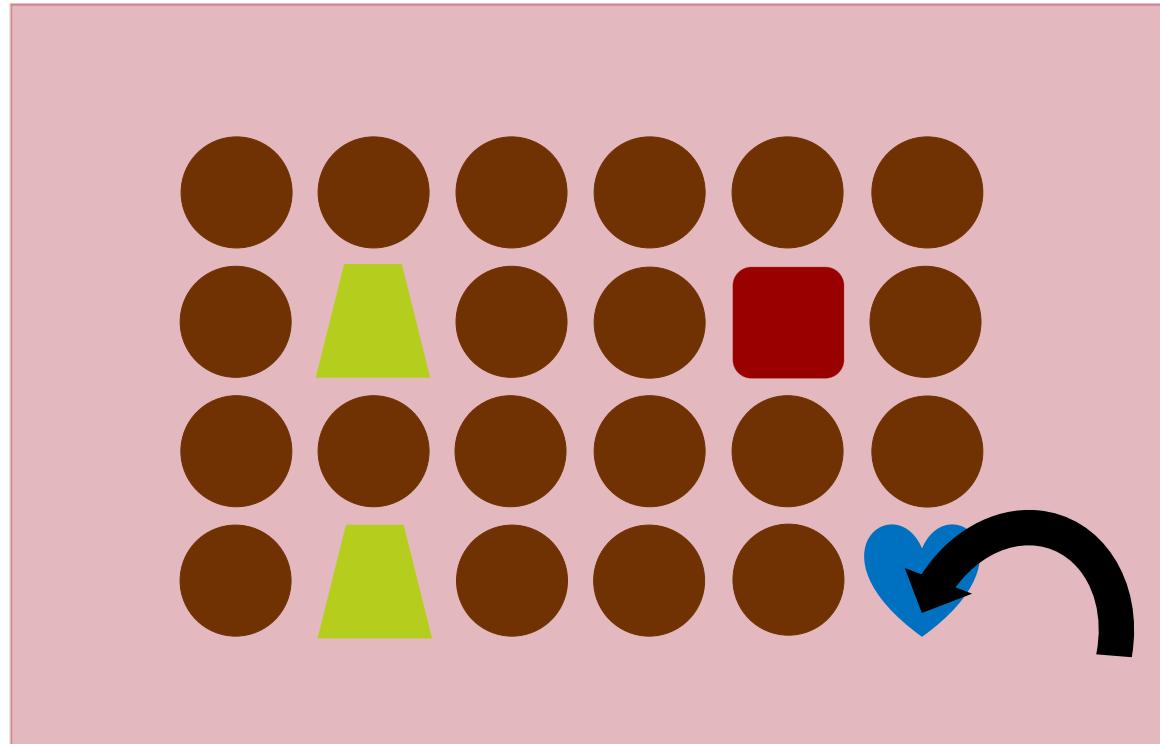
- exclusão competitiva
- deriva ecológica
- **migração**
- especiação



dinâmica ecológica

- exclusão competitiva
- deriva ecológica
- migração
- **especiação**

dinâmica ecológica



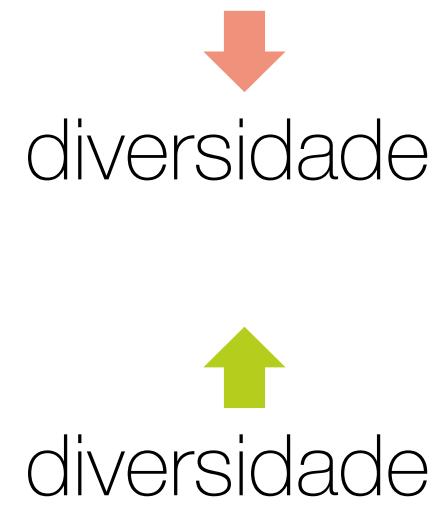
- exclusão competitiva
- deriva ecológica
- migração
- **especiação**

dinâmica ecológica

diversidade



- exclusão competitiva
- deriva ecológica
- migração
- especiação



dinâmica ecológica

- exclusão competitiva
- deriva ecológica
- migração
- especiação

dinâmica evolutiva

- seleção
- deriva genética
- fluxo gênico
- mutação

diversidade
↓
diversidade
↑

dinâmica ecológica

- exclusão competitiva
- deriva ecológica
- migração
- especiação

dinâmica
evolutiva



dinâmica
ecológica

- seleção
- deriva genética
- fluxo gênico
- mutação
- seleção (ex.: exclusão)
- deriva ecológica
- migração
- especiação

dinâmica
evolutiva

dinâmica
eco-evolutiva

dinâmica
ecológica



- seleção
- deriva genética
- fluxo gênico
- mutação
- seleção (ex.: exclusão)
- deriva ecológica
- migração
- especiação



- seleção ←
- deriva genética
- fluxo gênico
- mutação
- seleção (ex.: exclusão)
- deriva ecológica
- migração
- especiação

dinâmica
evolutiva

dinâmica
eco-evolutiva

dinâmica
ecológica



- seleção ← melhores competidores = mais aptos
- deriva genética
- fluxo gênico
- mutação
- seleção (ex.: exclusão)
- deriva ecológica
- migração
- especiação

dinâmica
evolutiva

dinâmica
eco-evolutiva

dinâmica
ecológica



- seleção
- deriva genética
- fluxo gênico
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- especiação

dinâmica
evolutiva

dinâmica
eco-evolutiva

dinâmica
ecológica



mudança nos atributos =
mudança nas interações

- seleção
 - deriva genética
 - fluxo gênico
 - mutação
-
- seleção (ex.: exclusão)
 - deriva ecológica
 - migração
 - especiação



- seleção ← → • seleção (ex.: exclusão)
- deriva genética
- deriva ecológica
- fluxo gênico
- migração
- mutação
- especiação

dinâmica
evolutiva

dinâmica
eco-evolutiva

dinâmica
ecológica



- seleção
 - deriva genética
 - fluxo gênico
 - mutação
 - seleção (ex.: exclusão)
 - deriva ecológica
 - migração
 - especiação
-
- ```
graph TD; A[seleção] --> B[seleção]; A --> C[deriva ecológica]; B --> C; D[deriva genética] --> C; E[fluxo gênico] --> F[migração]; G[mutação] --> H[especiação];
```



- seleção ← →
- deriva genética ↘
- fluxo gênico ↘
- mutação →
- seleção (ex.: exclusão)
- deriva ecológica
- migração
- especiação



- seleção ←→
- deriva genética ↘
- fluxo gênico ↘
- mutação →
- seleção (ex.: exclusão)
- deriva ecológica
- migração
- especiação

dinâmica  
evolutiva

dinâmica  
ecológica

## **estratégia de vida**

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



**estratégia de vida**





## estratégia de vida

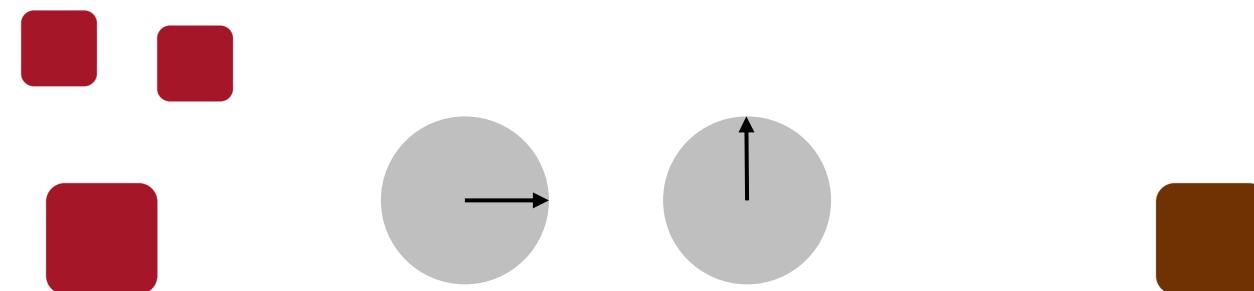
sobrevivência ← → reprodução





## estratégia de vida

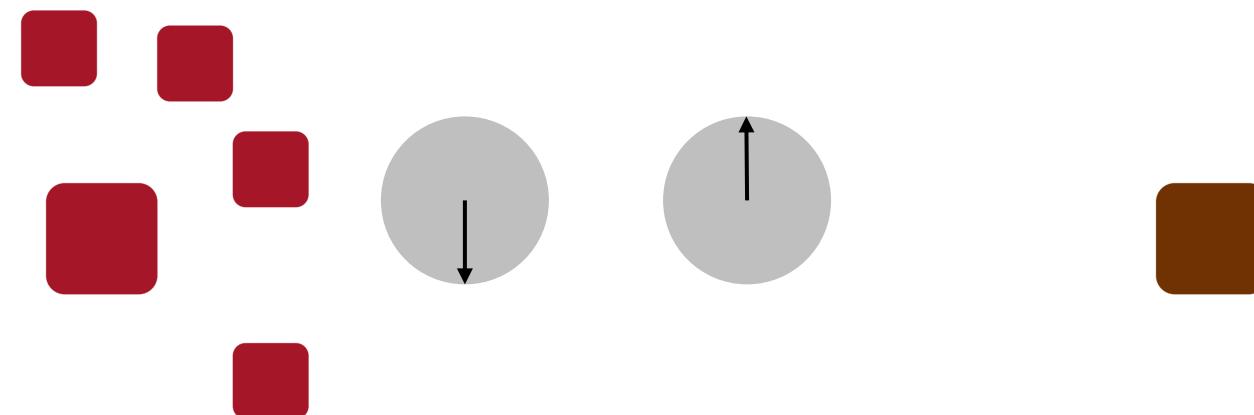
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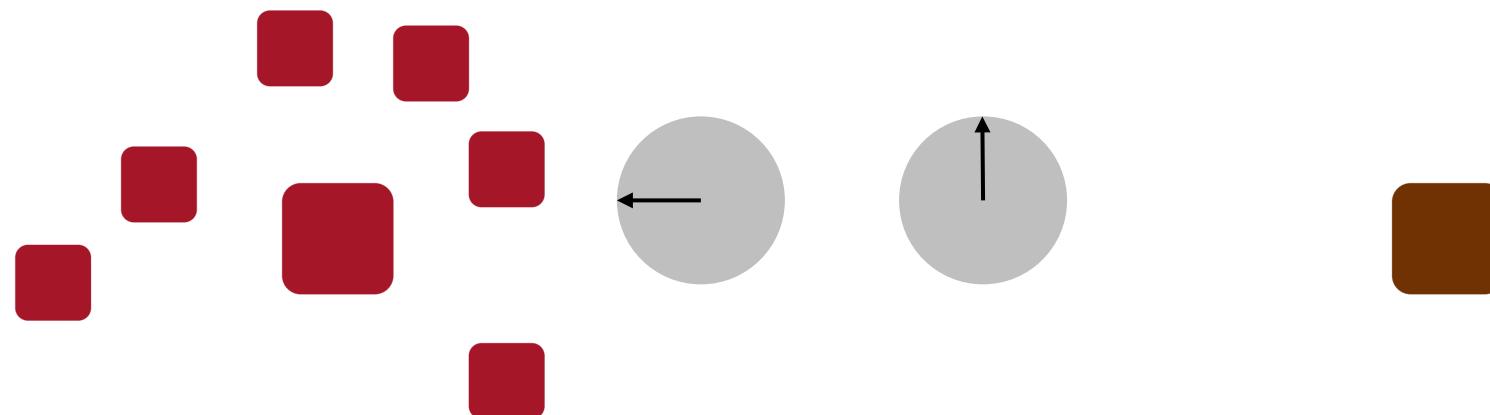




## estratégia de vida

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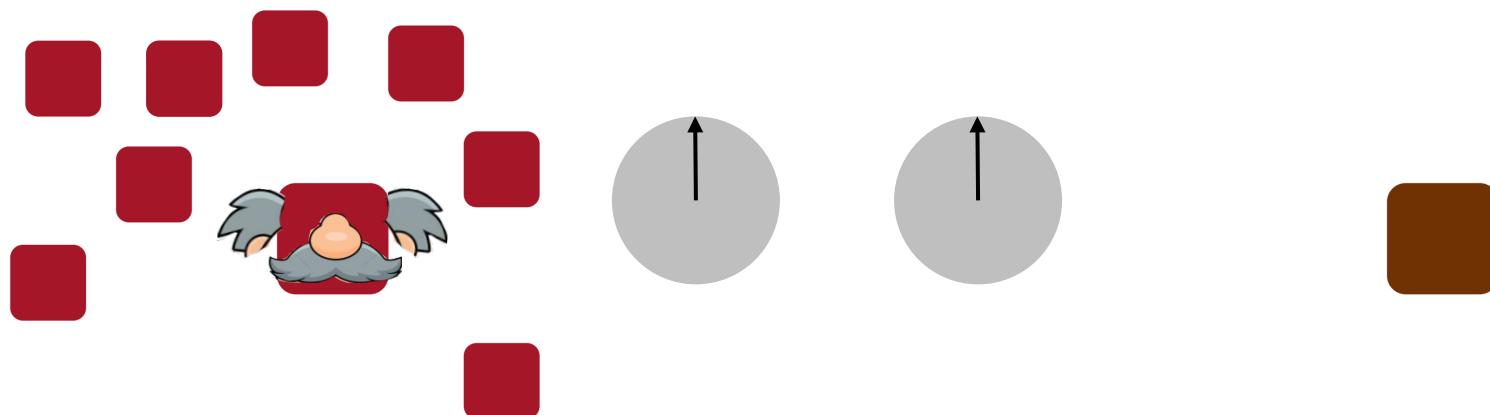






## estratégia de vida

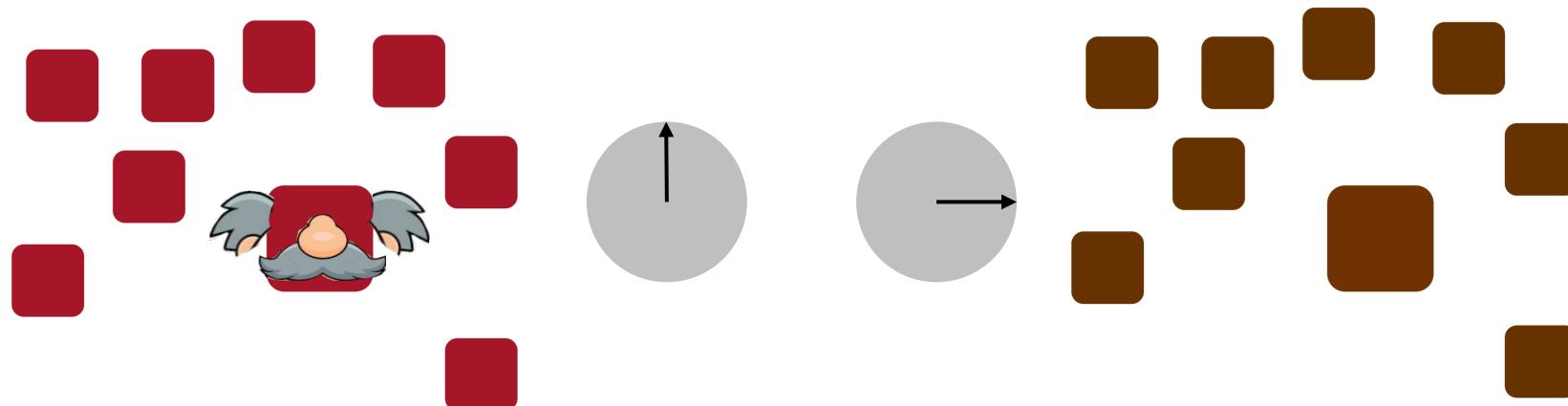
sobrevivência ← → reprodução





## estratégia de vida

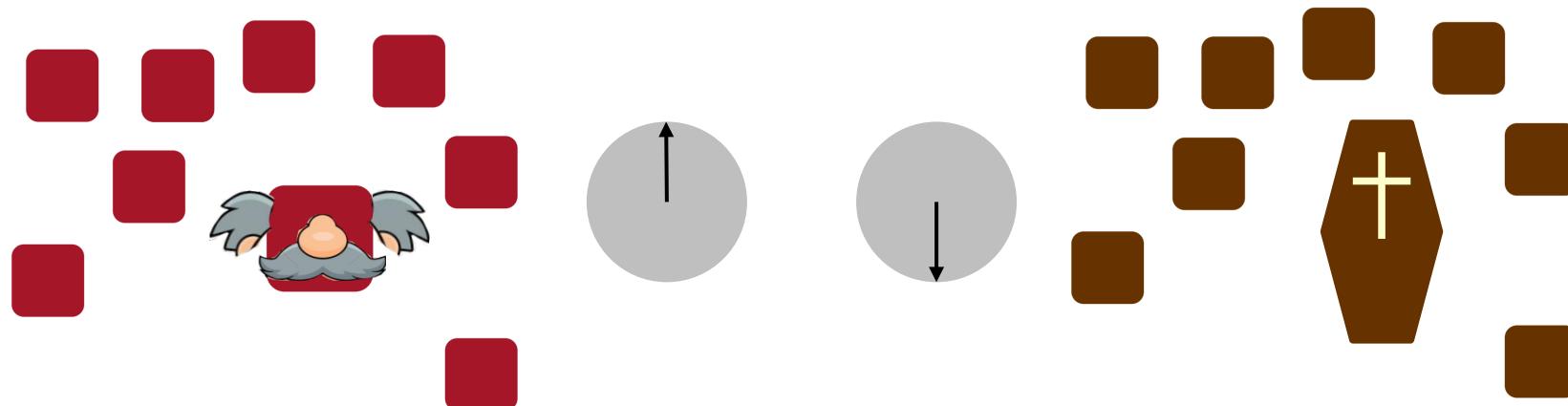
sobrevivência ← → reprodução





## estratégia de vida

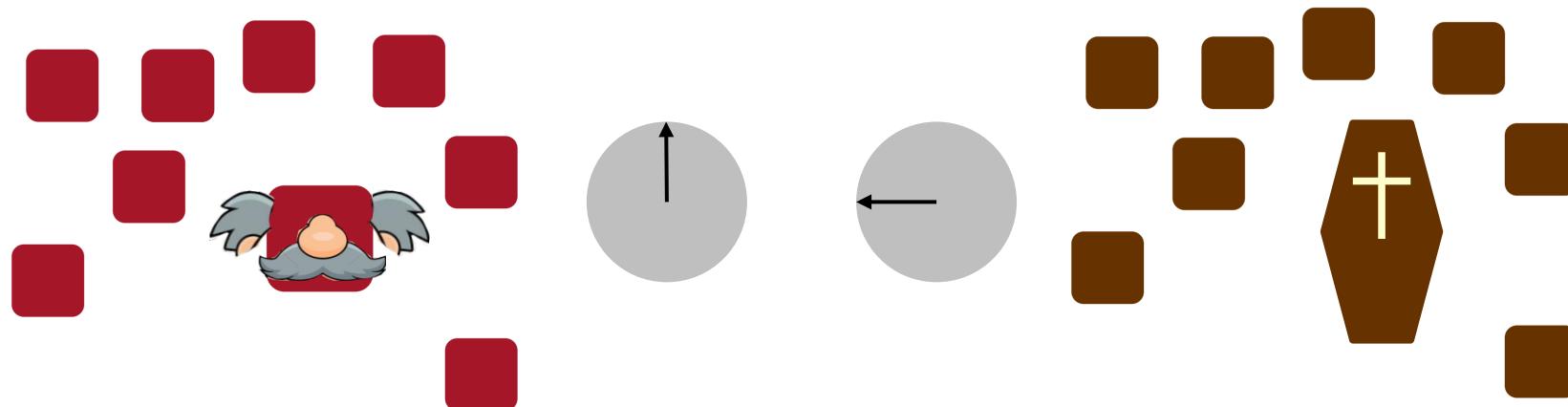
sobrevivência ← → reprodução





## estratégia de vida

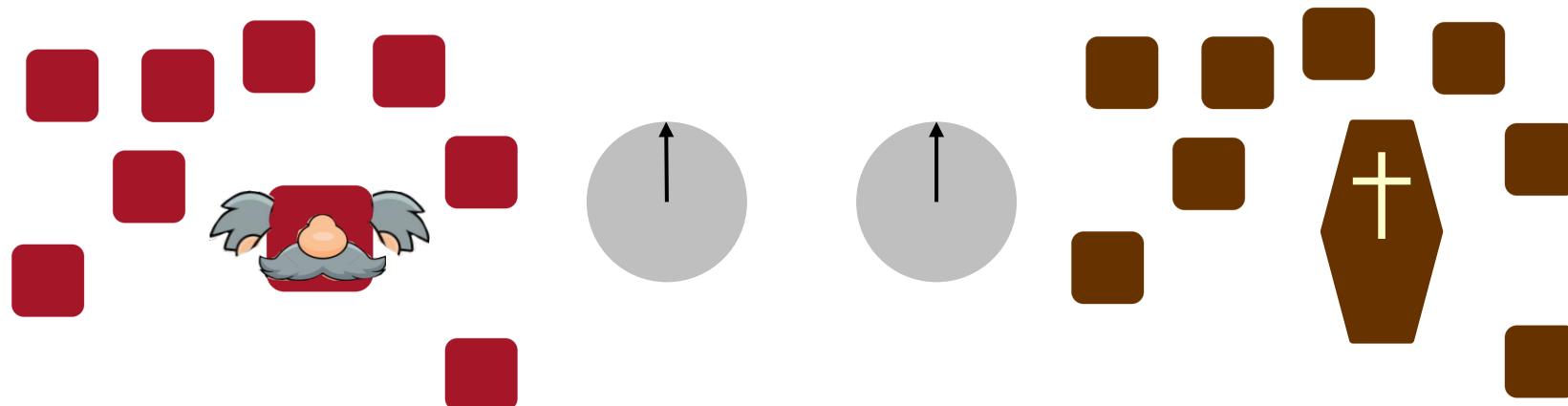
sobrevivência ← → reprodução





## estratégia de vida

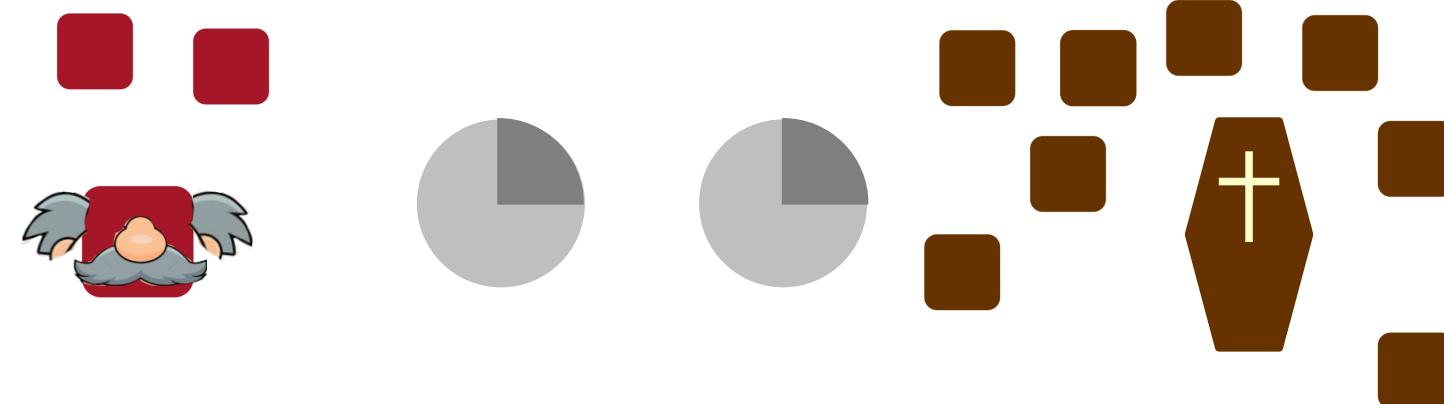
sobrevivência ← → reprodução





## estratégia de vida

sobrevivência ← → reprodução



dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica

**estratégia de vida**

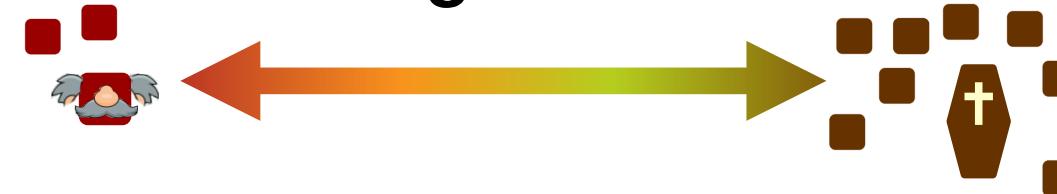


dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica

## estratégia de vida



maior número de  
descendentes

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica

**estratégia de vida**



aptidão

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica

## estratégia de vida



aptidão

habilidade  
competitiva

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica

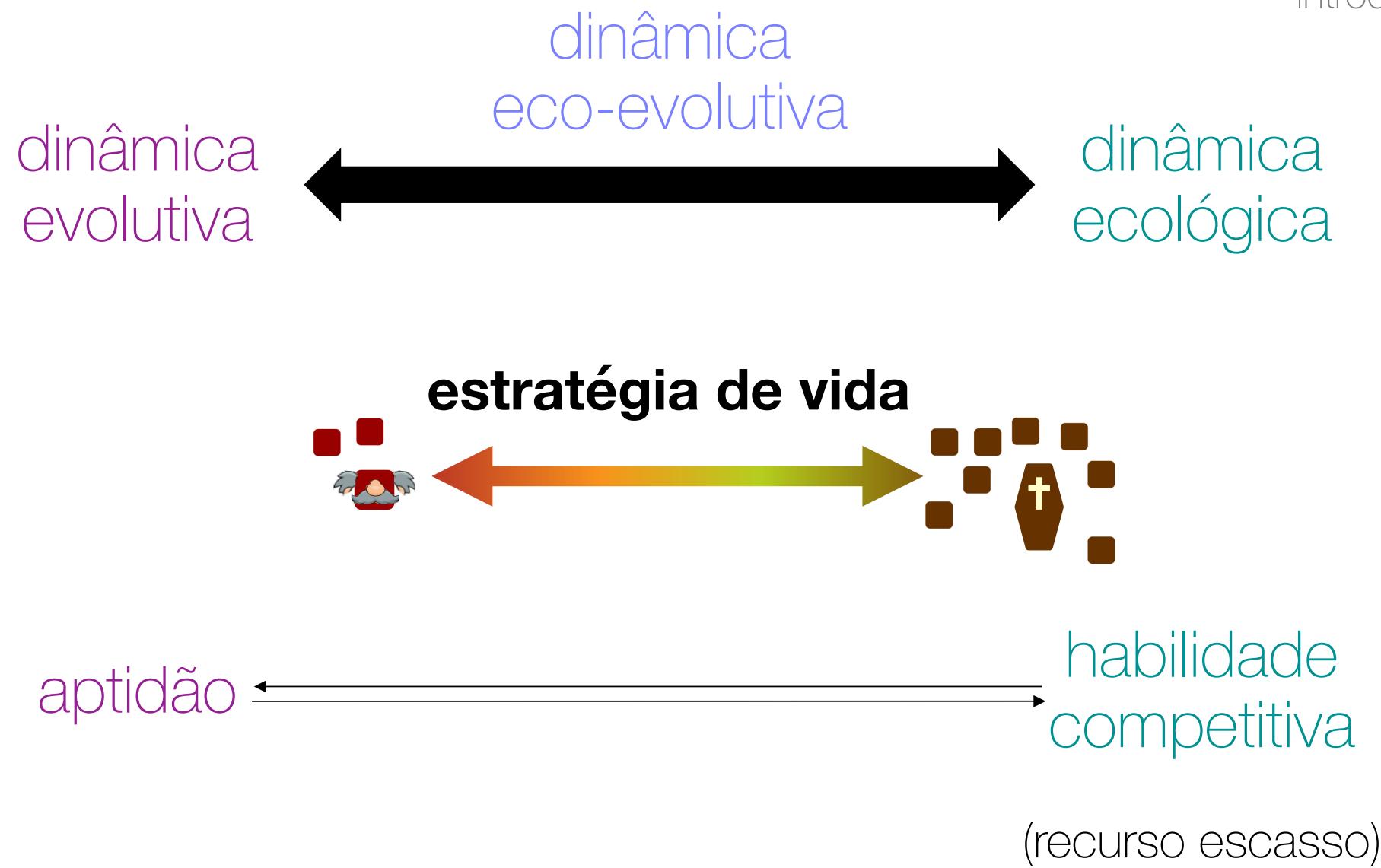
## estratégia de vida



aptidão

habilidade  
competitiva

(recurso escasso)





## estratégia de vida



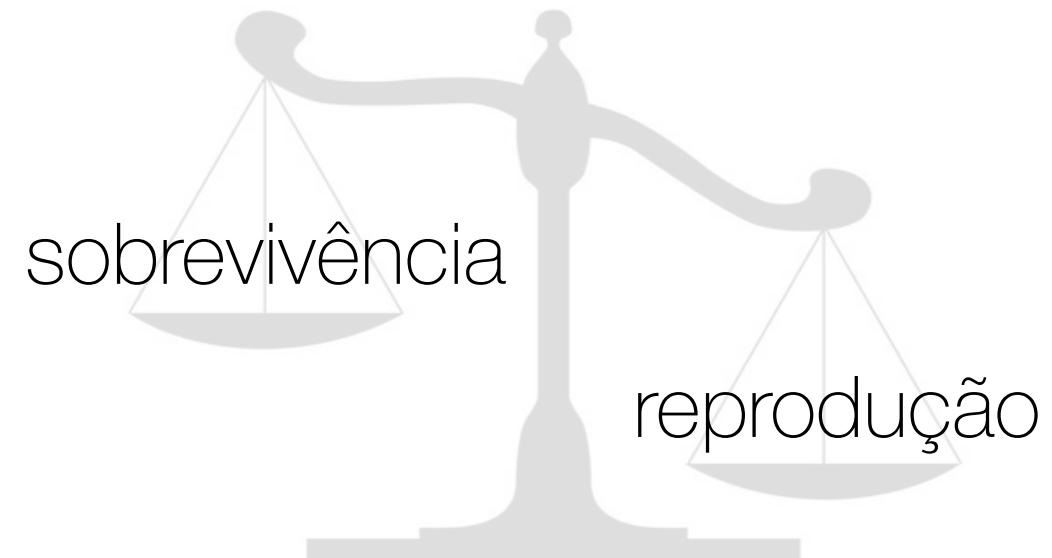
aptidão

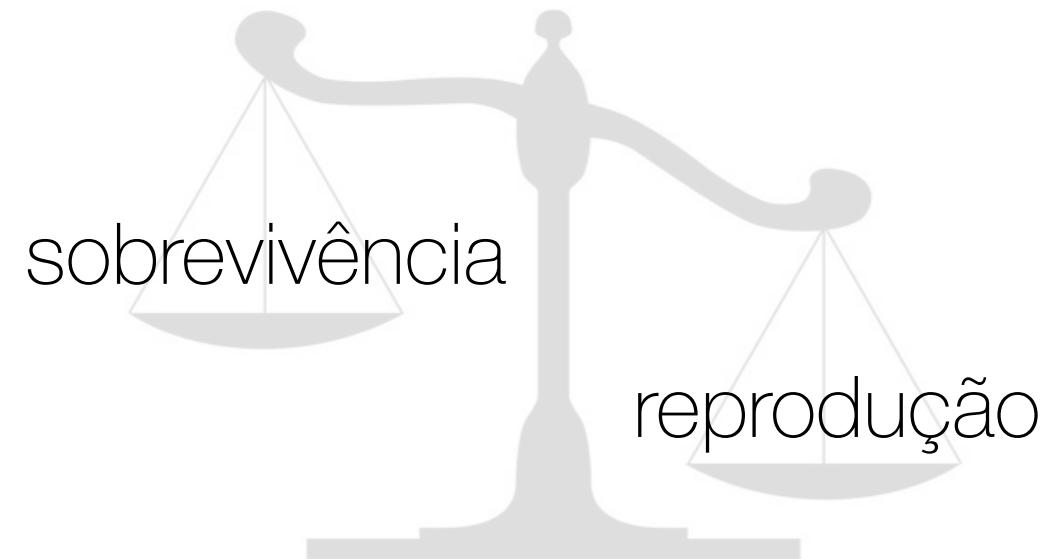
- indivíduos do mesmo nível trófico
- comunidades estruturadas por competição

habilidade  
competitiva

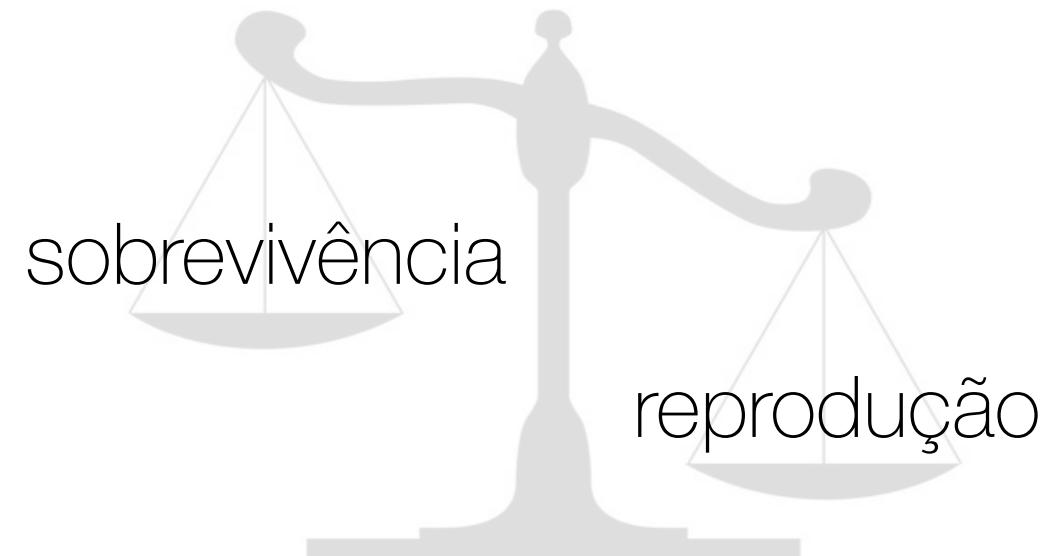
(recurso escasso)

# estratégia de vida





## fatores ambientais



↓ recurso



reprodução

**sobrevivência**

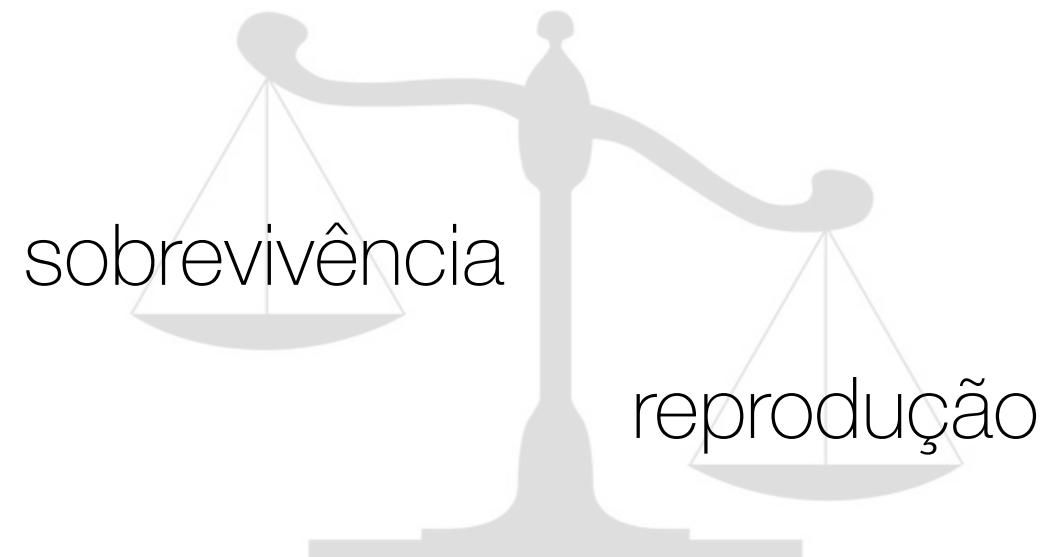
↑ recurso



# distúrbio



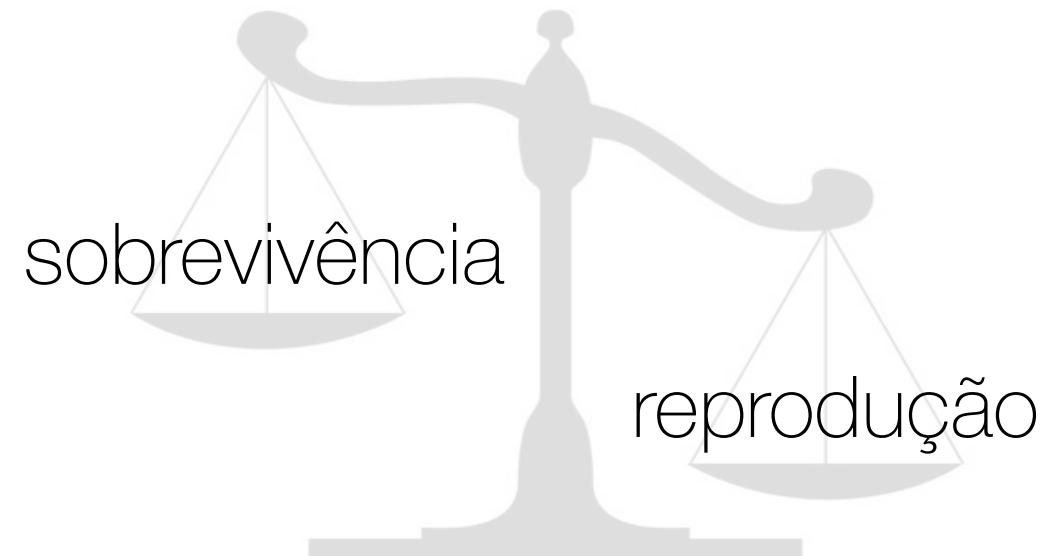
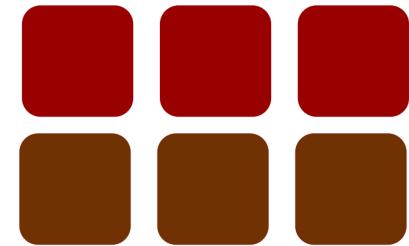
recurso



# distúrbio



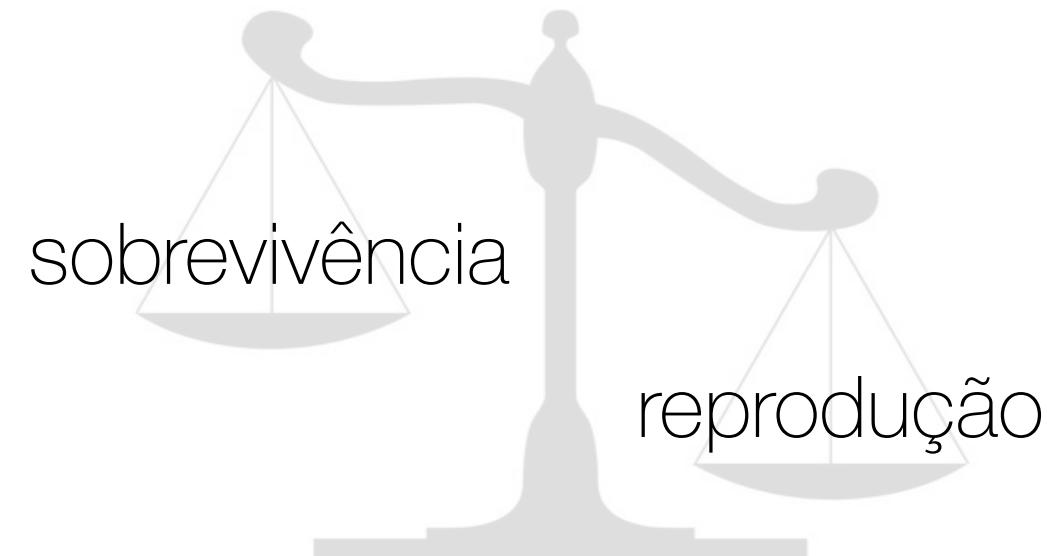
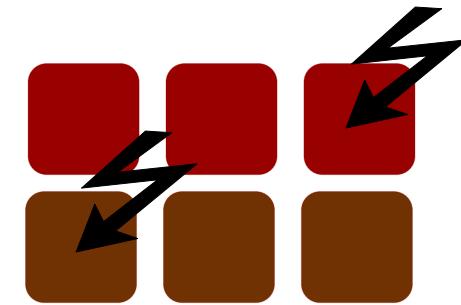
recurso



# distúrbio



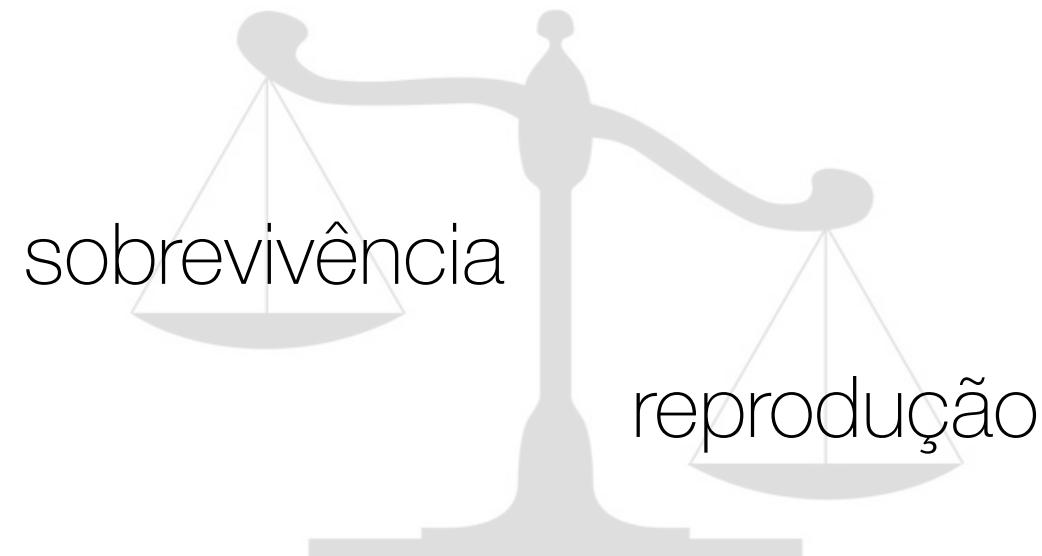
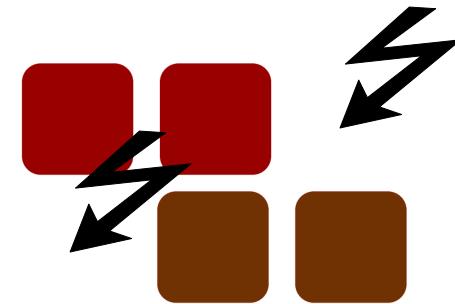
recurso



# distúrbio



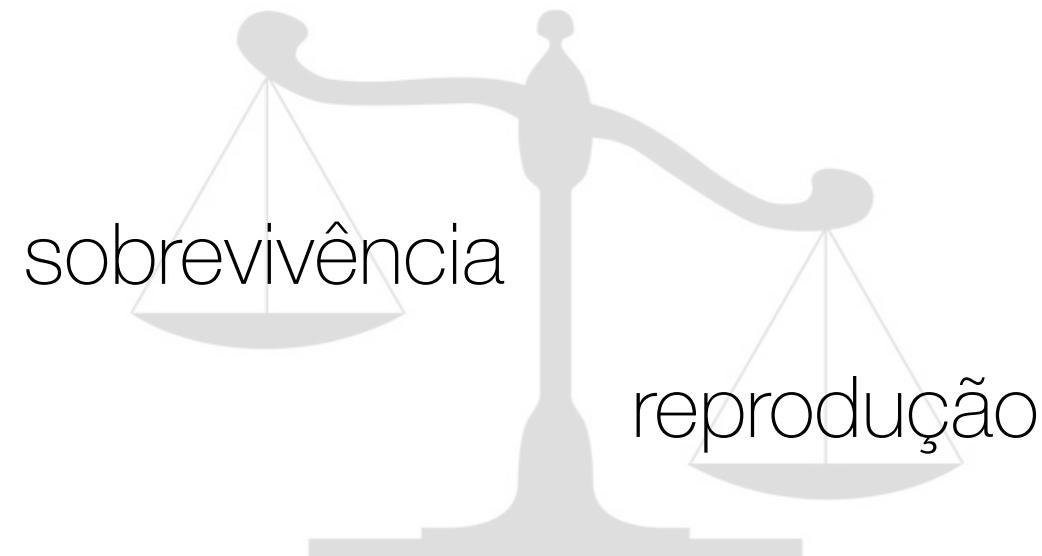
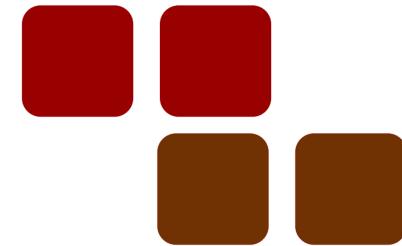
recurso



# distúrbio



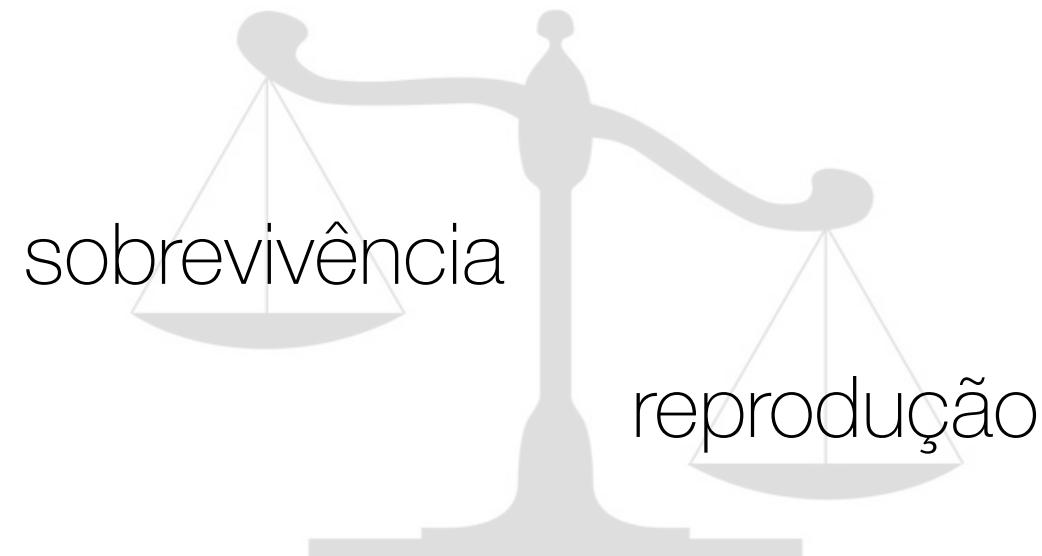
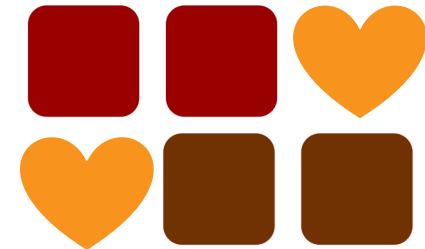
recurso



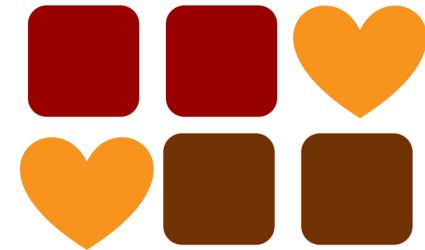
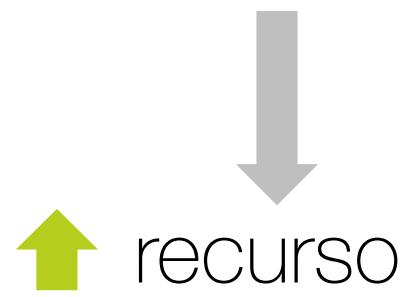
# distúrbio



recurso



# distúrbio



# distúrbio

dinâmica  
evolutiva

dinâmica  
ecológica

# distúrbio

dinâmica  
evolutiva

dinâmica  
ecológica

- consistência da ocorrência
- intensidade das respostas evolutivas

# distúrbio

dinâmica  
evolutiva

- consistência da ocorrência
- intensidade das respostas evolutivas

dinâmica  
ecológica

- taxas de crescimento populacionais
- intensidade das interações ecológicas

# 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

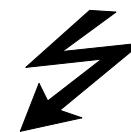
logo...

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



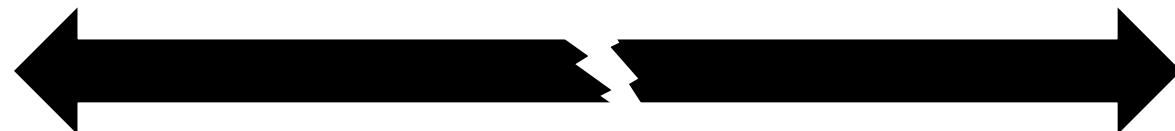
 **distúrbio**

logo...

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



 **distúrbio**

predições  
distintas e imprecisas

logo...

dinâmica  
evolutiva

dinâmica  
eco-evolutiva

dinâmica  
ecológica



predições  
distintas e imprecisas

# Como o **distúrbio** determina

Como o **distúrbio**  determina  
as **estratégias de vida** presentes



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

***parâmetros***

# modelo baseado em indivíduo



***parâmetros***

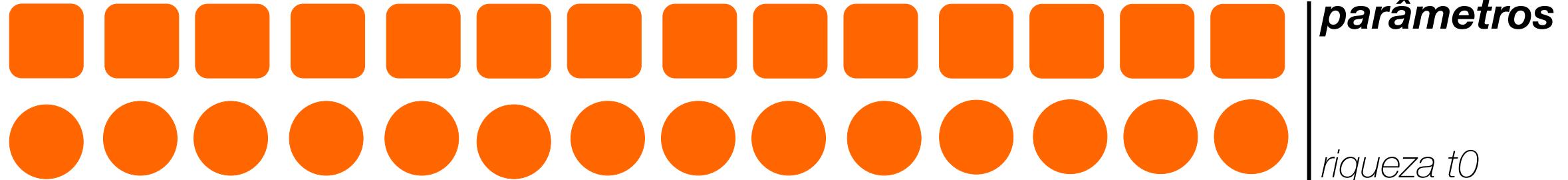
# modelo baseado em indivíduo



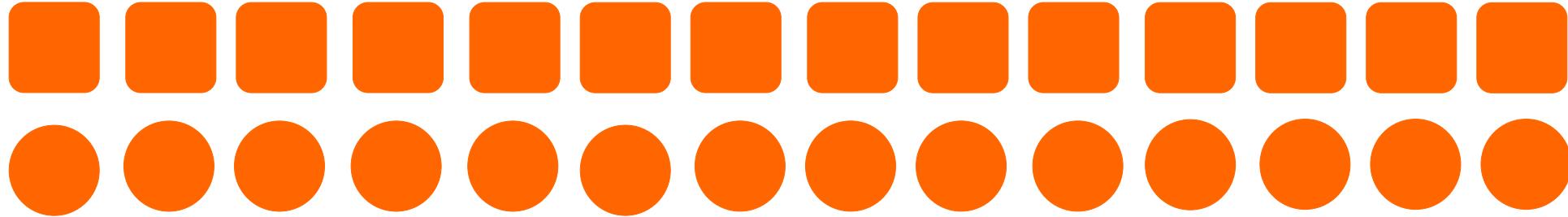
**parâmetros**

*riqueza  $t_0$*

# modelo baseado em indivíduo



# modelo baseado em indivíduo

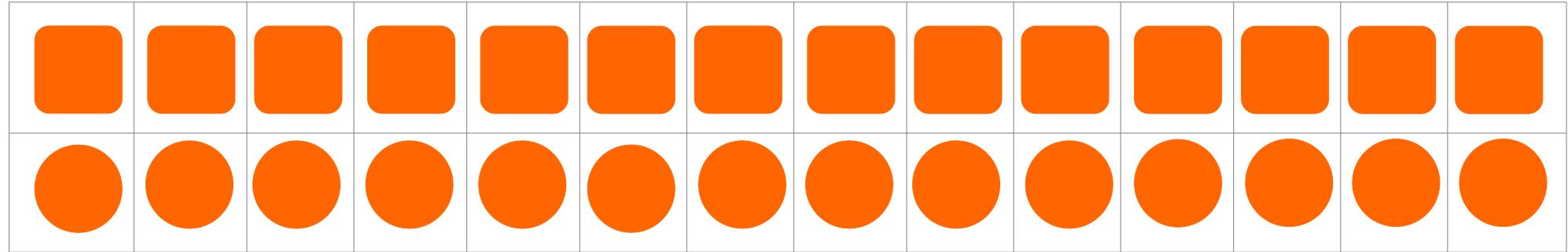


**parâmetros**

riqueza  $t_0$

abundância  $t_0$

# modelo baseado em indivíduo

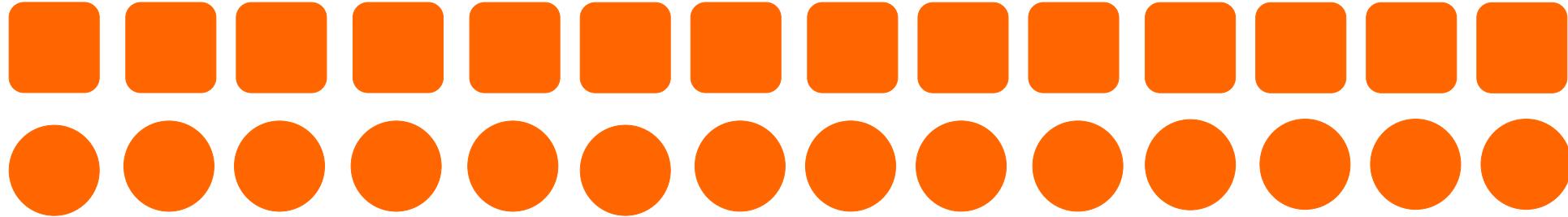


**parâmetros**

riqueza  $t_0$

abundância  $t_0$

# modelo baseado em indivíduo

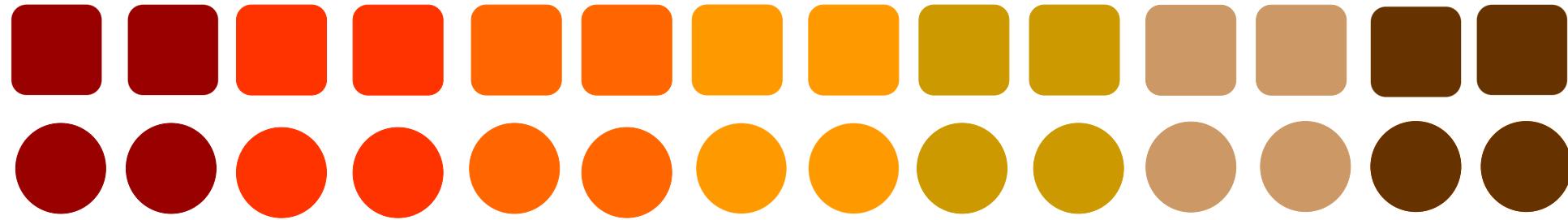


**parâmetros**

riqueza  $t_0$

abundância  $t_0$

# modelo baseado em indivíduo

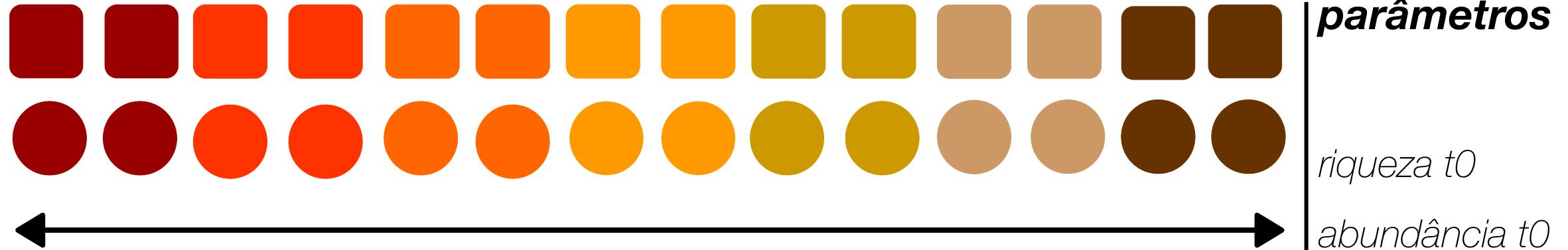


**parâmetros**

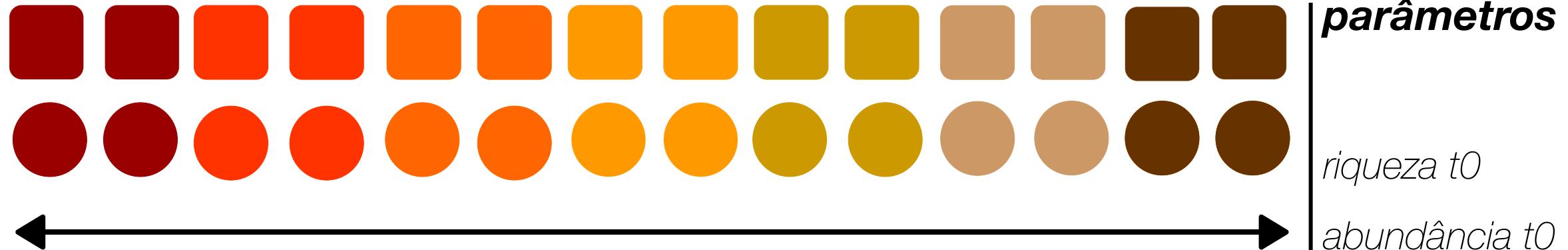
riqueza  $t_0$

abundância  $t_0$

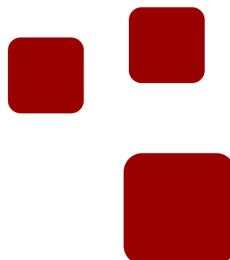
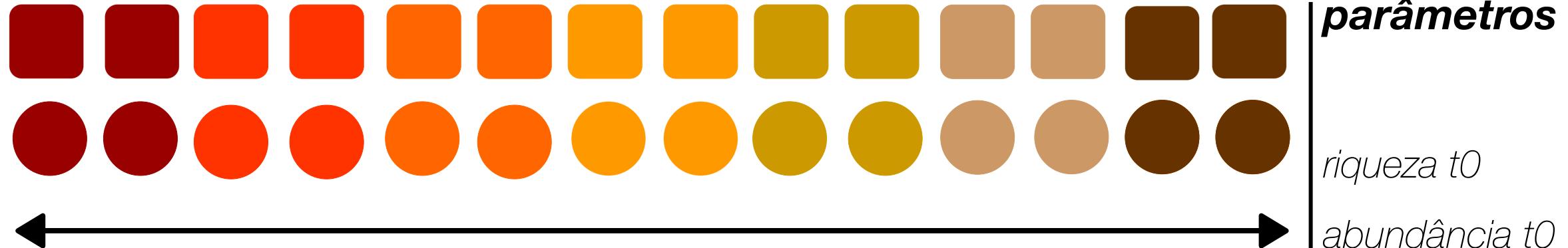
# modelo baseado em indivíduo



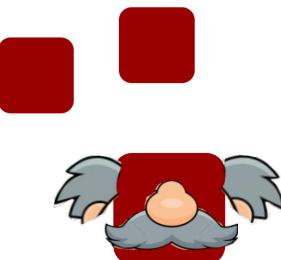
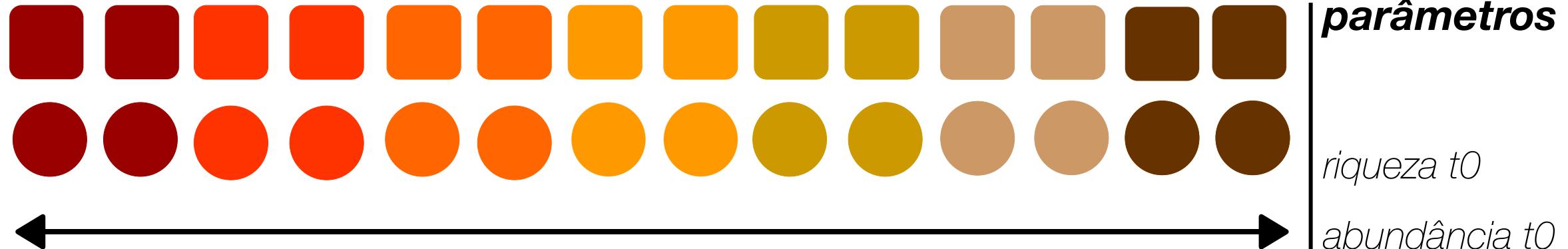
# modelo baseado em indivíduo



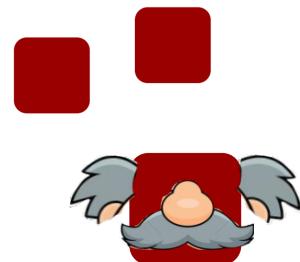
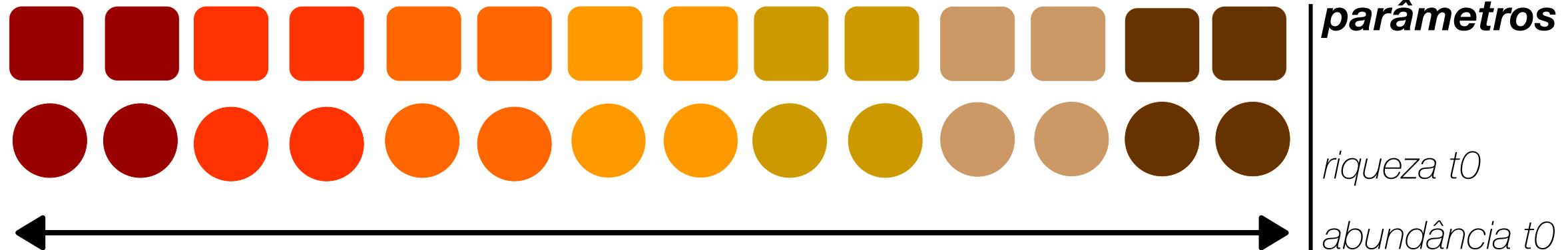
# modelo baseado em indivíduo



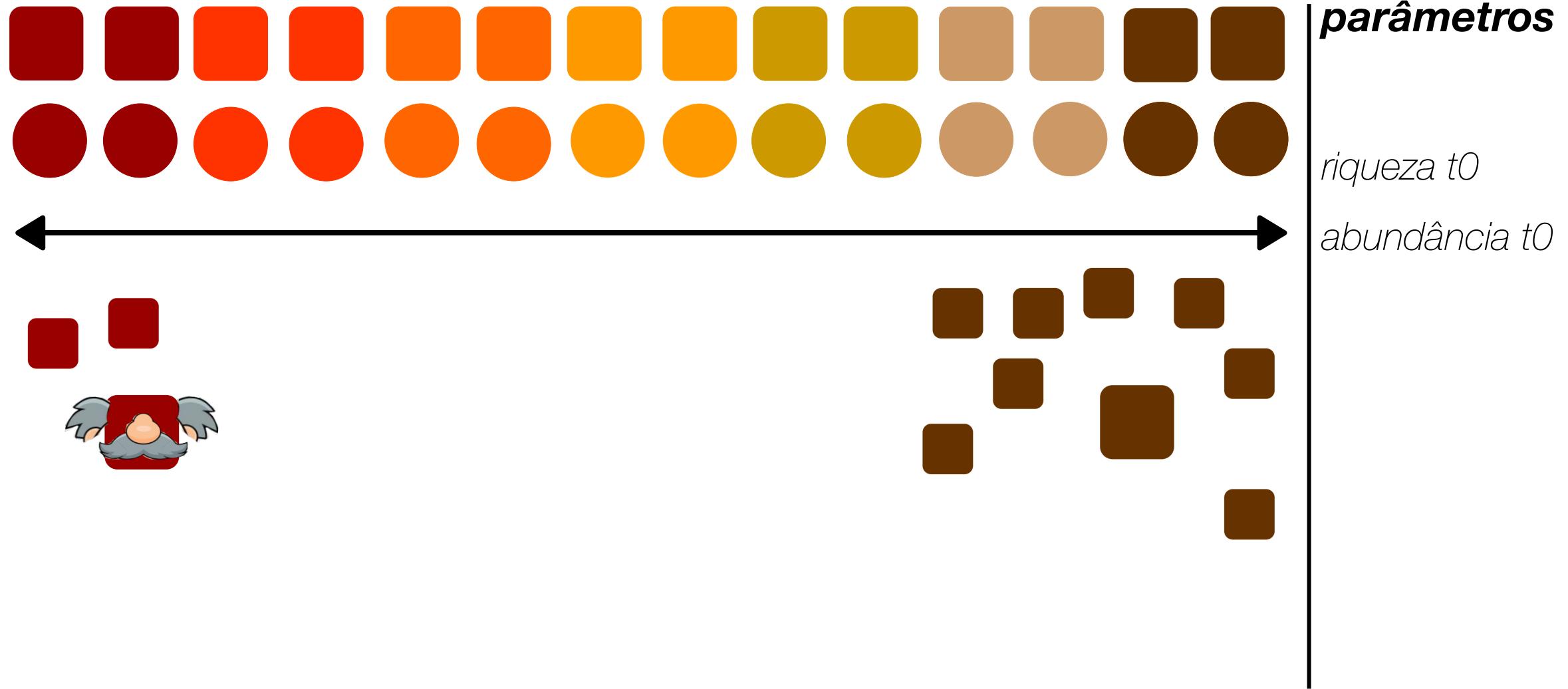
# modelo baseado em indivíduo



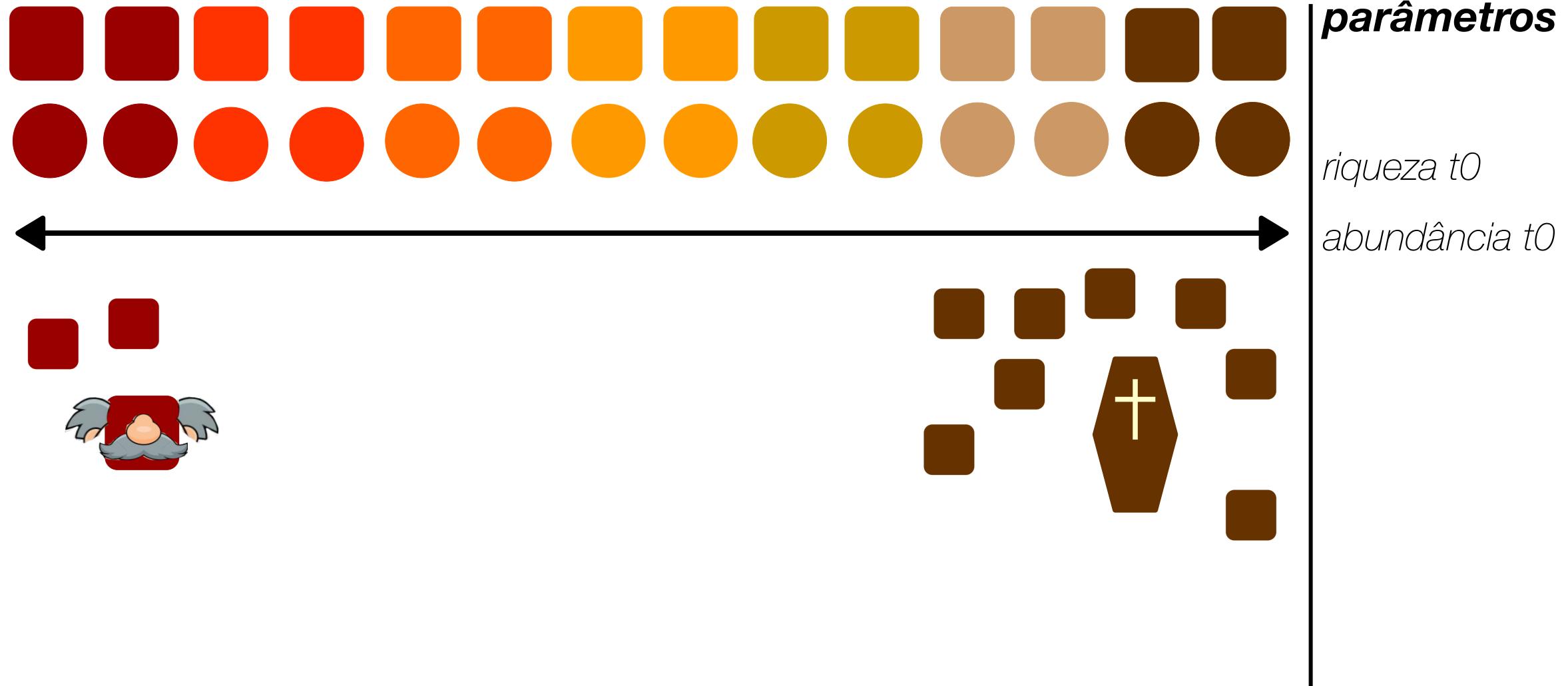
# modelo baseado em indivíduo



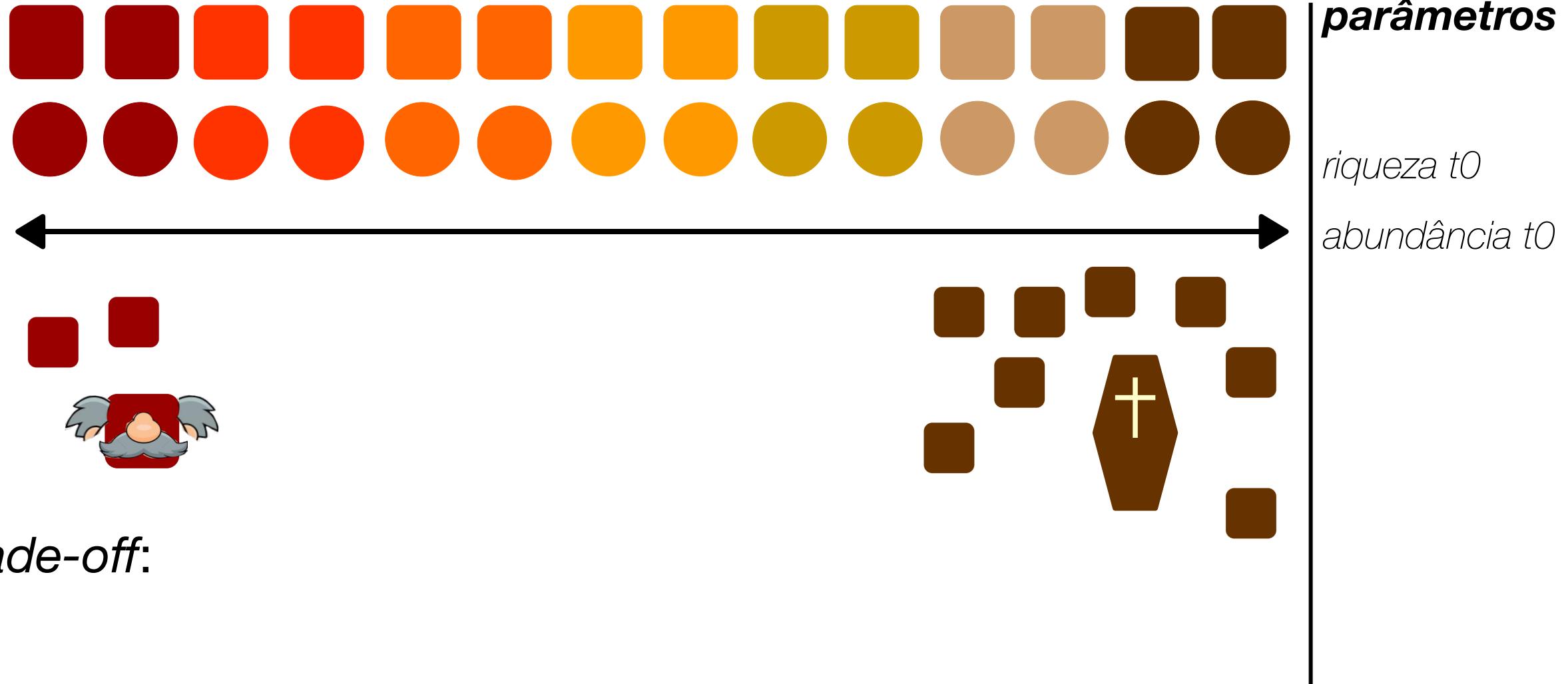
# modelo baseado em indivíduo



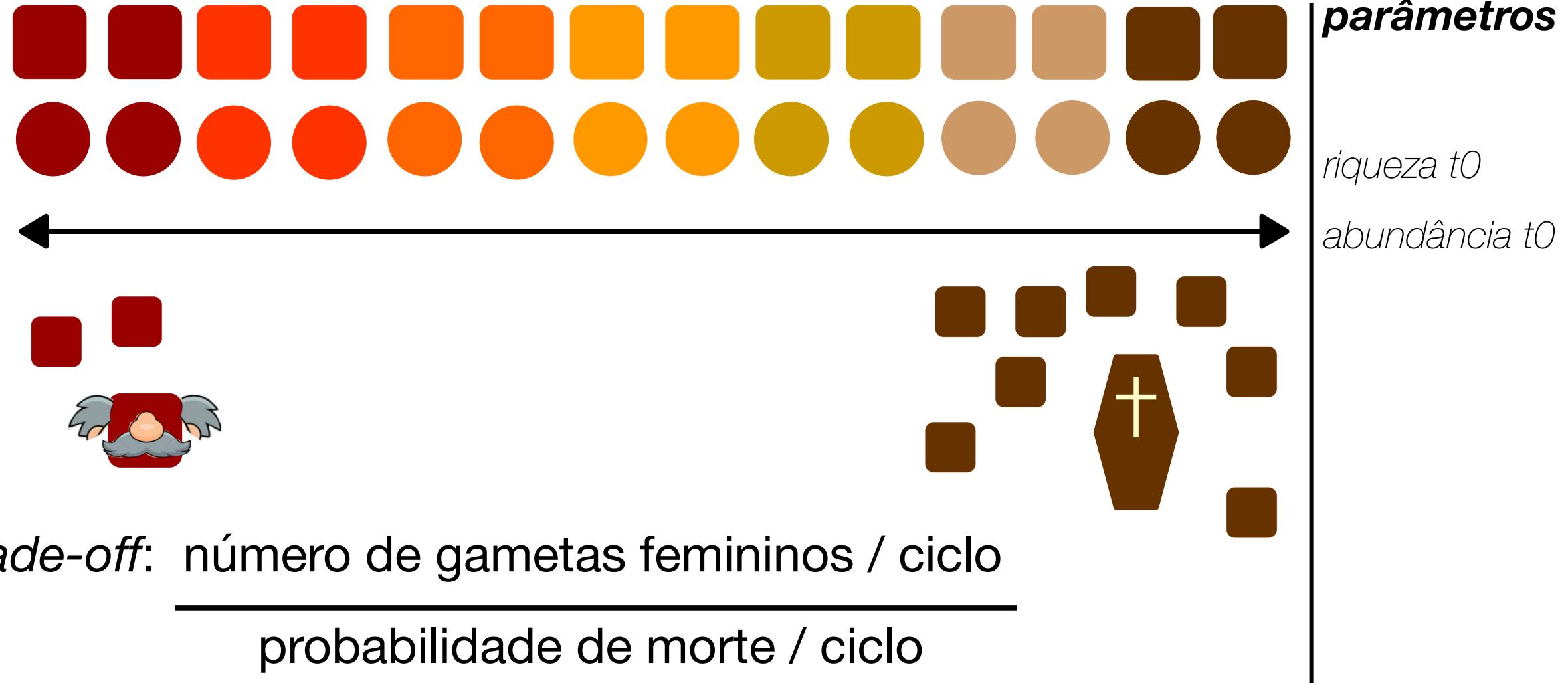
# modelo baseado em indivíduo



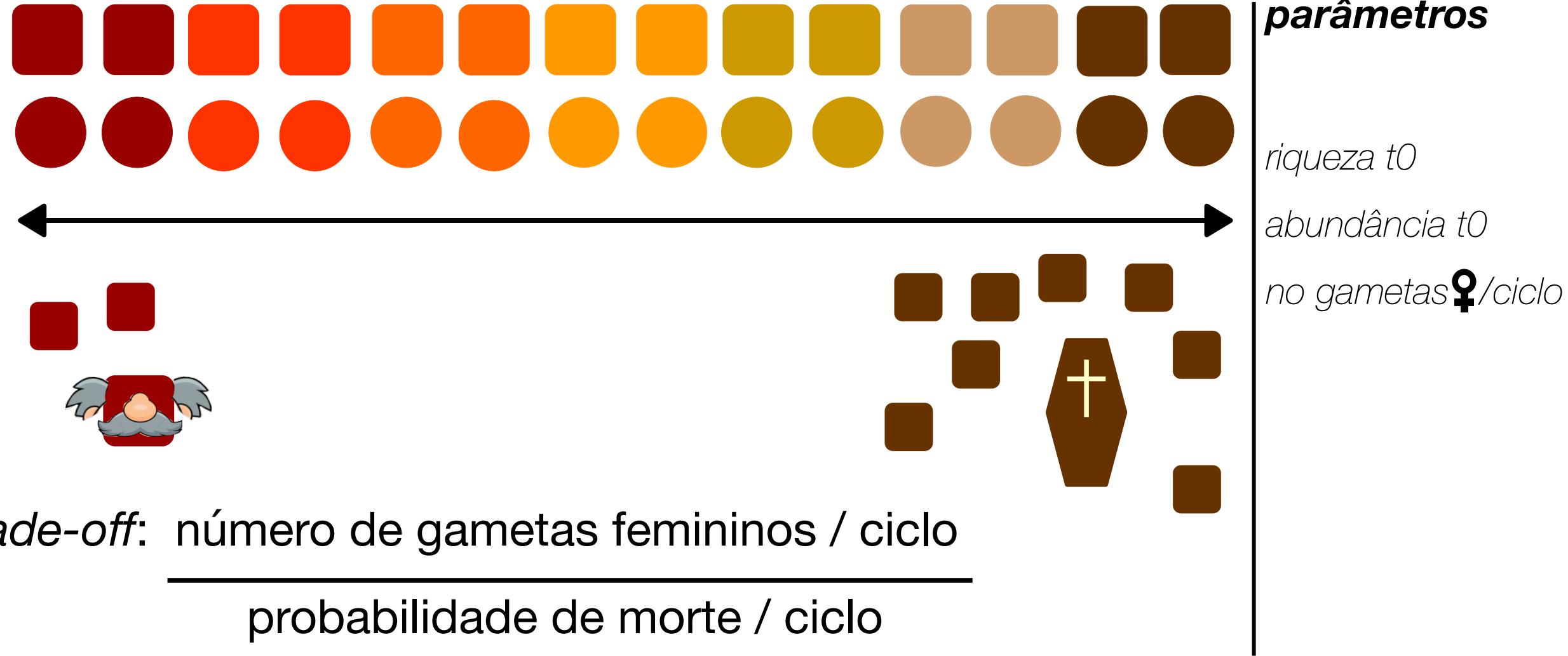
# modelo baseado em indivíduo



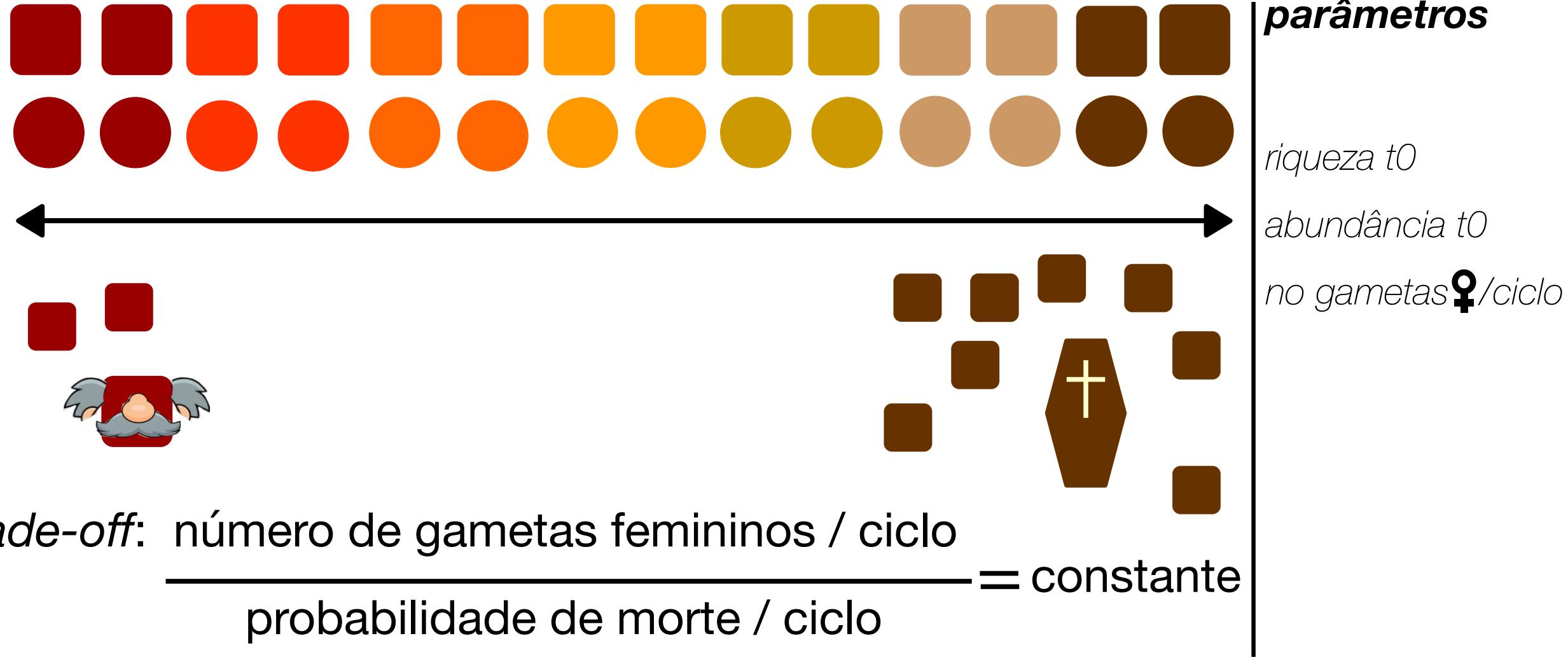
# modelo baseado em indivíduo



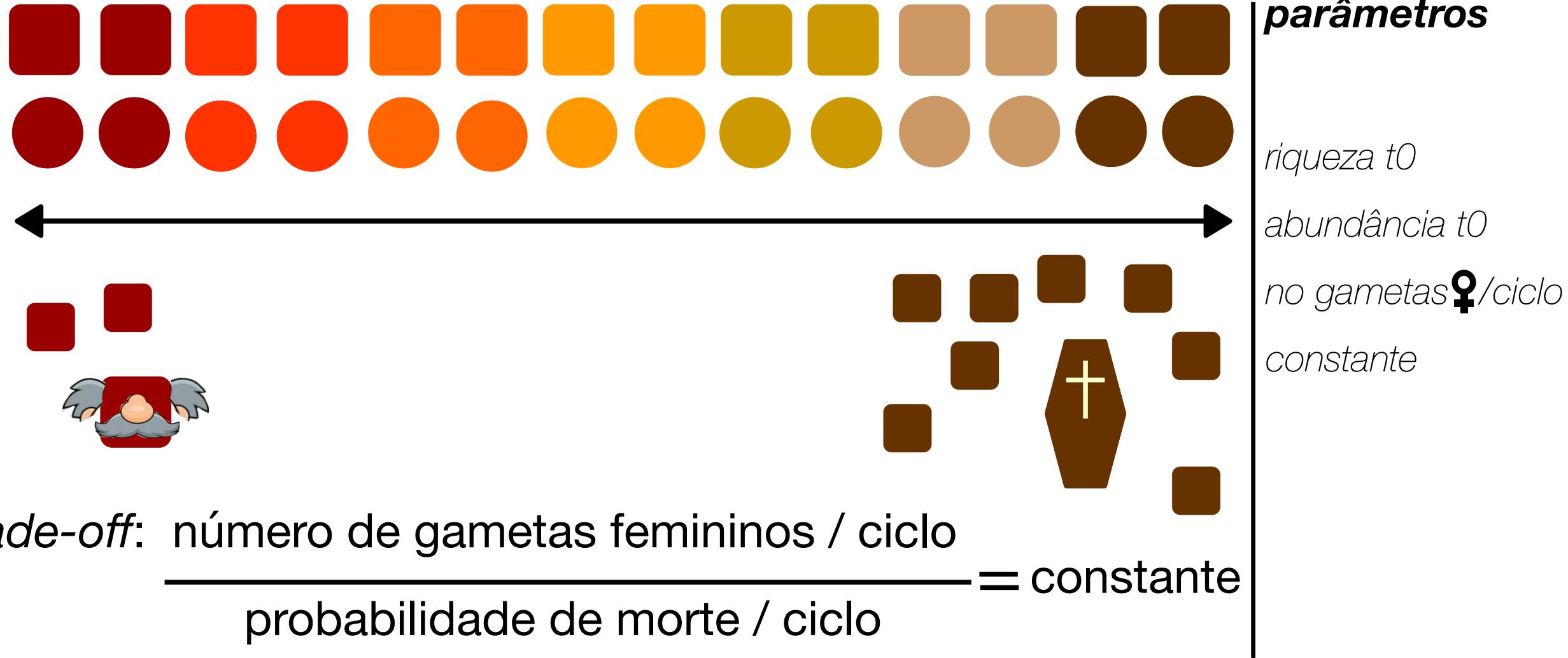
# modelo baseado em indivíduo



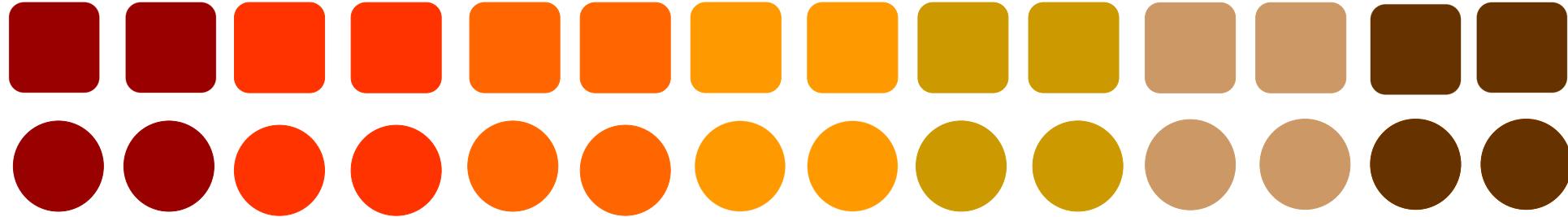
# modelo baseado em indivíduo



# modelo baseado em indivíduo



# modelo baseado em indivíduo



## **parâmetros**

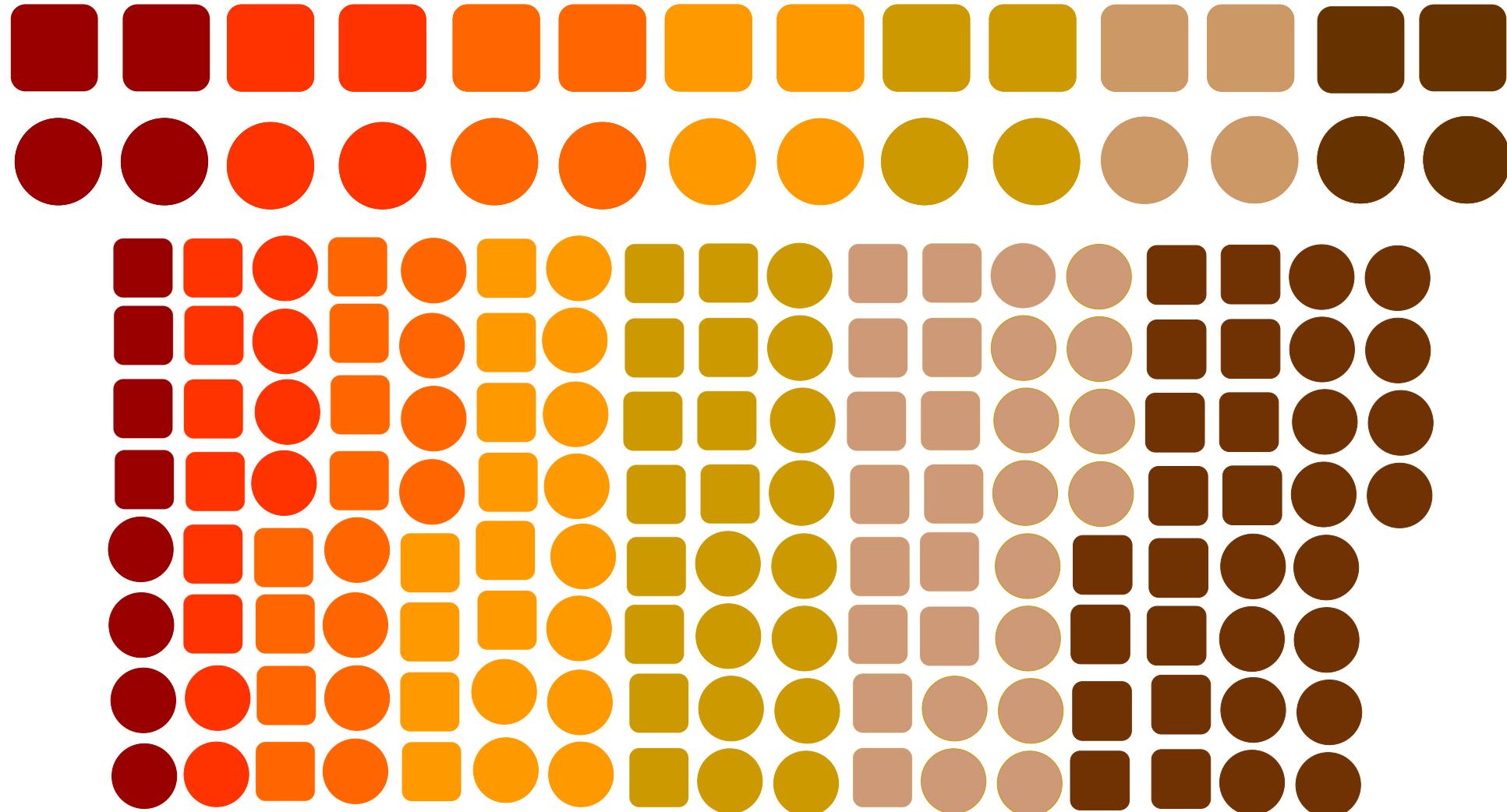
*riqueza  $t_0$*

*abundância  $t_0$*

*no gametas ♀/ciclo*

*constante*

# modelo baseado em indivíduo



**parâmetros**

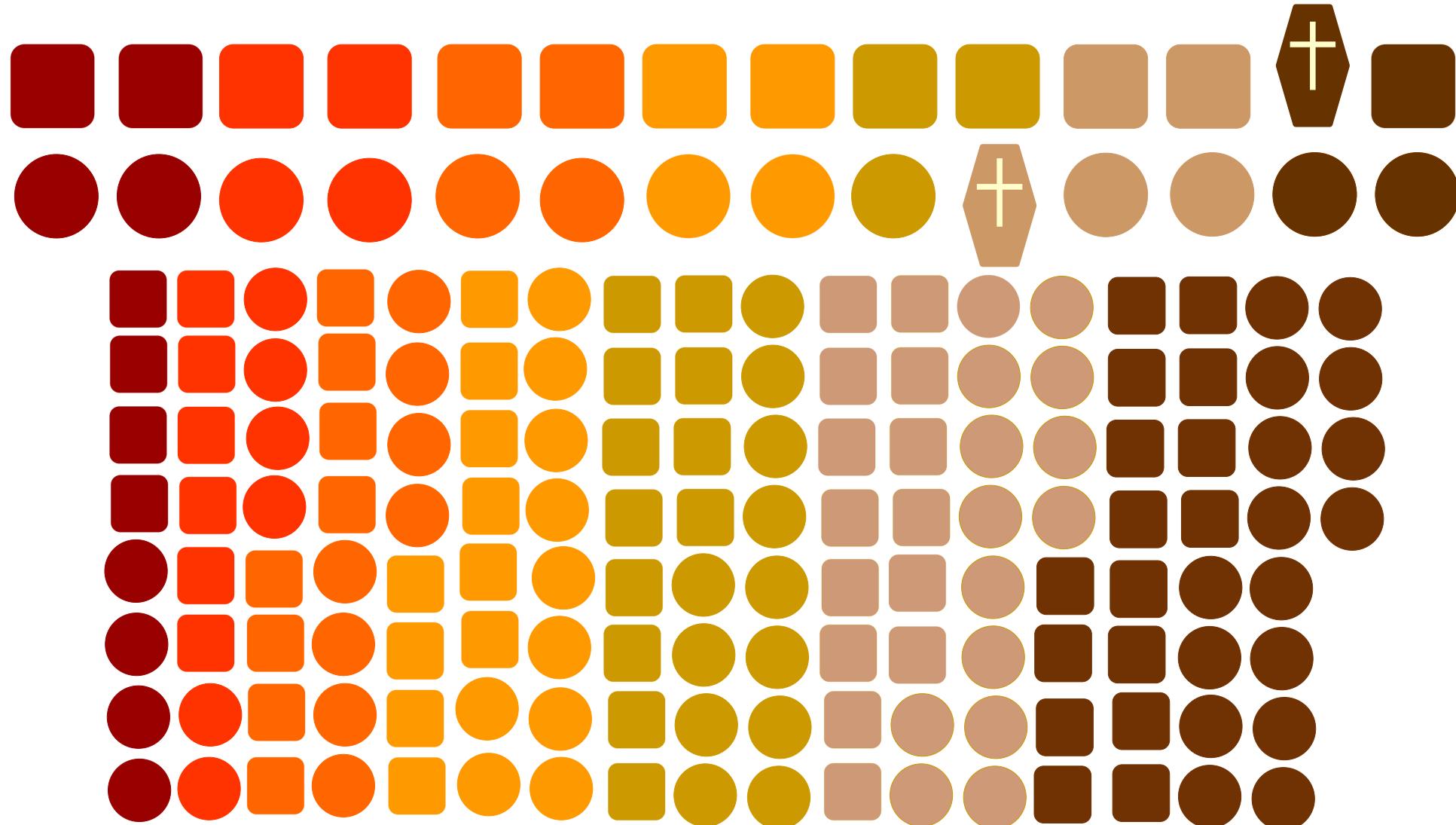
riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

constante

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

constante

# modelo baseado em indivíduo



## **parâmetros**

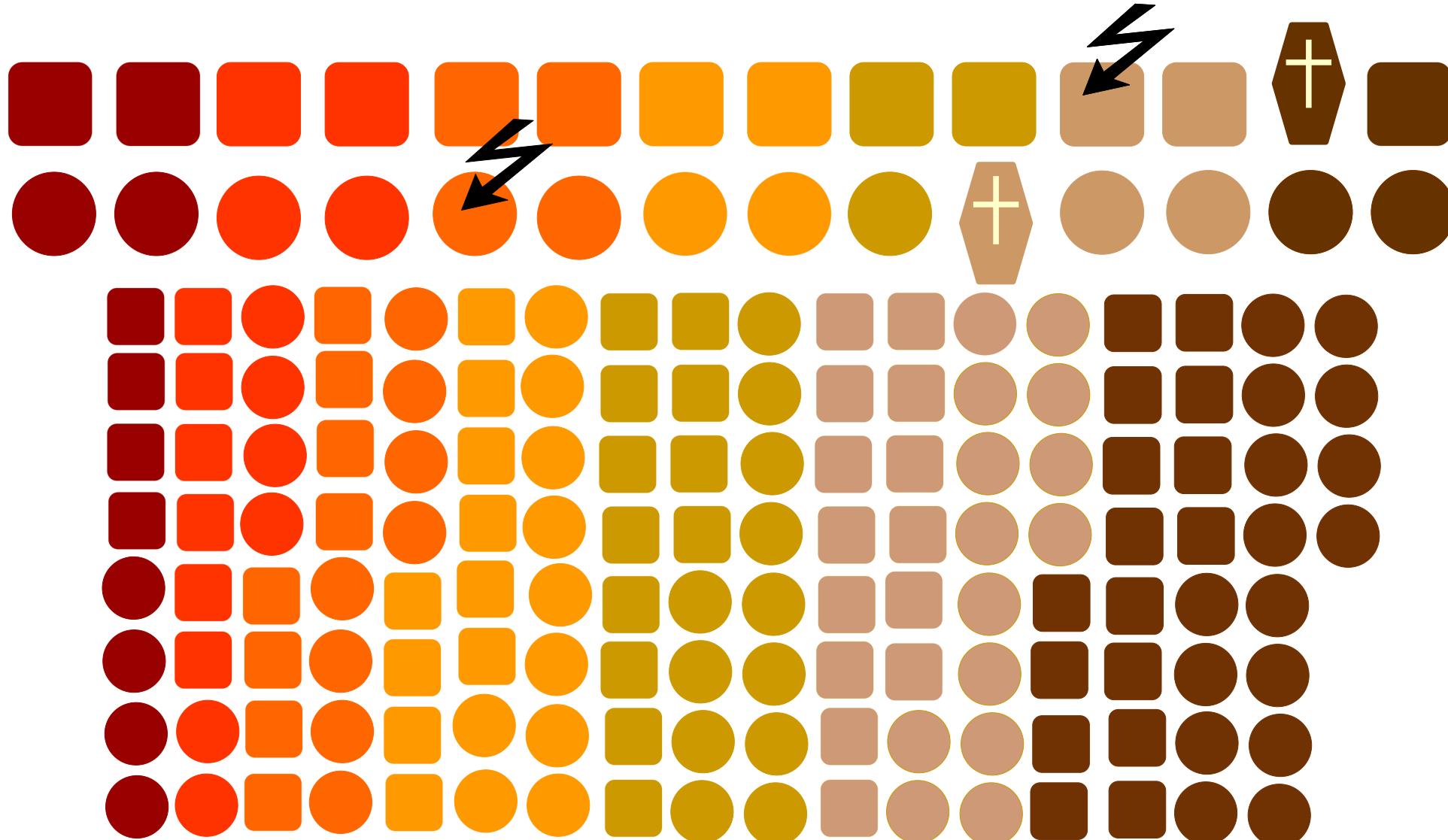
riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

constante

# modelo baseado em indivíduo



## parâmetros

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

constante

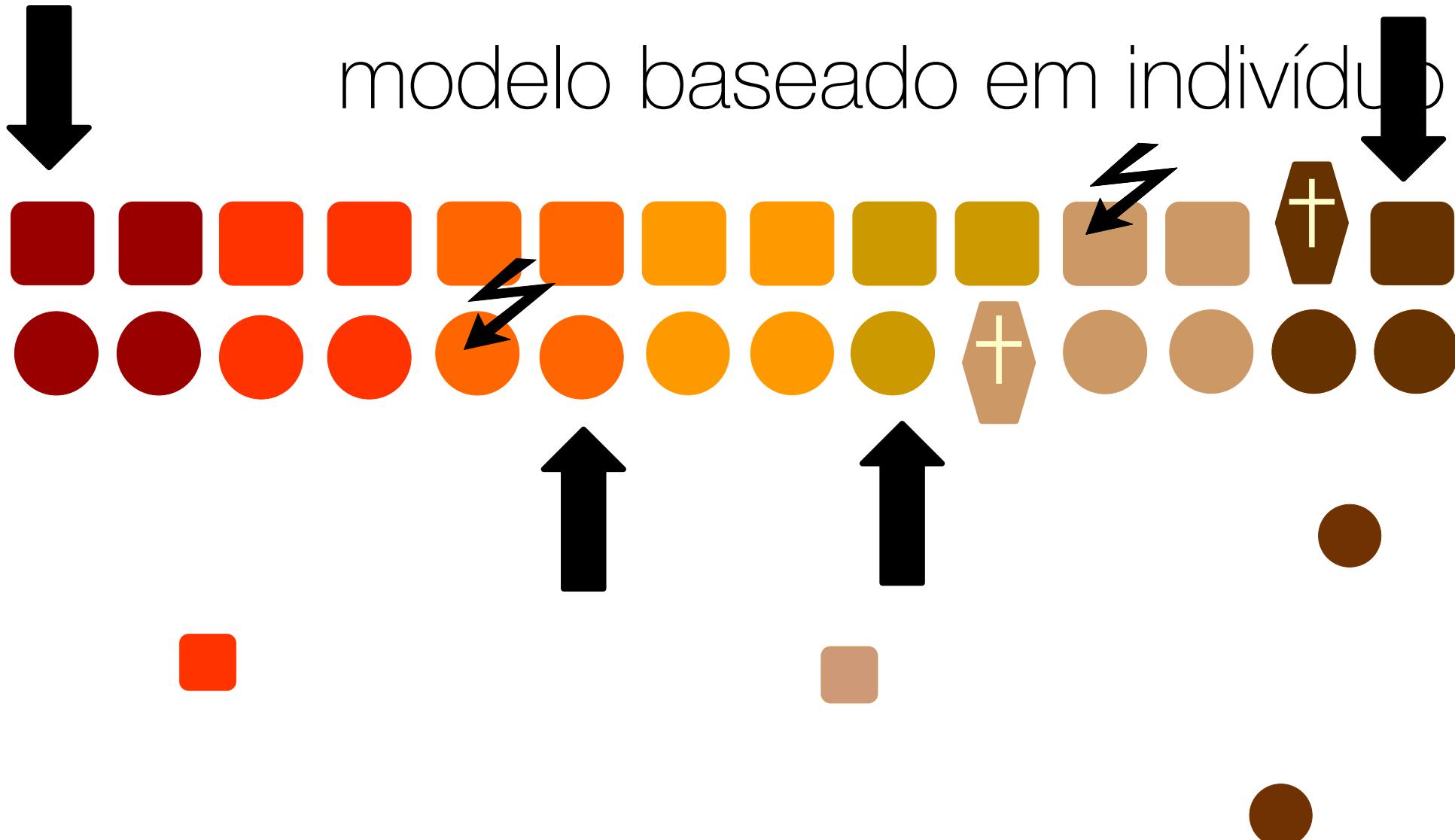
no distúrbios

% morta/distúrbio

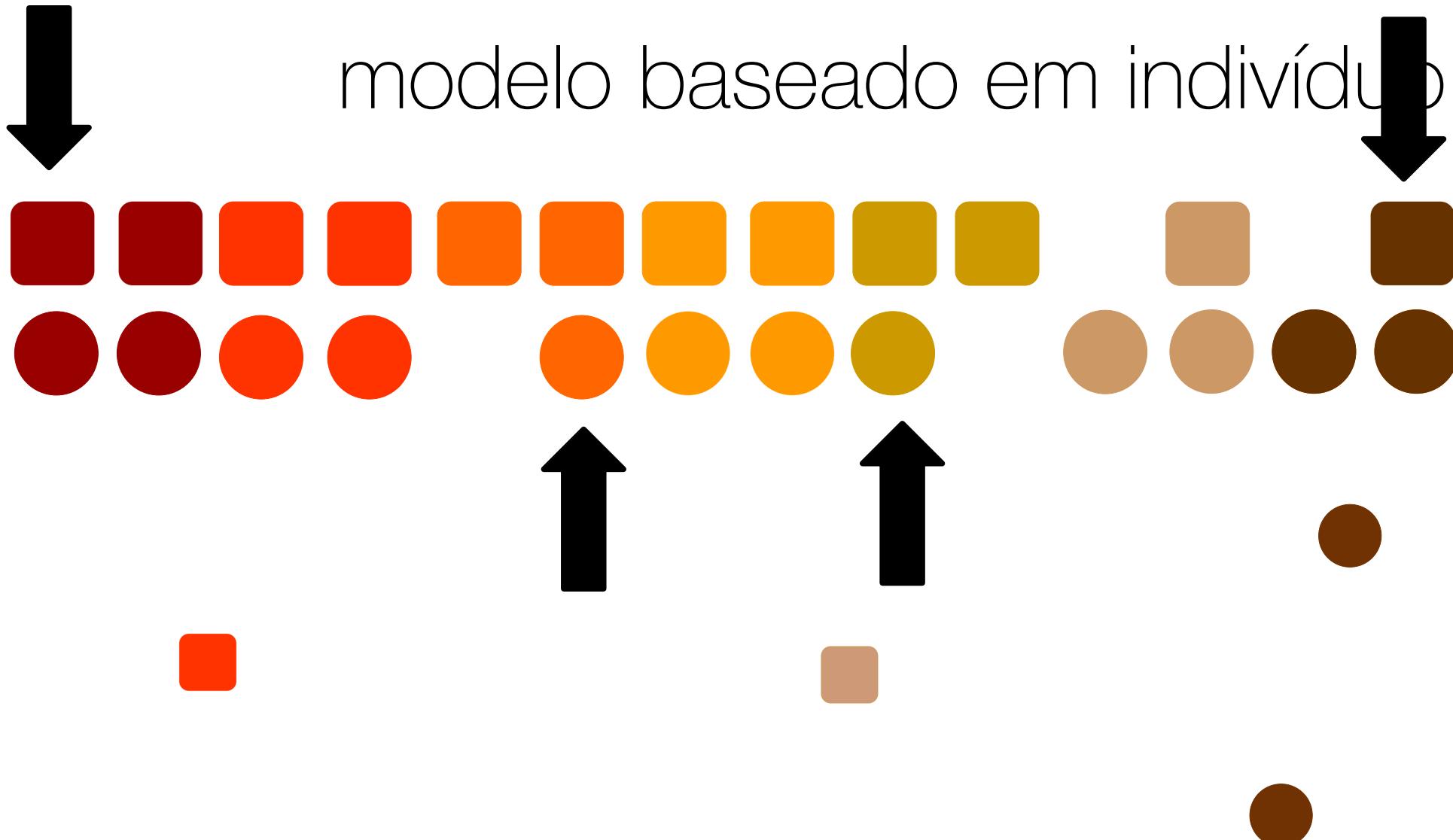
# modelo baseado em indivíduo



# modelo baseado em indivíduo



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

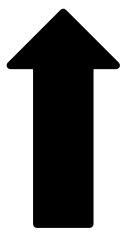
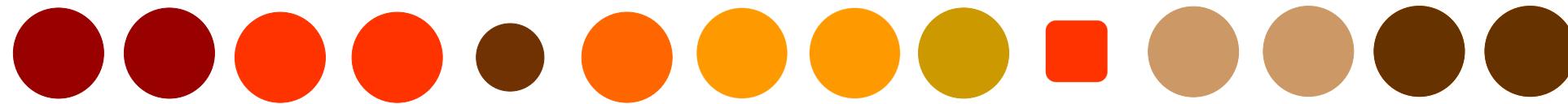
no gametas ♀/ciclo

constante

no distúrbios

% morta/distúrbio

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

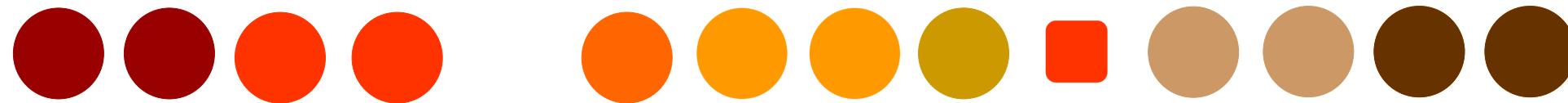
no gametas ♀/ciclo

constante

no distúrbios

% morta/distúrbio

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

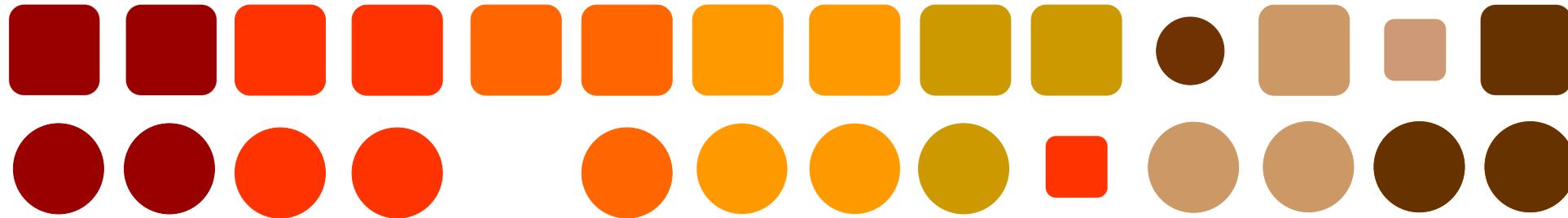
no gametas ♀/ciclo

constante

no distúrbios

% morta/distúrbio

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

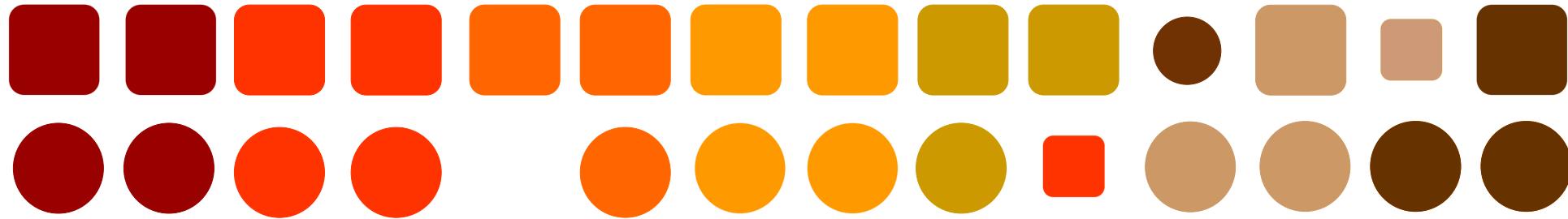
no gametas ♀/ciclo

constante

no distúrbios

% morta/distúrbio

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

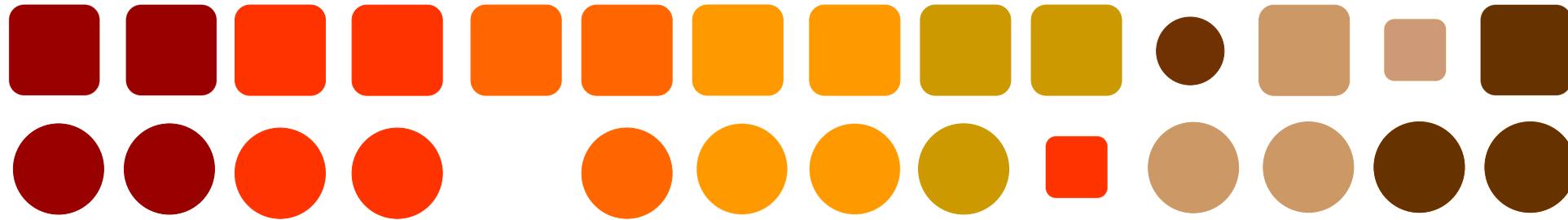
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

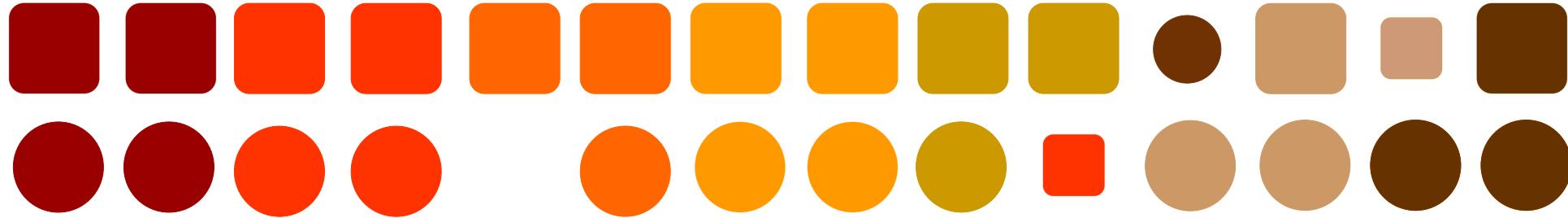
constante

no distúrbios

% morta/distúrbio

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

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

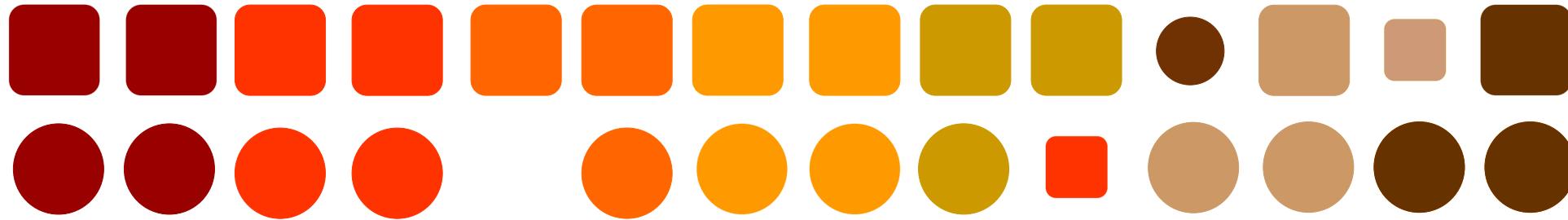
no gametas ♀/ciclo

constante

no distúrbios

% morta/distúrbio

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

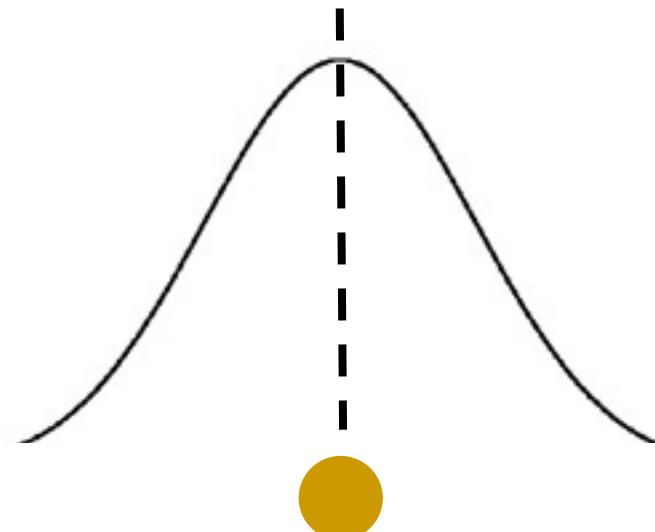
abundância  $t_0$

no gametas ♀/ciclo

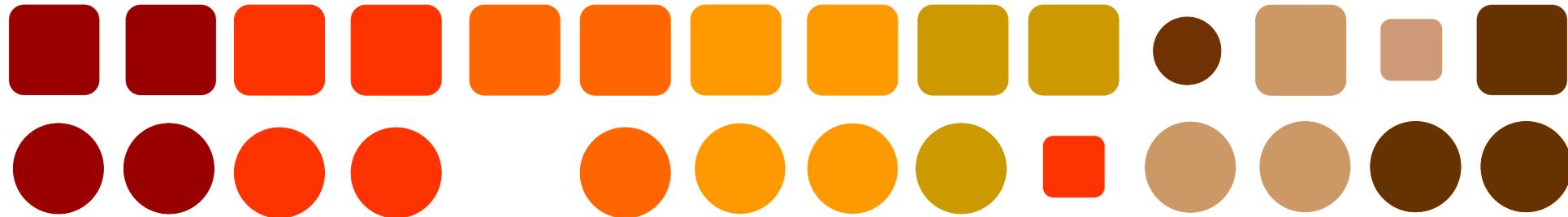
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

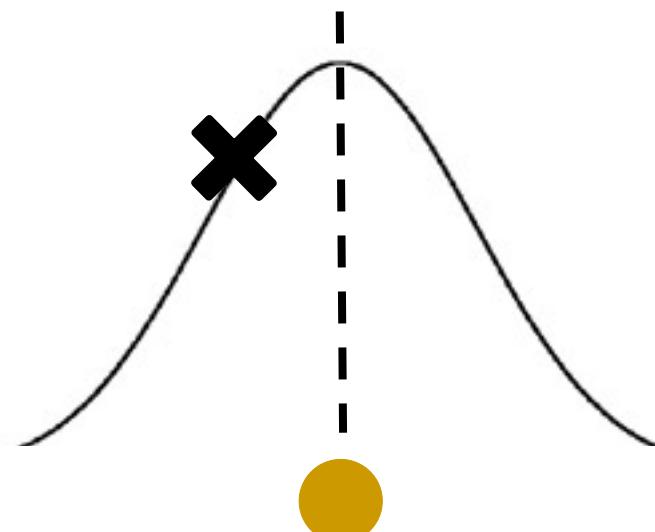
abundância  $t_0$

no gametas ♀/ciclo

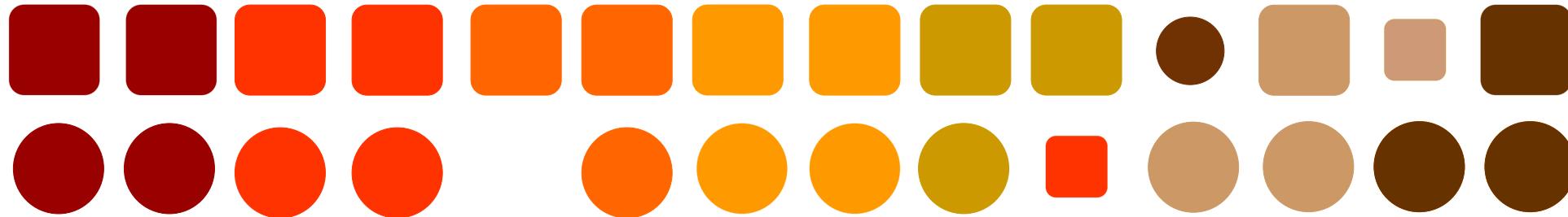
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

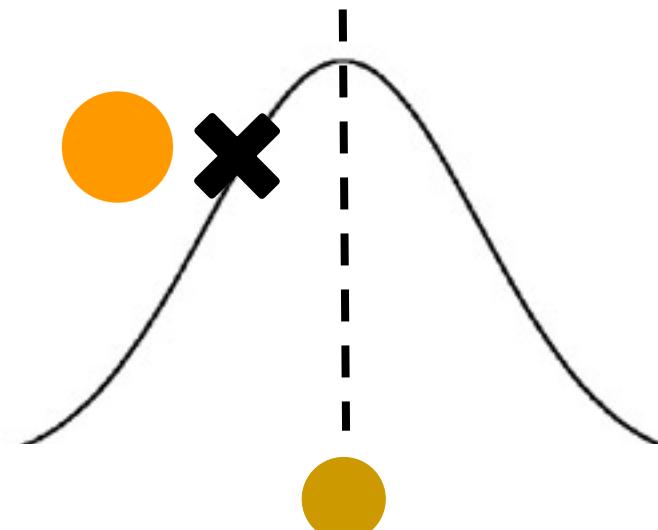
abundância  $t_0$

no gametas ♀/ciclo

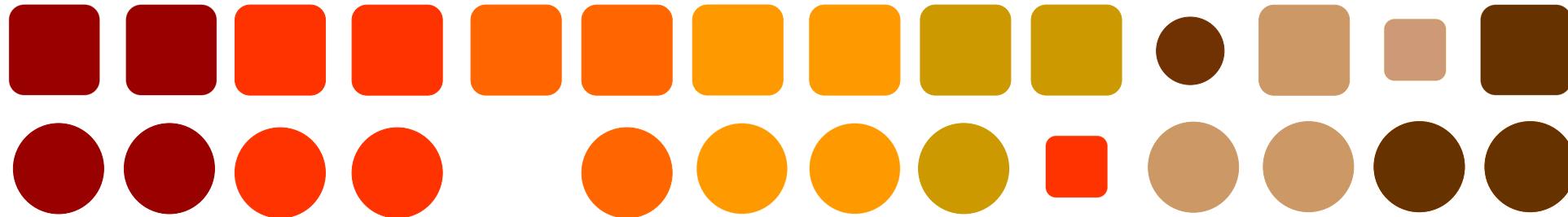
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

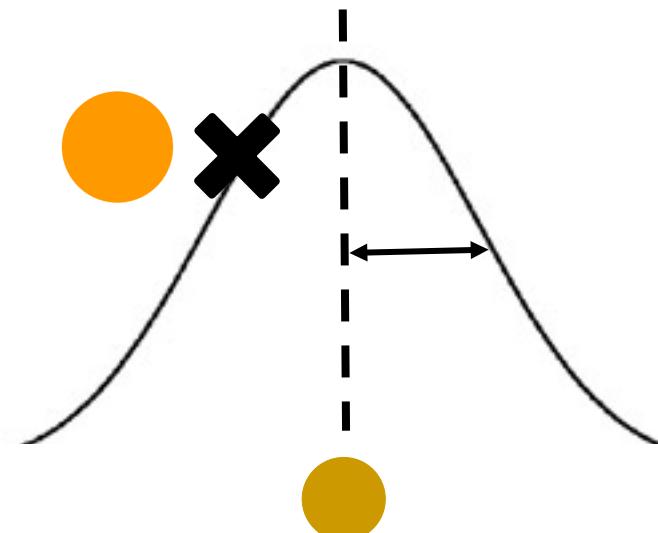
abundância  $t_0$

no gametas ♀/ciclo

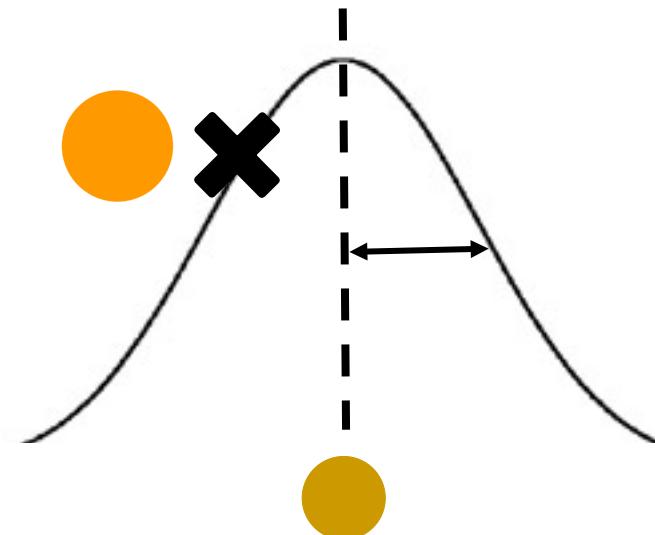
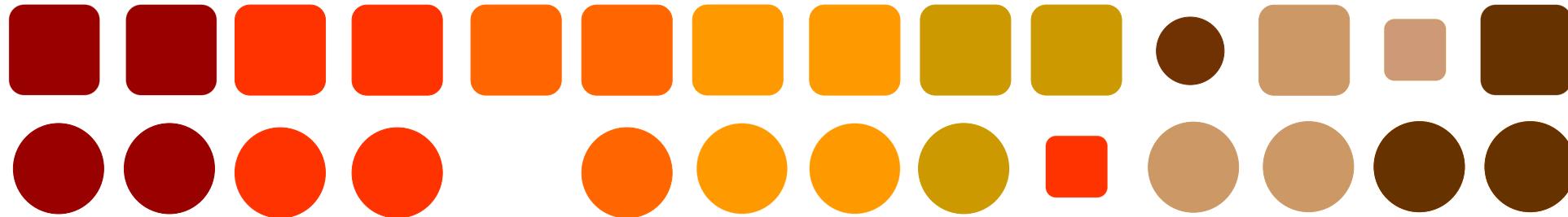
constante

no distúrbios

% morta/distúrbio



# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

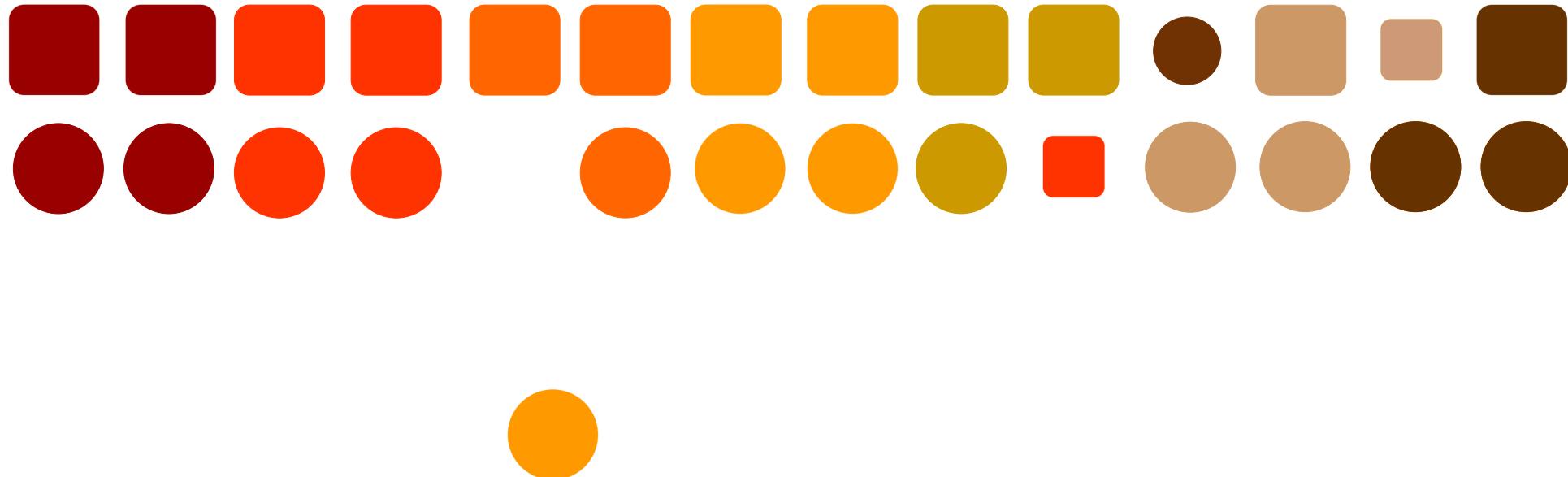
constante

no distúrbios

% morta/distúrbio

taxa de mutação

# modelo baseado em indivíduo



**parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

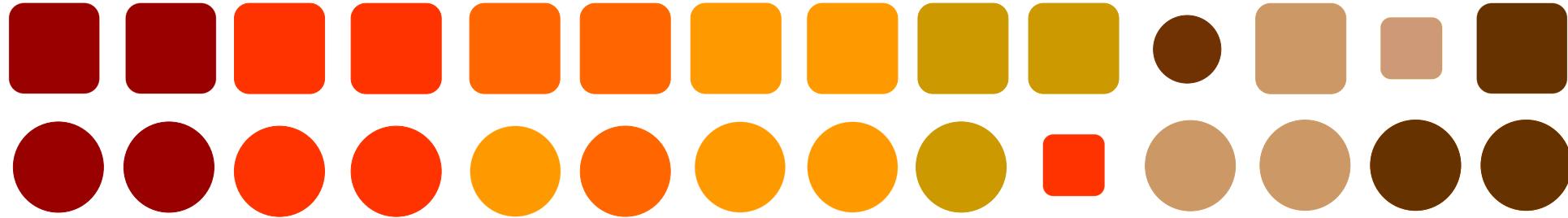
constante

no distúrbios

% morta/distúrbio

taxa de mutação

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

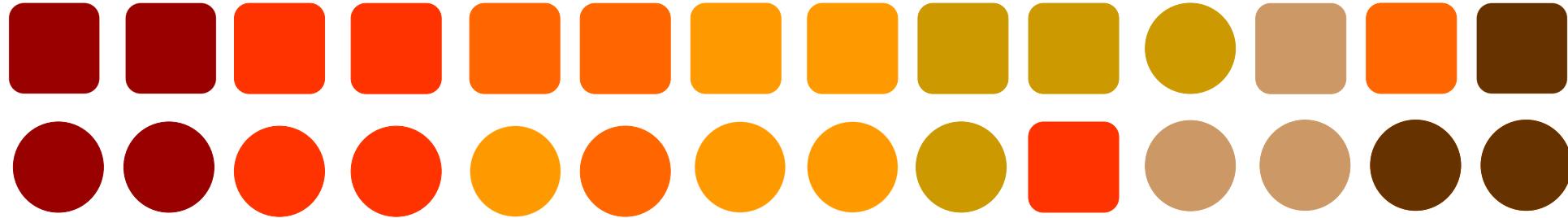
constante

no distúrbios

% morta/distúrbio

taxa de mutação

# modelo baseado em indivíduo



## **parâmetros**

riqueza  $t_0$

abundância  $t_0$

no gametas ♀/ciclo

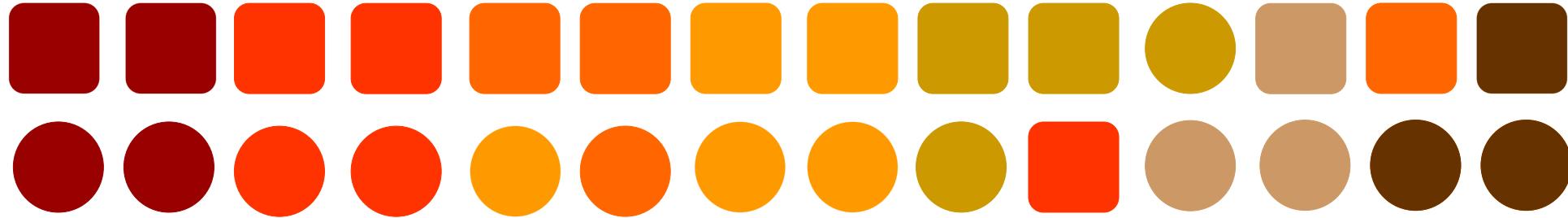
constante

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



# cenários simulados



# cenários simulados

**evolutivo**

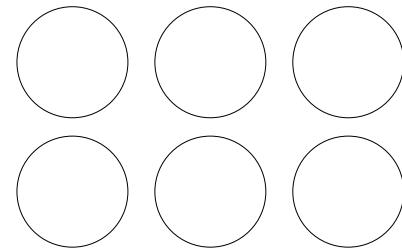
**ecológico**

**eco-evolutivo**



# cenários simulados

**evolutivo**

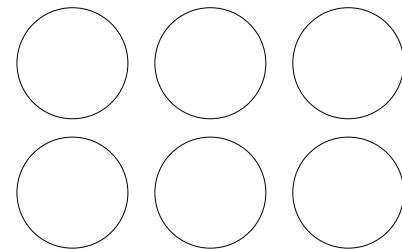


**ecológico**

**eco-evolutivo**

# cenários simulados

**evolutivo**



**ecológico**

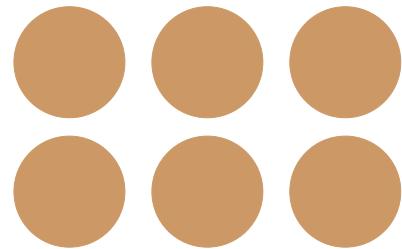
**eco-evolutivo**

1 espécie



# cenários simulados

**evolutivo**



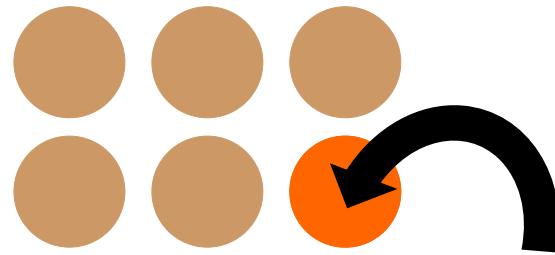
1 espécie

**ecológico**

**eco-evolutivo**

# cenários simulados

**evolutivo**



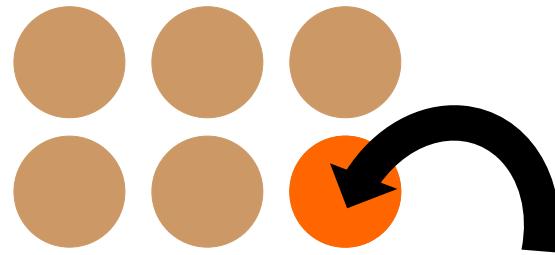
1 espécie

**ecológico**

**eco-evolutivo**

# cenários simulados

**evolutivo**



1 espécie

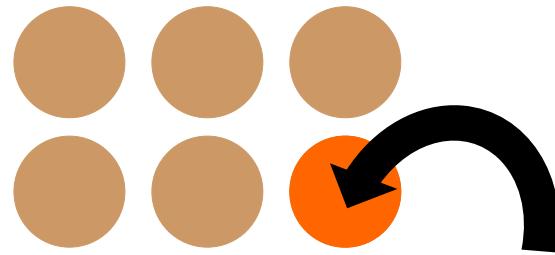
mutação > 0

**ecológico**

**eco-evolutivo**

# cenários simulados

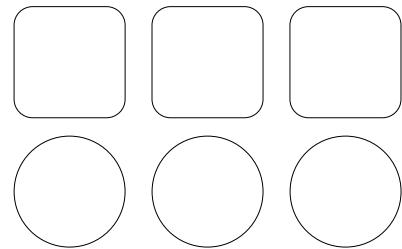
**evolutivo**



1 espécie

mutação > 0

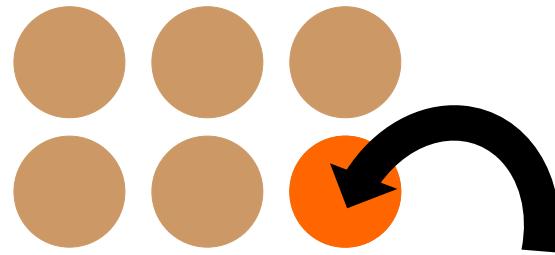
**ecológico**



**eco-evolutivo**

# cenários simulados

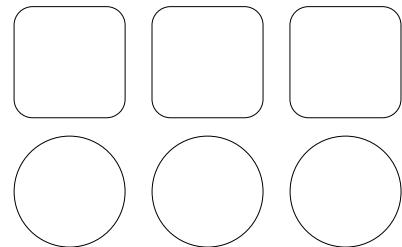
**evolutivo**



1 espécie

mutação > 0

**ecológico**

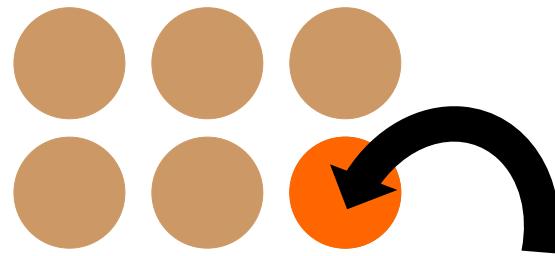


+ 1 espécie

**eco-evolutivo**

# cenários simulados

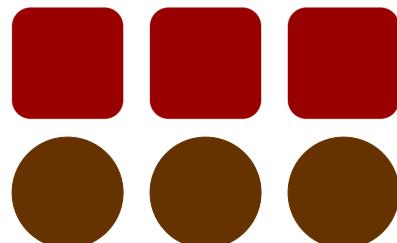
**evolutivo**



1 espécie

mutação > 0

**ecológico**

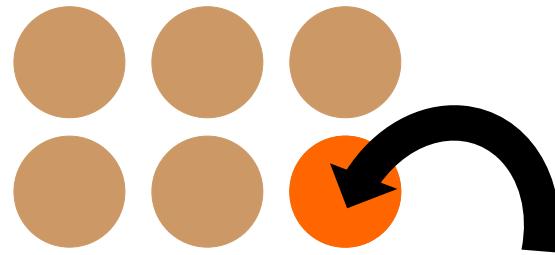


+ 1 espécie

**eco-evolutivo**

# cenários simulados

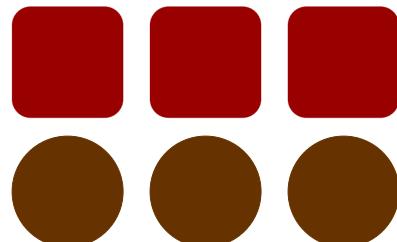
## evolutivo



1 espécie

mutação > 0

## ecológico



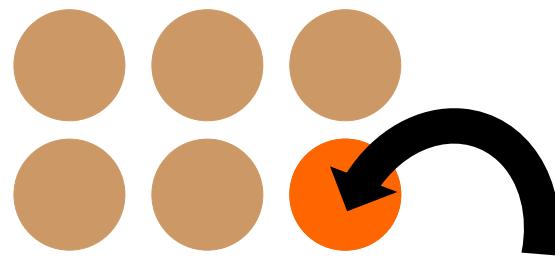
+ 1 espécie

mutação = 0

## eco-evolutivo

# cenários simulados

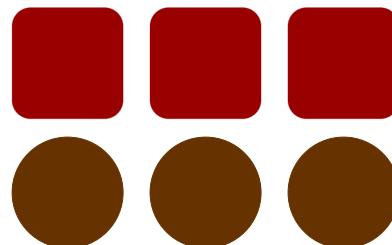
## evolutivo



1 espécie

mutação > 0

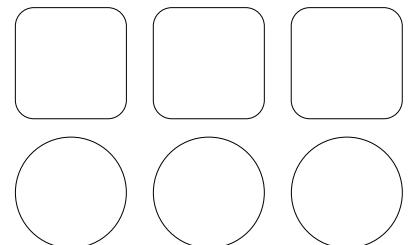
## ecológico



+ 1 espécie

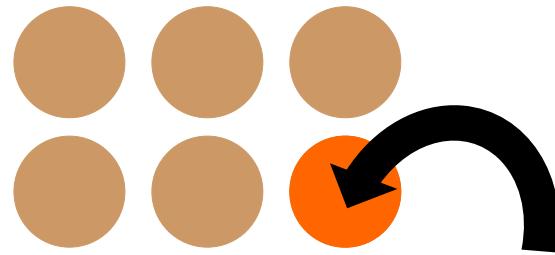
mutação = 0

## eco-evolutivo



# cenários simulados

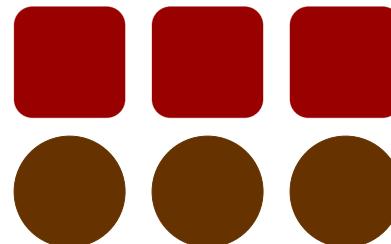
## evolutivo



1 espécie

mutação > 0

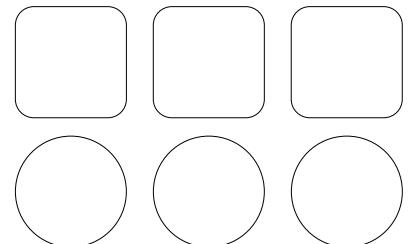
## ecológico



+ 1 espécie

mutação = 0

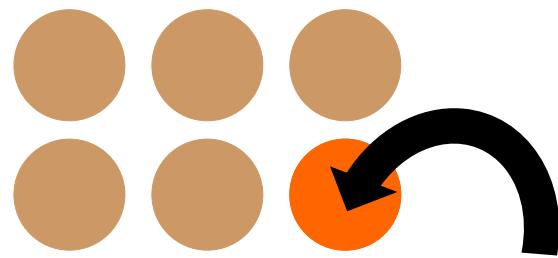
## eco-evolutivo



+ 1 espécie

# cenários simulados

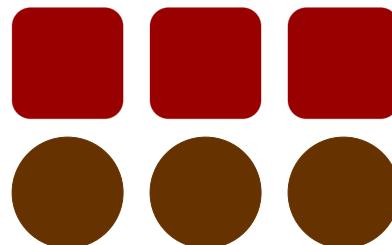
## evolutivo



1 espécie

mutação > 0

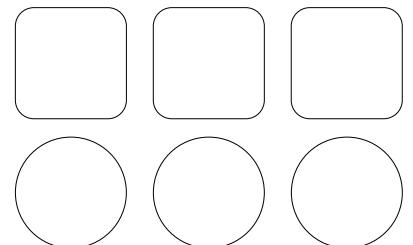
## ecológico



+ 1 espécie

mutação = 0

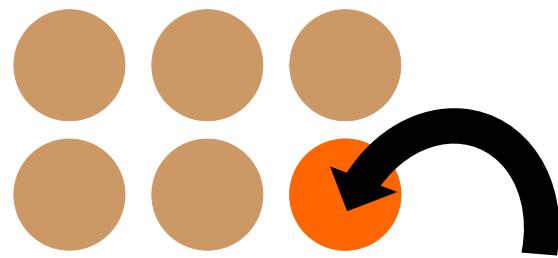
## eco-evolutivo



+ 1 espécie

# cenários simulados

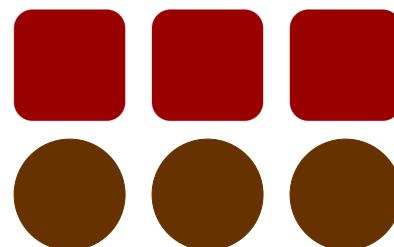
## evolutivo



1 espécie

mutação > 0

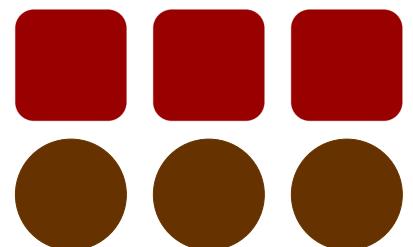
## ecológico



+ 1 espécie

mutação = 0

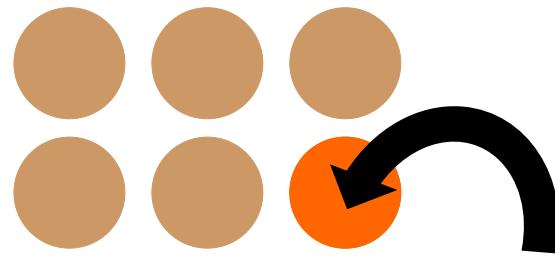
## eco-evolutivo



+ 1 espécie

# cenários simulados

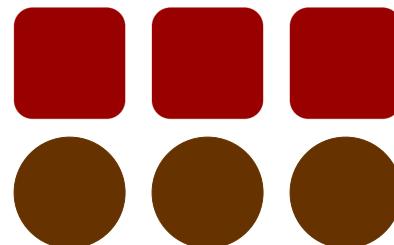
## evolutivo



1 espécie

mutação > 0

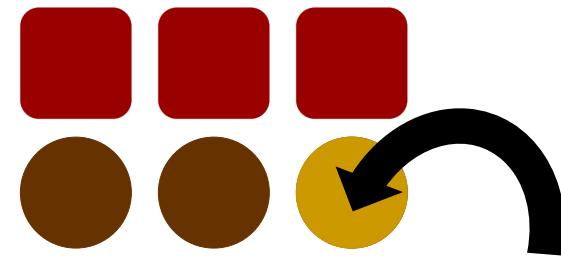
## ecológico



+ 1 espécie

mutação = 0

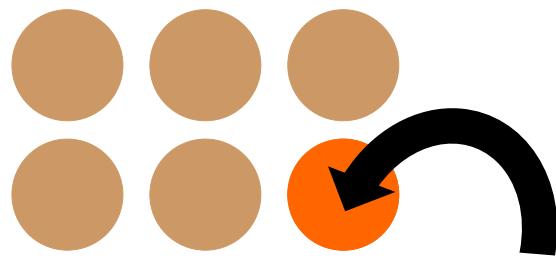
## eco-evolutivo



+ 1 espécie

# cenários simulados

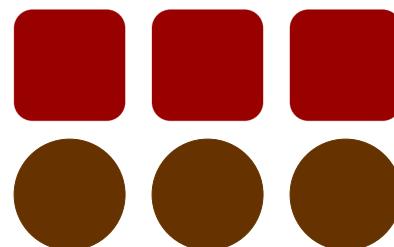
## evolutivo



1 espécie

mutação > 0

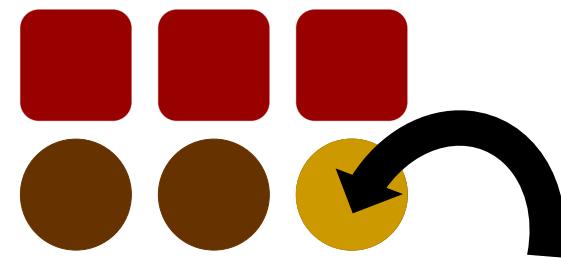
## ecológico



+ 1 espécie

mutação = 0

## eco-evolutivo

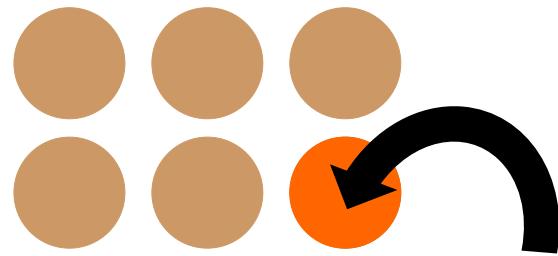


+ 1 espécie

mutação > 0

# cenários simulados

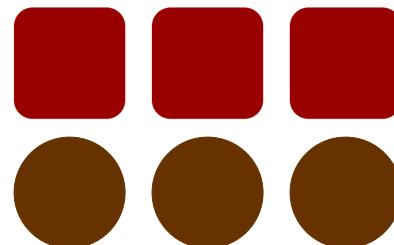
## evolutivo



1 espécie

**mutação > 0**

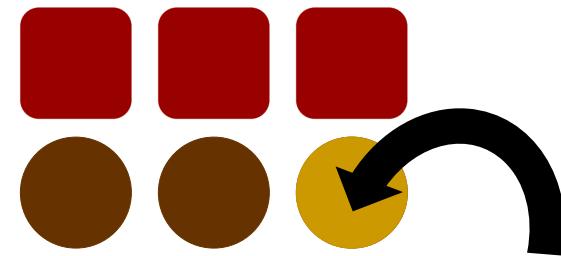
## ecológico



+ 1 espécie

mutação = 0

## eco-evolutivo



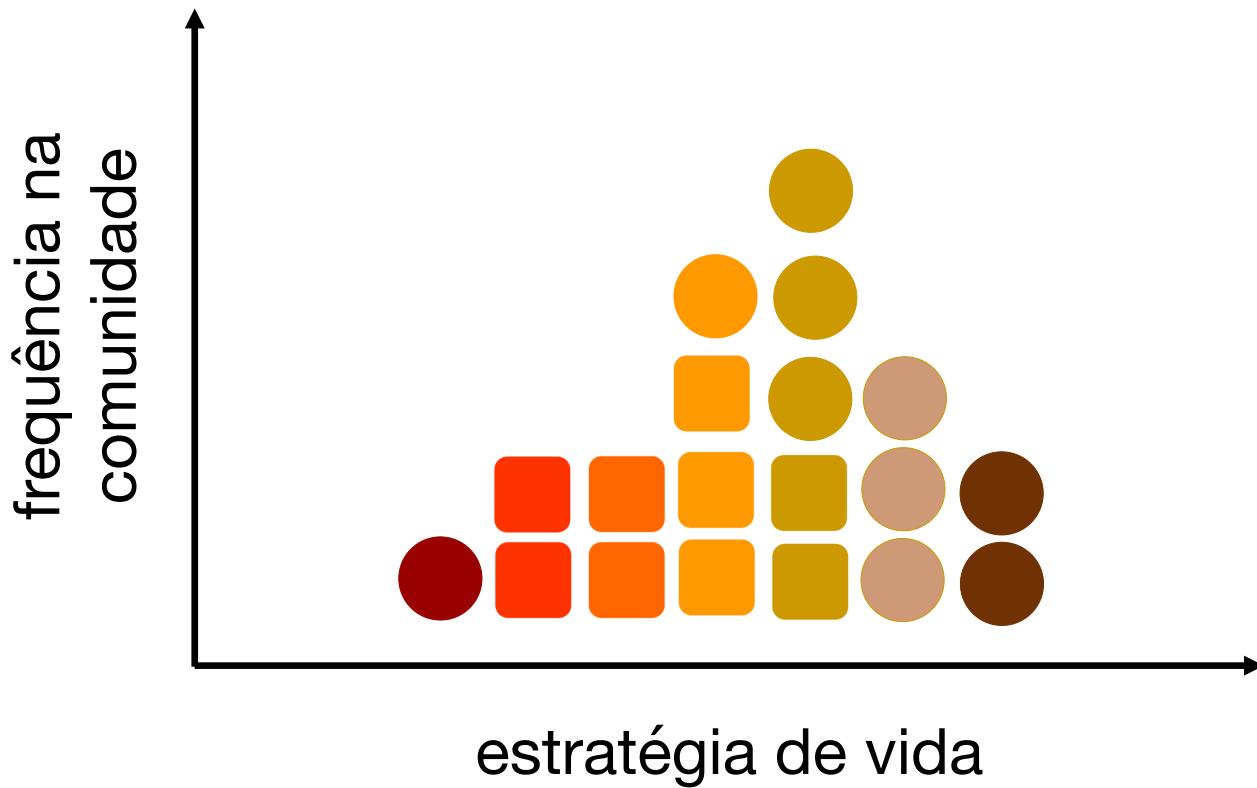
+ 1 espécie

**mutação > 0**

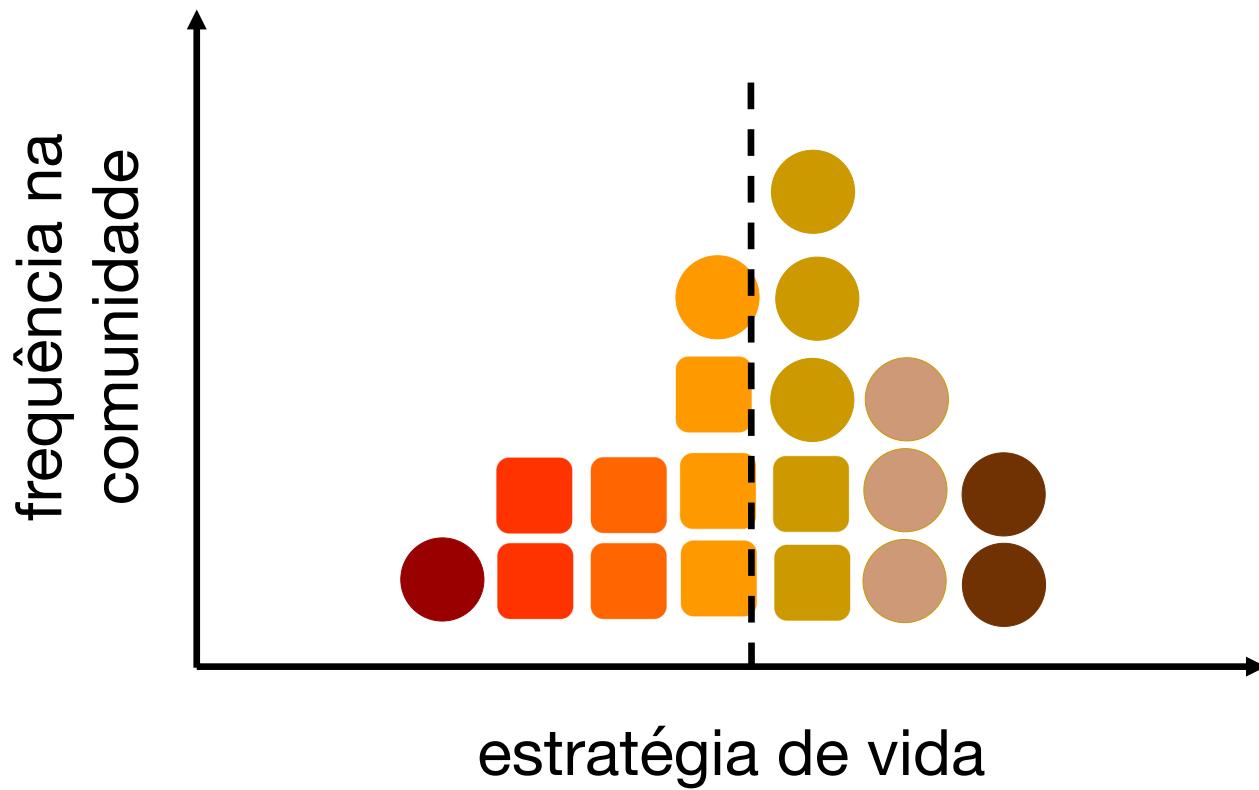
# variáveis de interesse

número de gerações = 2 mil

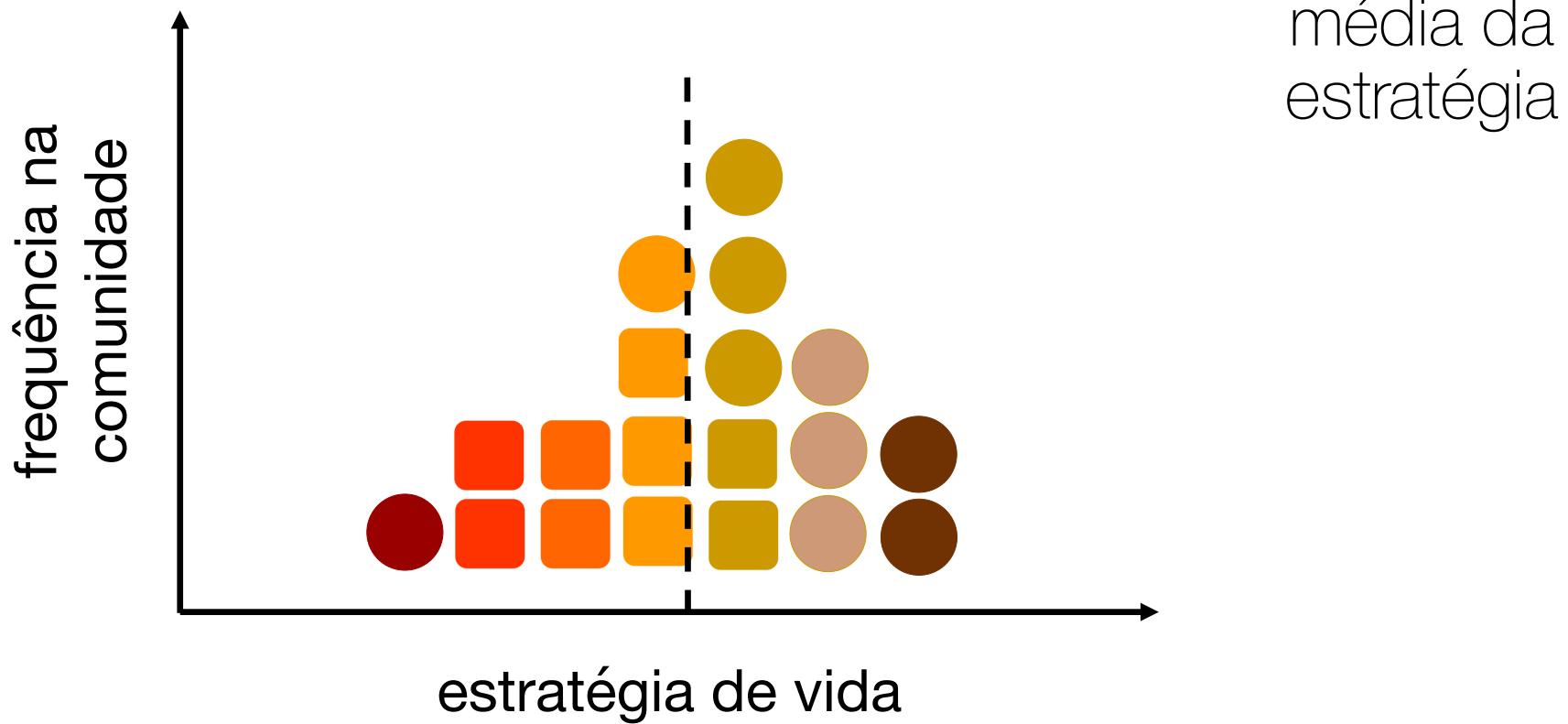
# variáveis de interesse



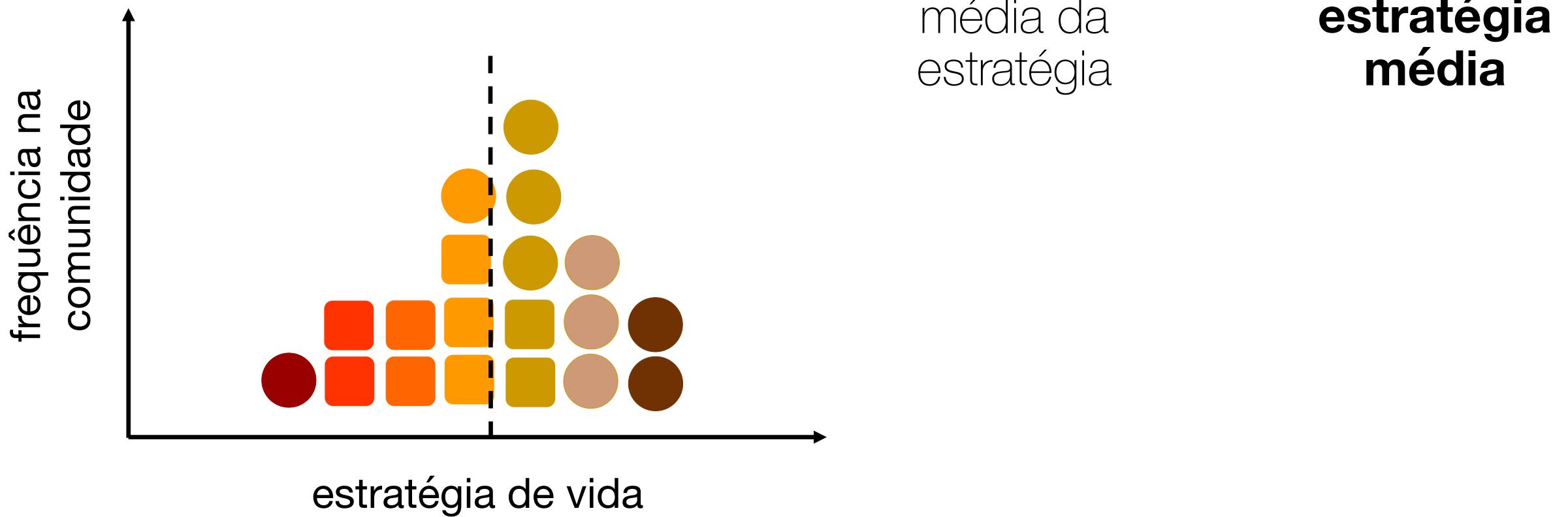
# variáveis de interesse



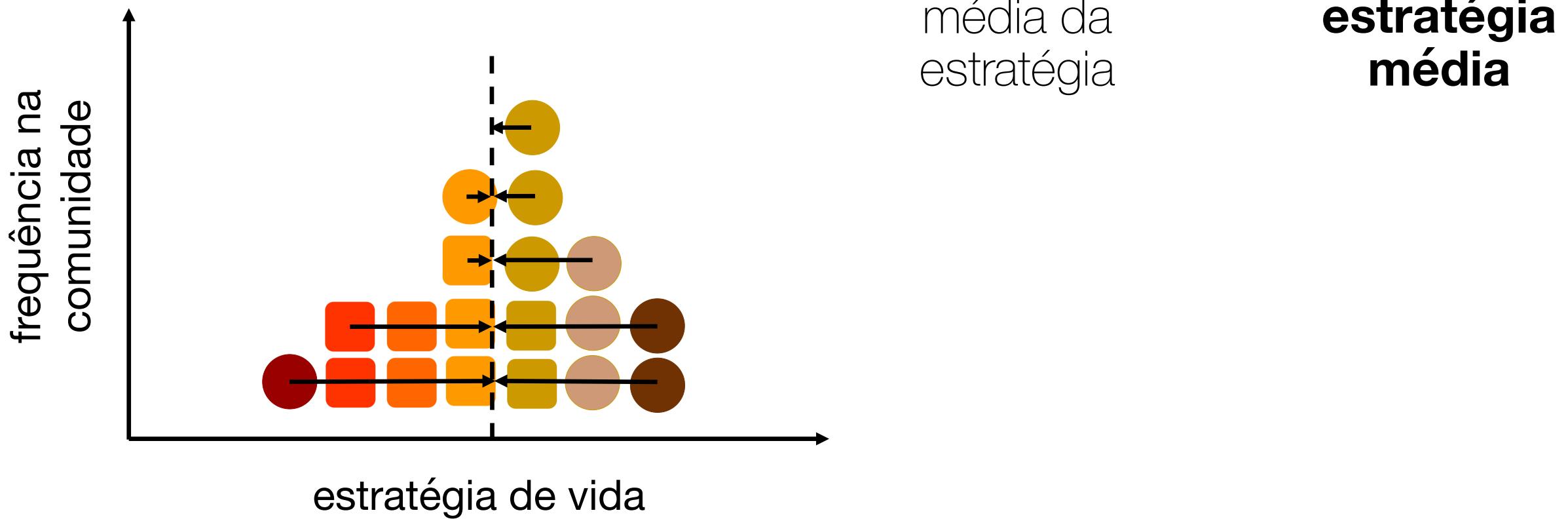
# variáveis de interesse



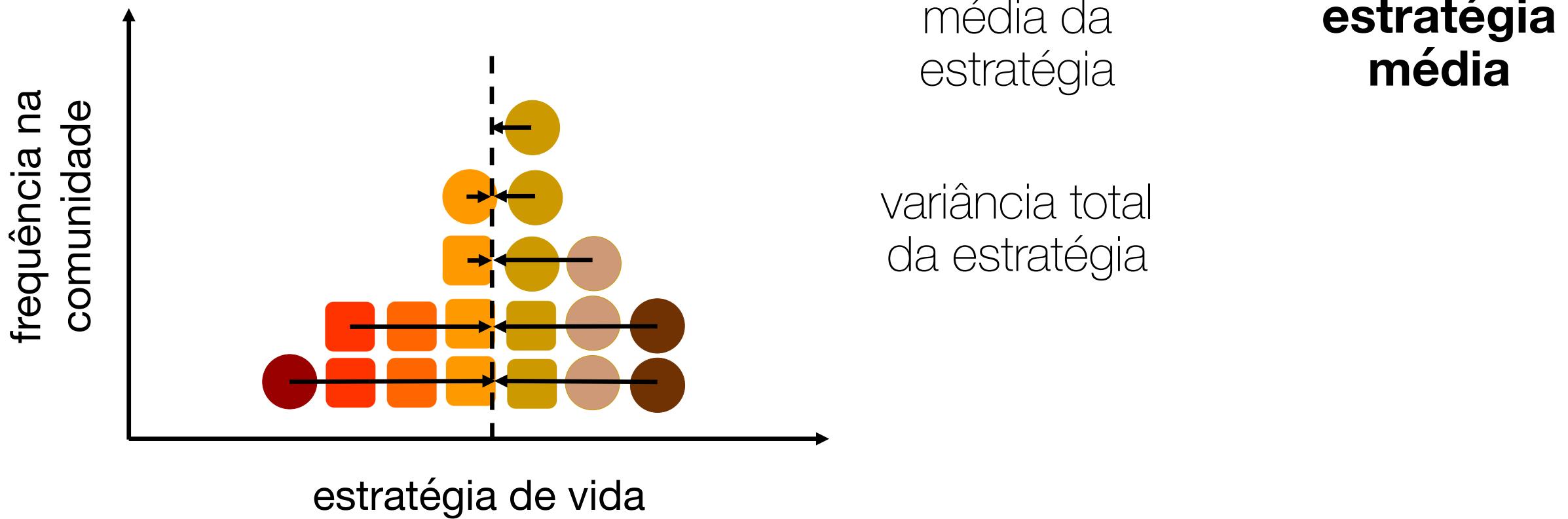
# variáveis de interesse



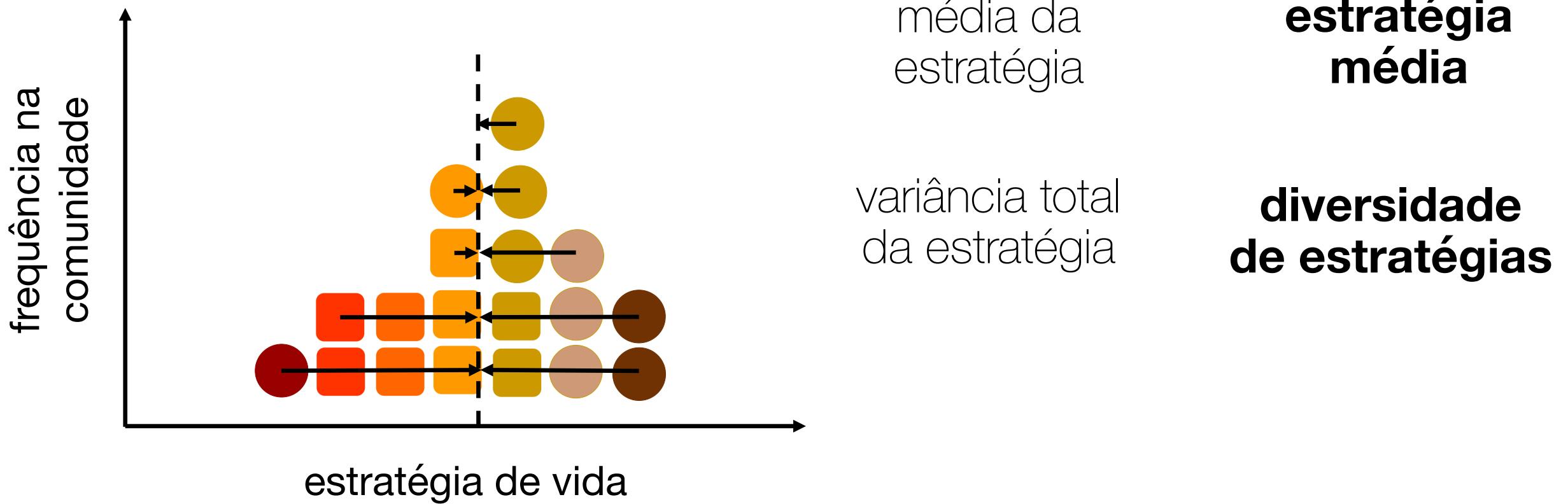
# variáveis de interesse



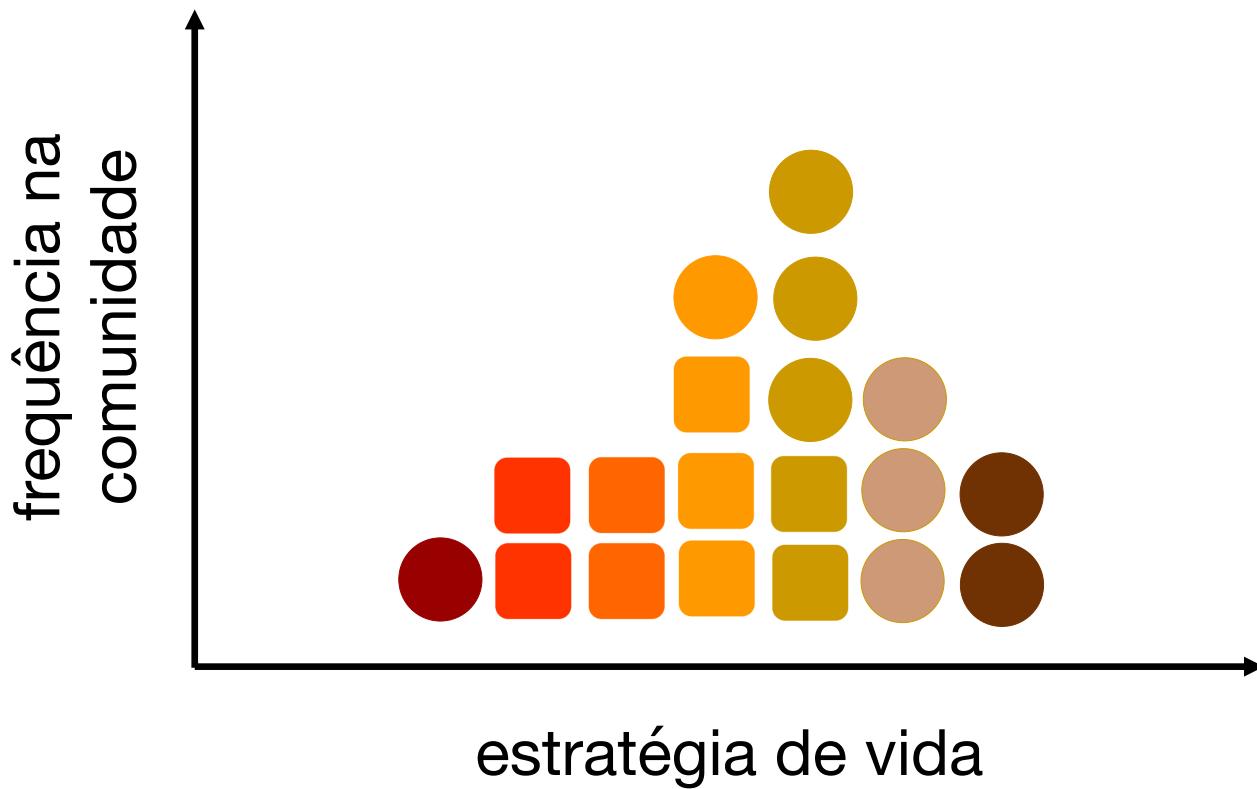
# variáveis de interesse



# variáveis de interesse



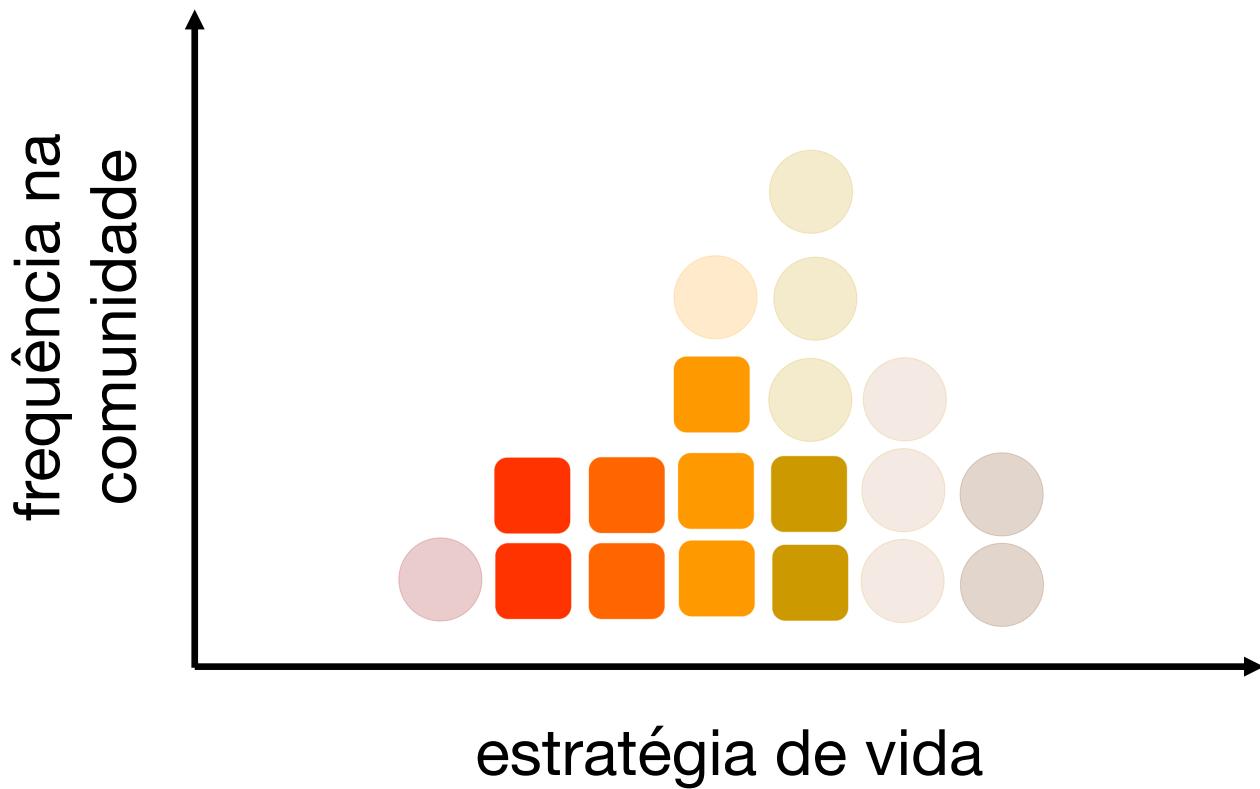
# variáveis de interesse



média da estratégia  
variância total da estratégia

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

# variáveis de interesse



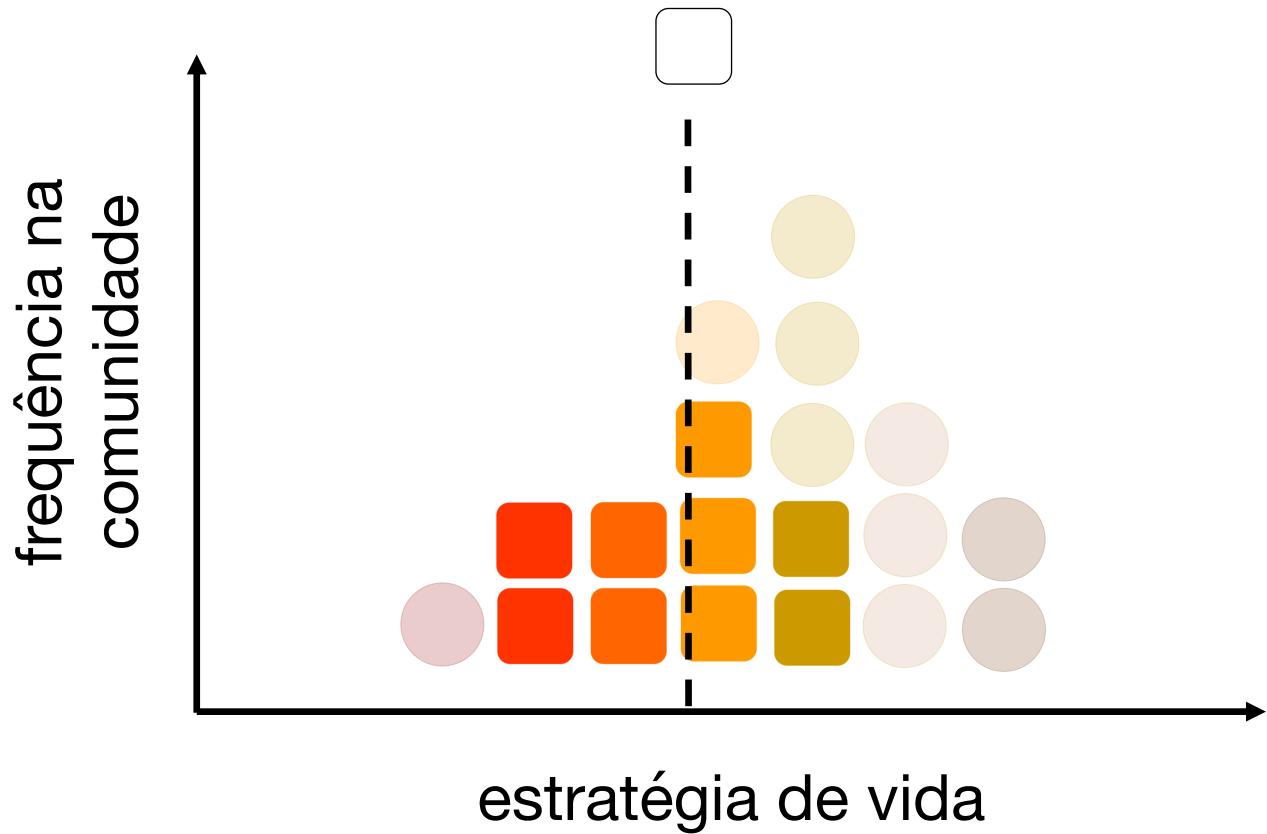
média da  
estratégia

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

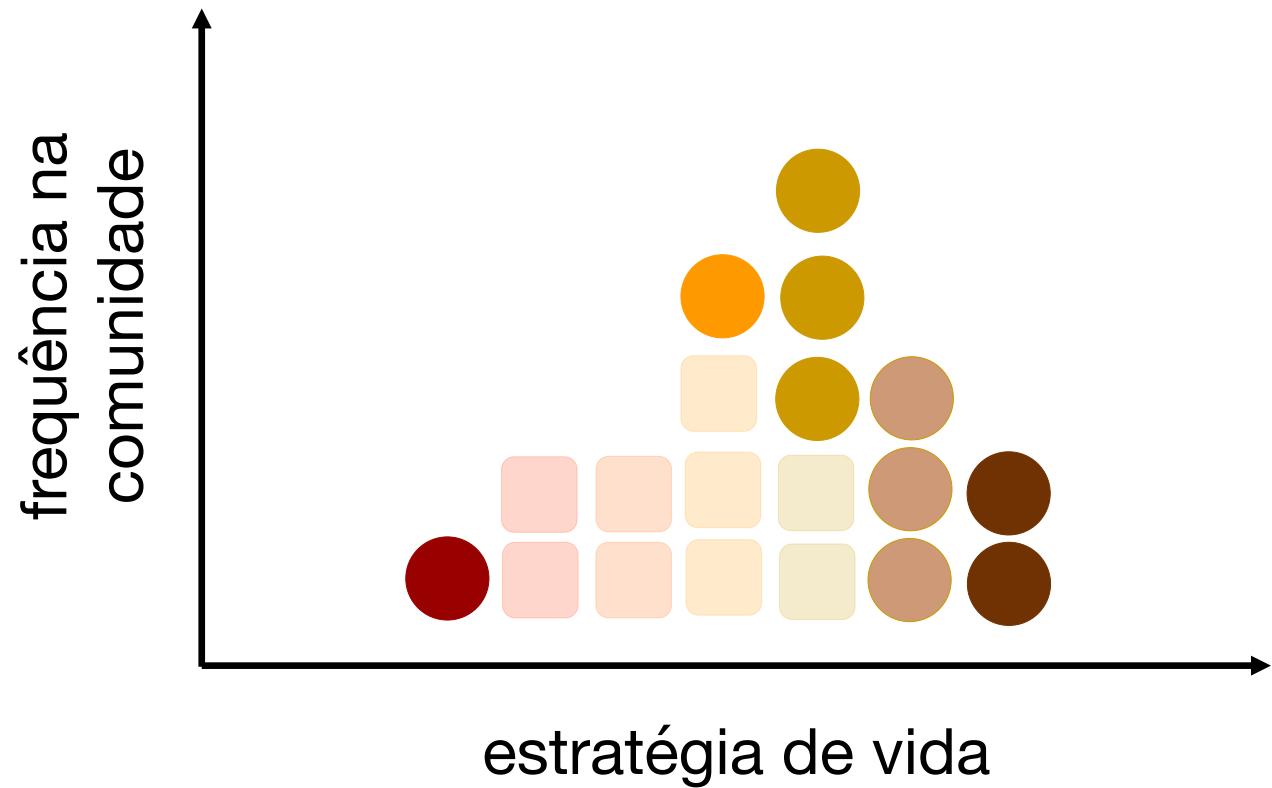


média da  
estratégia

variância total  
da estratégia

**diversidade  
de estratégias**

# variáveis de interesse



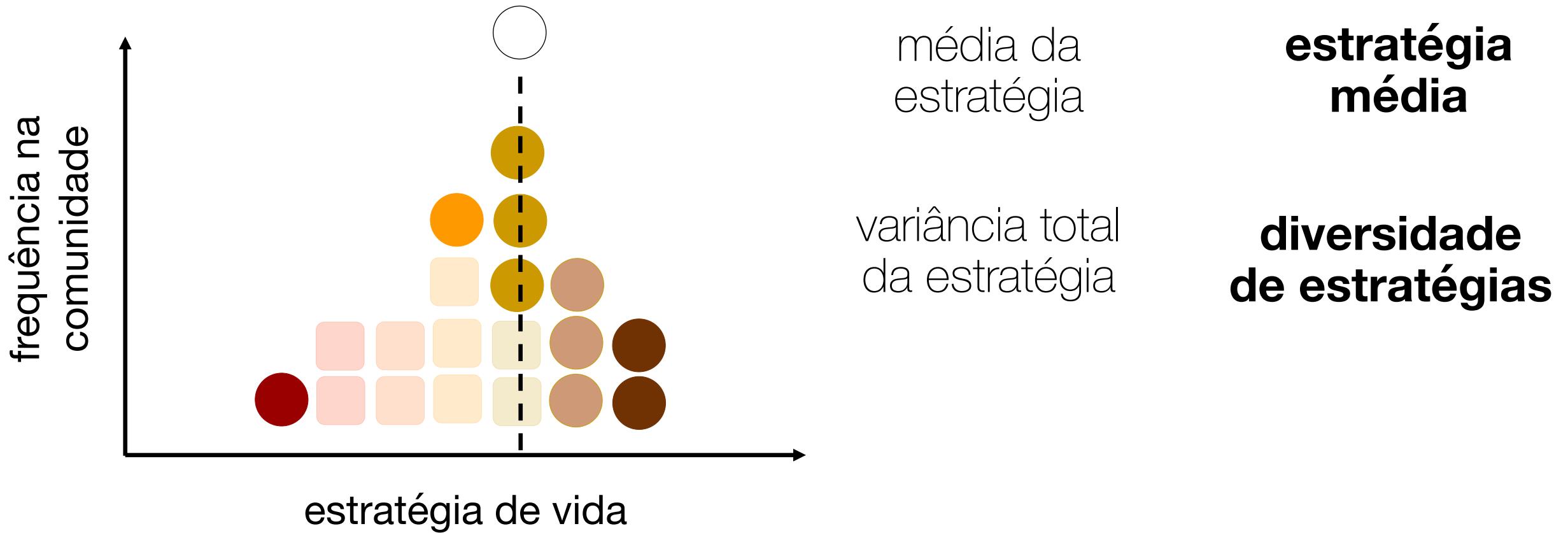
média da estratégia

variância total da estratégia

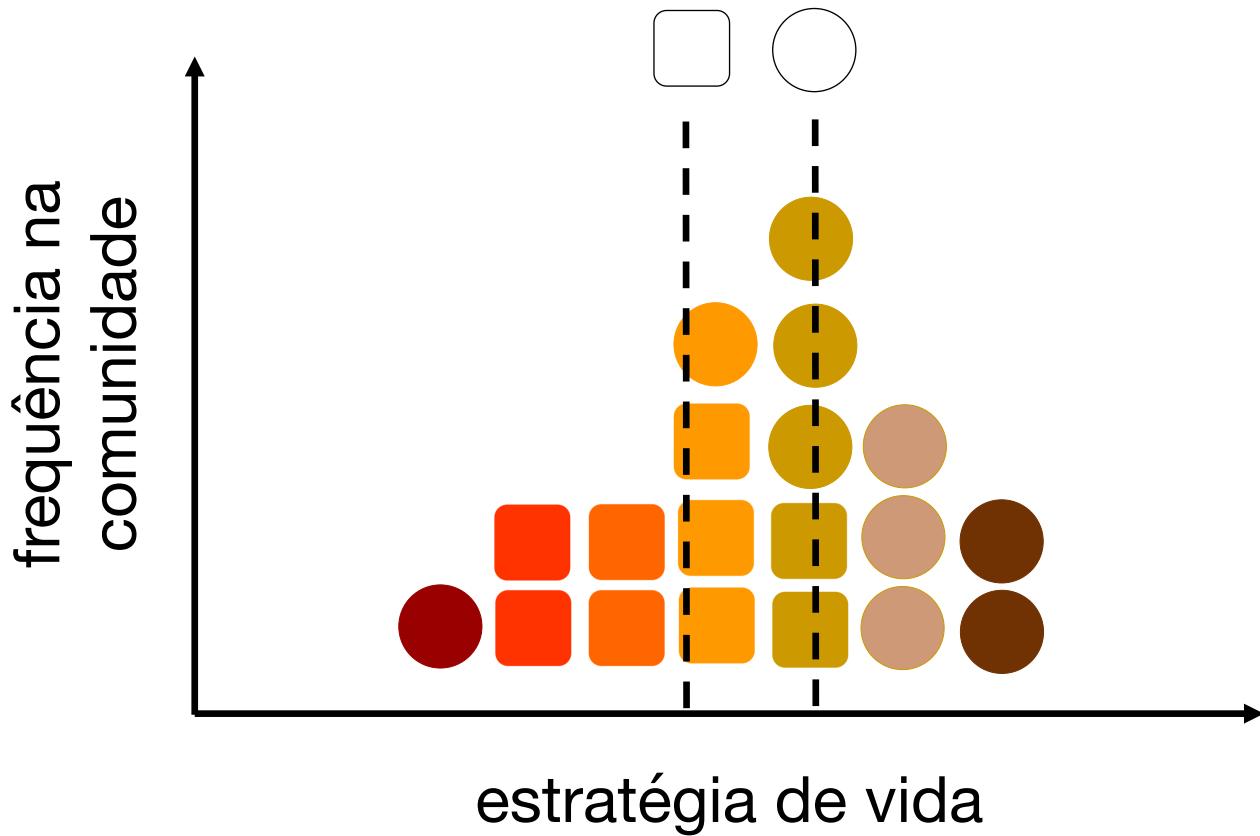
**estratégia média**

**diversidade de estratégias**

# variáveis de interesse



# variáveis de interesse



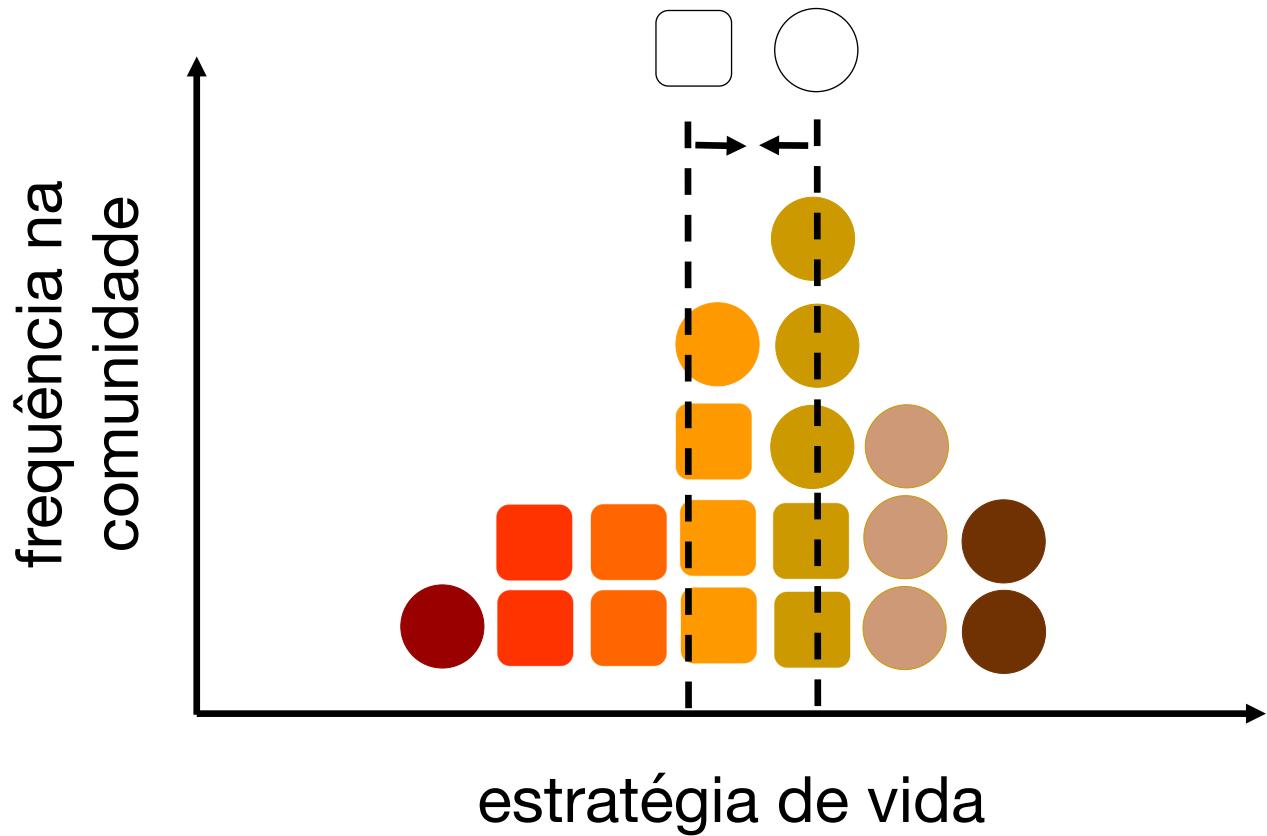
média da  
estratégia

variância total  
da estratégia

**estratégia  
média**

**diversidade  
de estratégias**

# variáveis de interesse



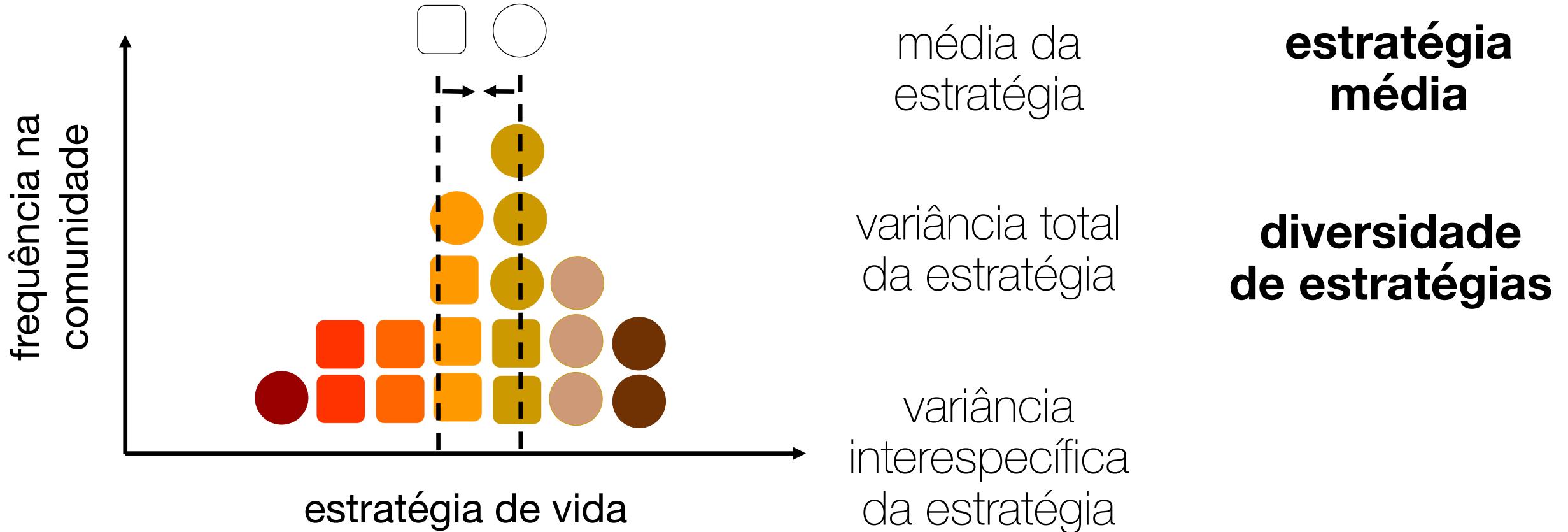
média da  
estratégia

variância total  
da estratégia

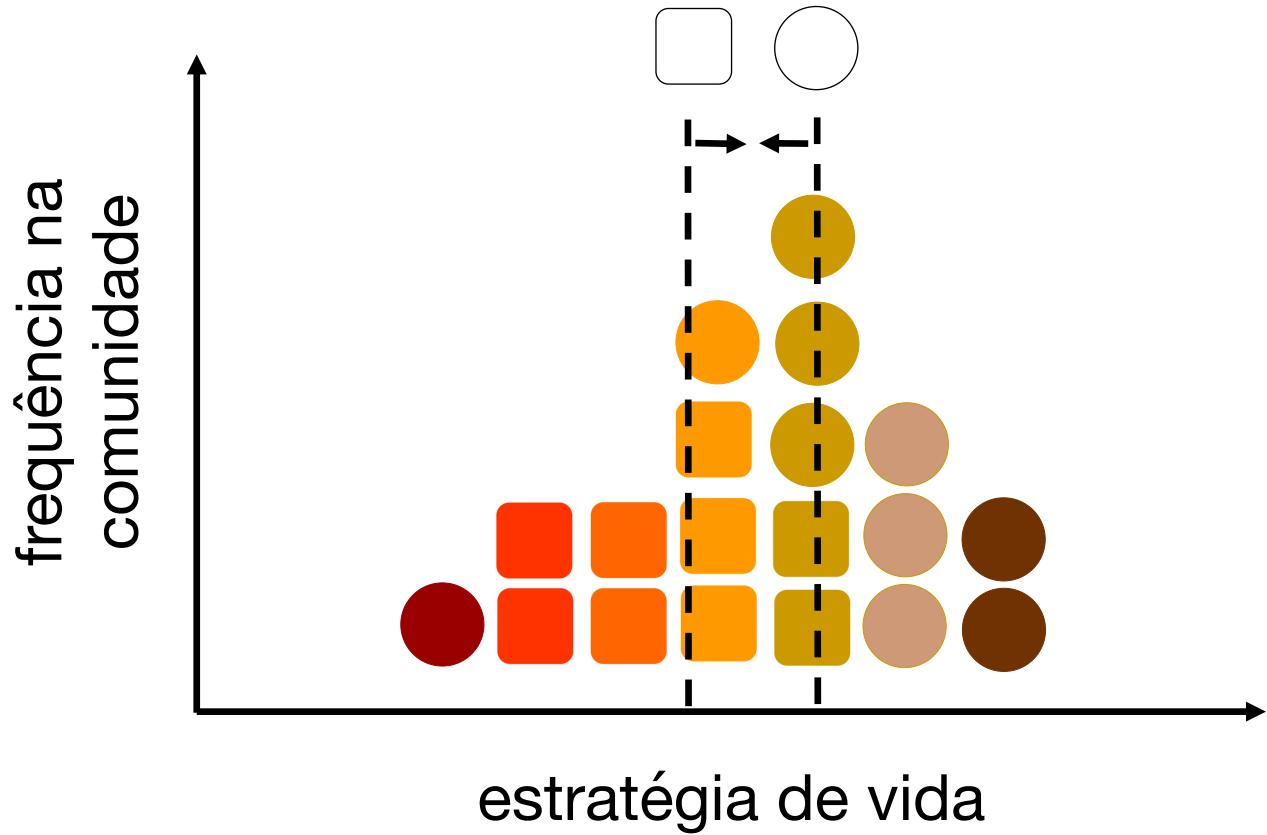
**estratégia  
média**

**diversidade  
de estratégias**

# variáveis de interesse



# variáveis de interesse

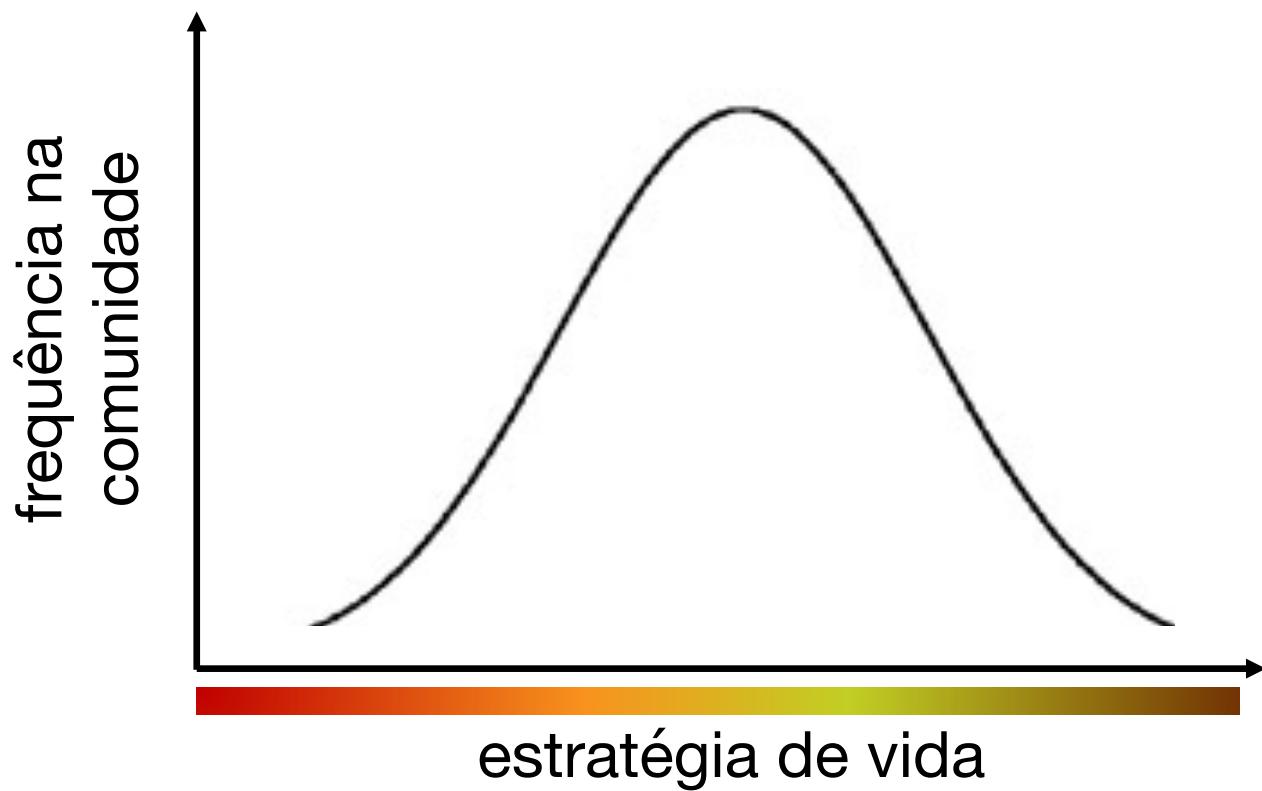


**estratégia média**

**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

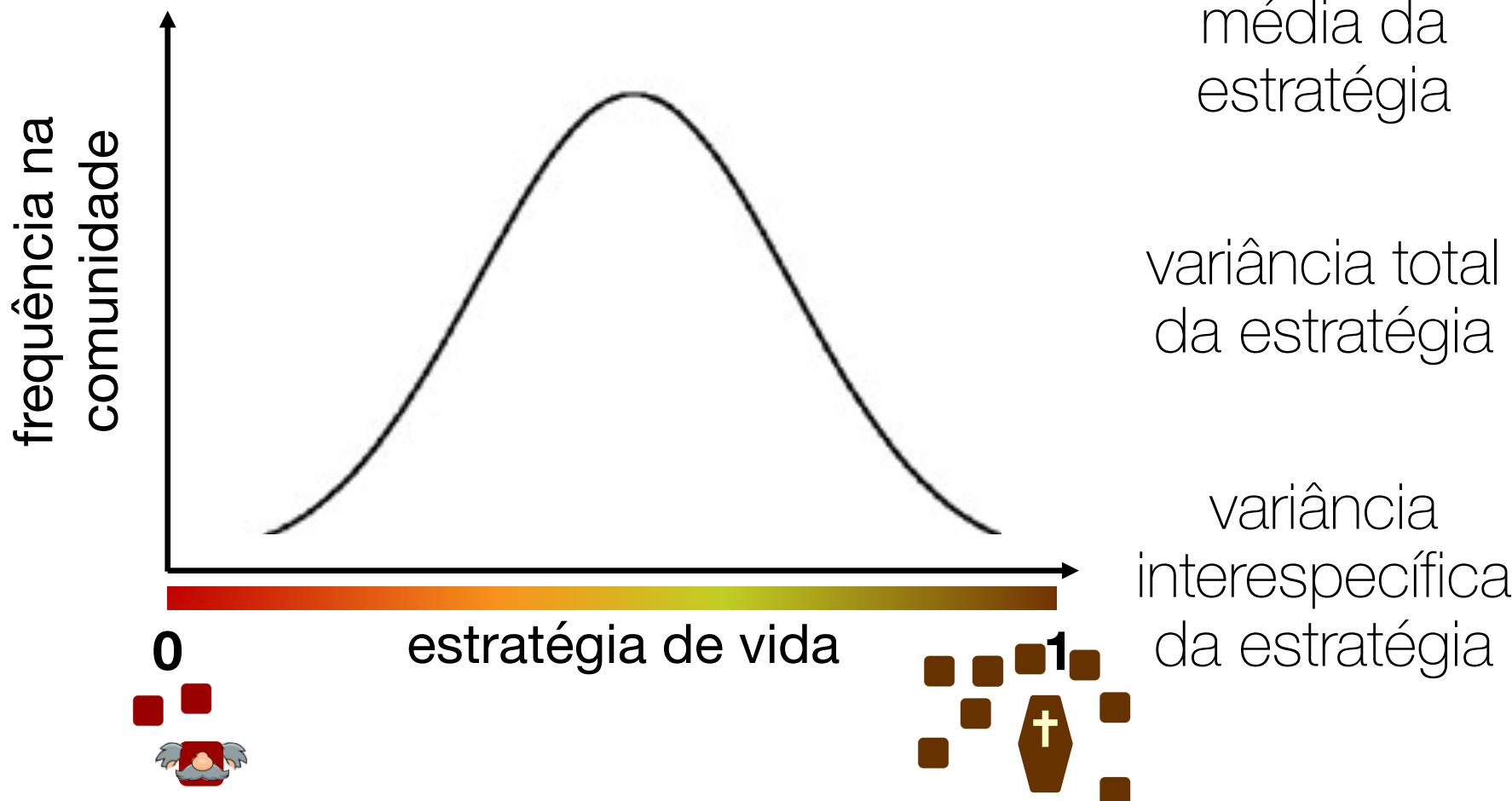
variância interespecífica da estratégia

**estratégia média**

**diversidade de estratégias**

**heterogeneidade interespecífica de estratégias**

# variáveis de interesse



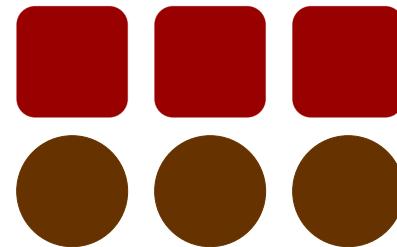
**estratégia média**

**diversidade de estratégias**

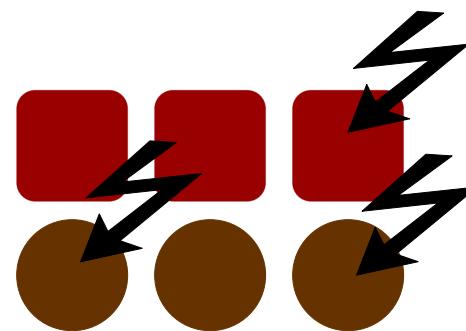
**heterogeneidade interespecífica de estratégias**

# variável preditora

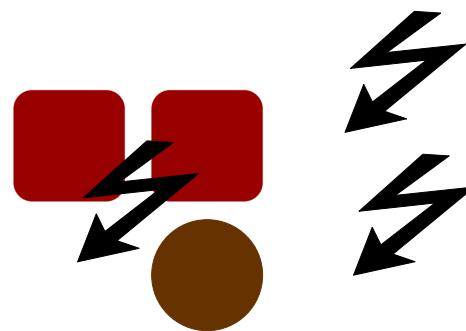
# variável preditora



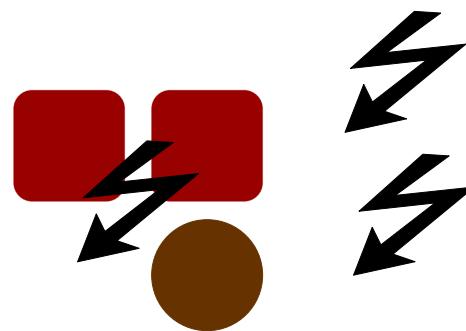
# variável preditora



# variável preditora

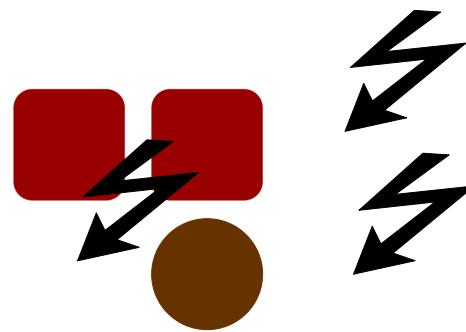


# variável preditora



50%

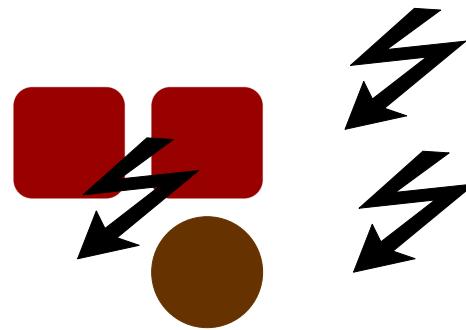
# variável preditora



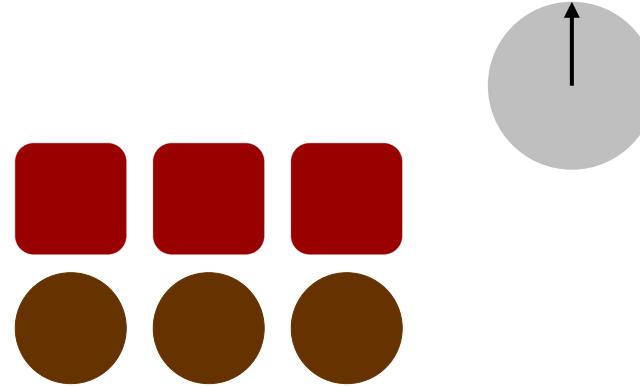
50%

**intensidade  
do distúrbio**

# variável preditora

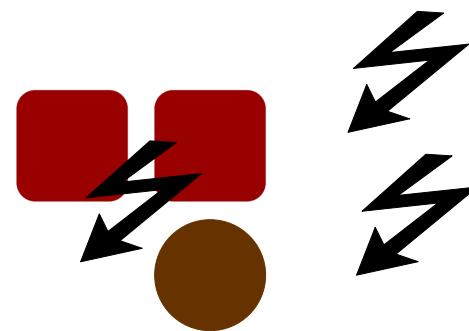


50%

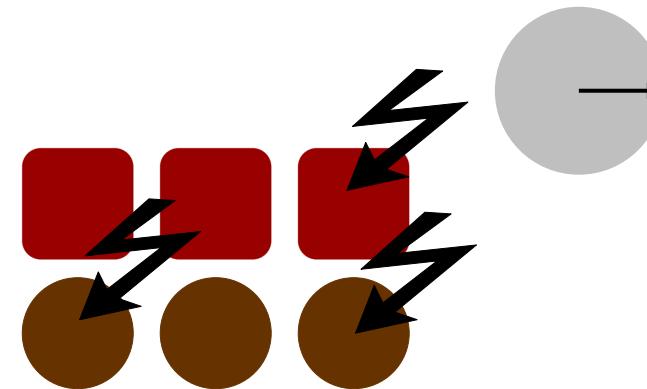


**intensidade  
do distúrbio**

# variável preditora

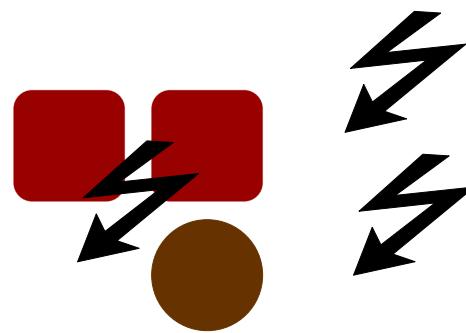


50%

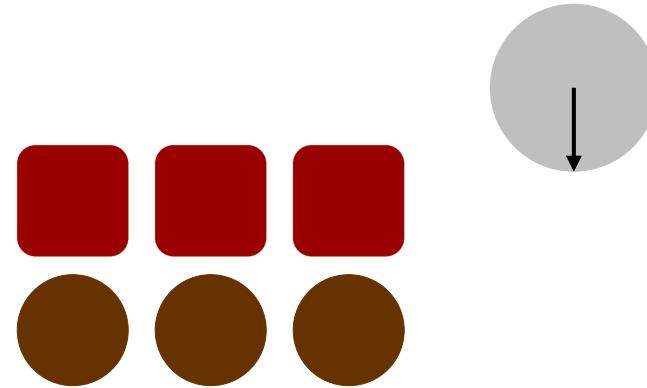


**intensidade  
do distúrbio**

# variável preditora

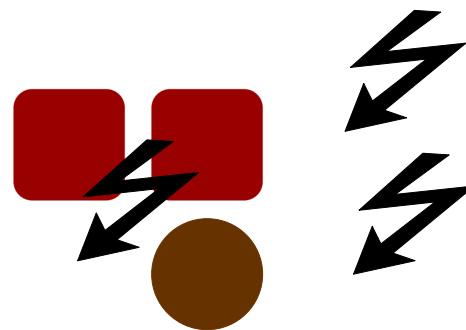


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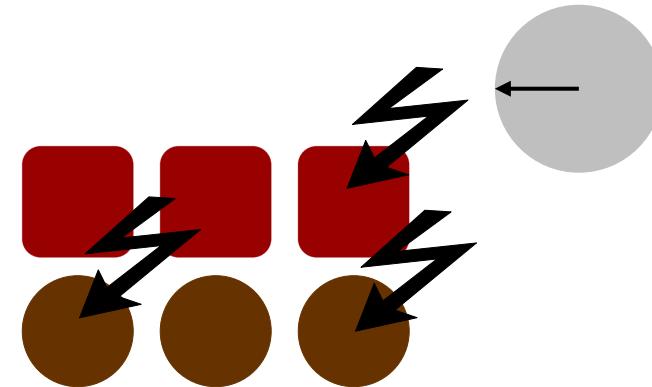


**intensidade  
do distúrbio**

# variável preditora

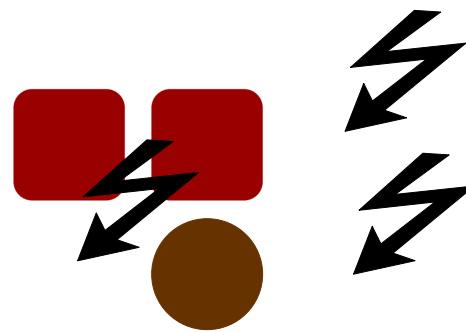


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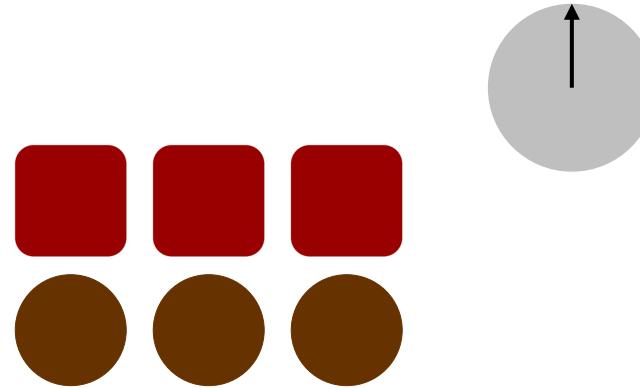


**intensidade  
do distúrbio**

# variável preditora

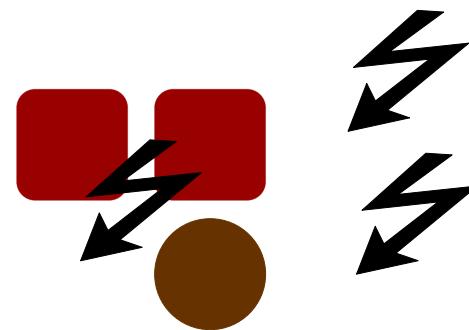


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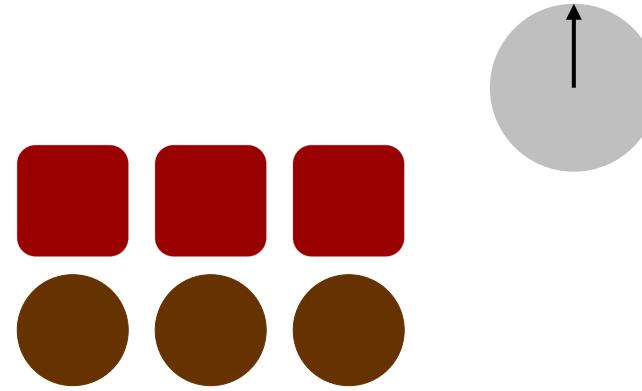
**intensidade  
do distúrbio**

# variável preditora



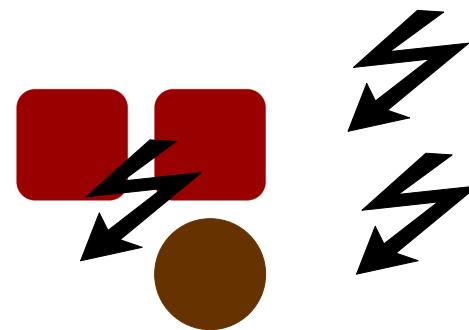
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**intensidade  
do distúrbio**



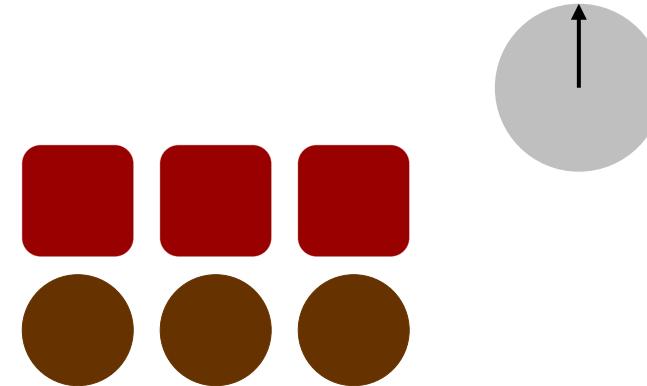
2 eventos

# variável preditora



50%

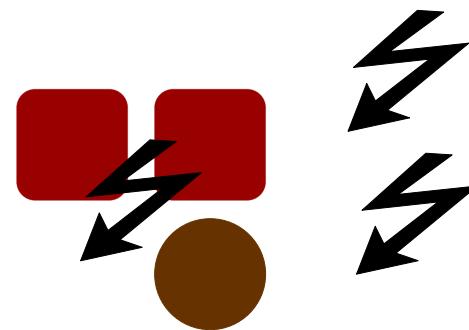
**intensidade  
do distúrbio**



2 eventos

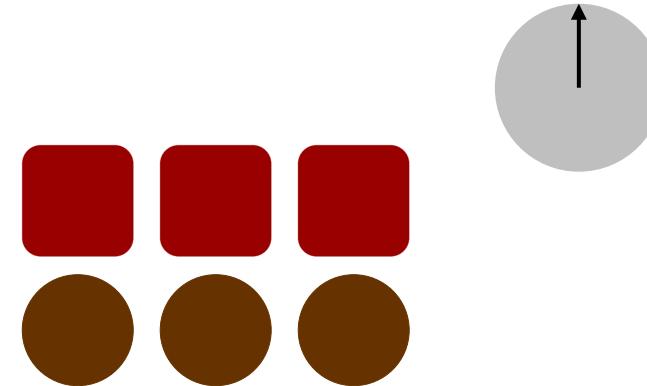
**número de  
eventos de  
distúrbio**

# variável preditora



50%

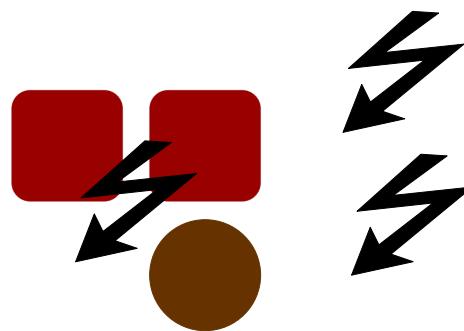
**intensidade  
do distúrbio**



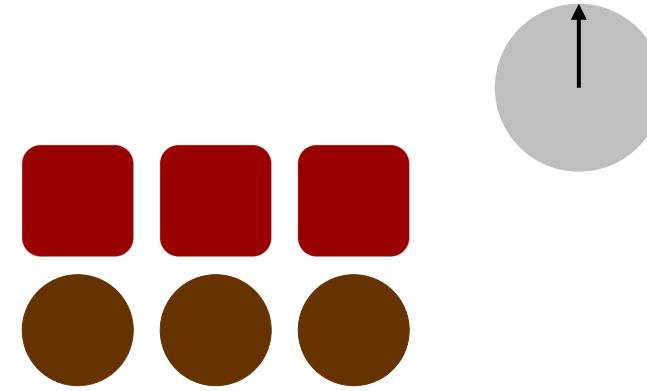
2 eventos

**número de  
eventos de  
distúrbio**

# variável preditora



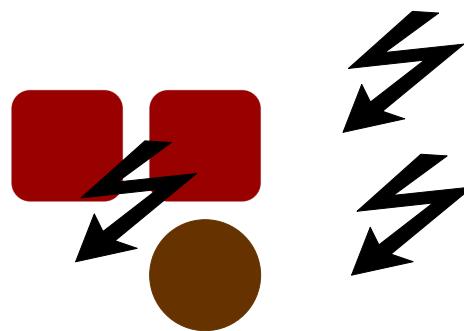
50%



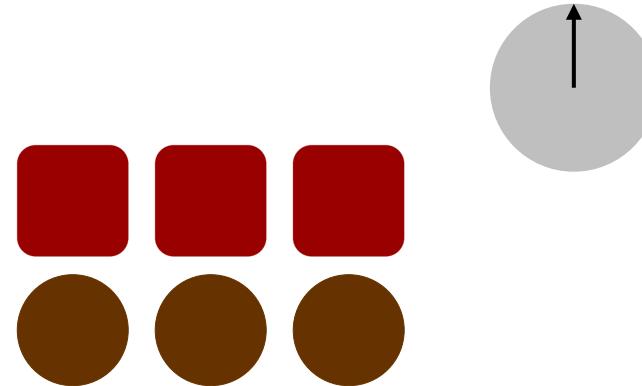
2 eventos

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# variável preditora



50%



2 eventos

**índice de  
distúrbio**



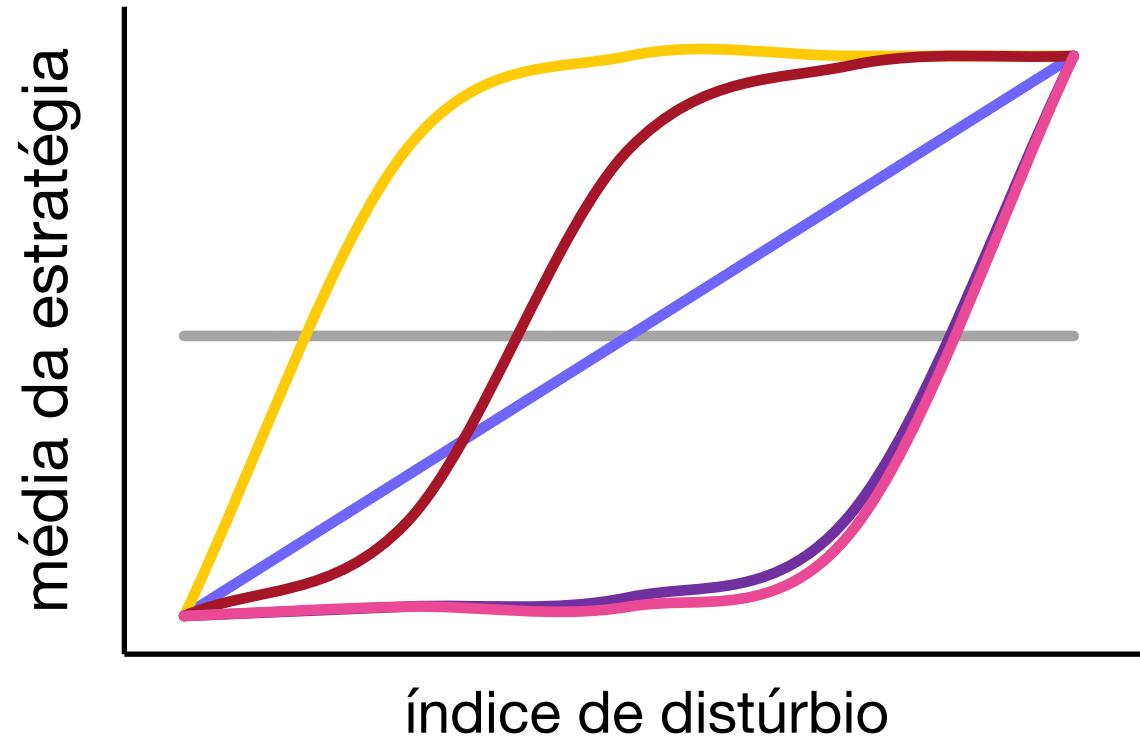
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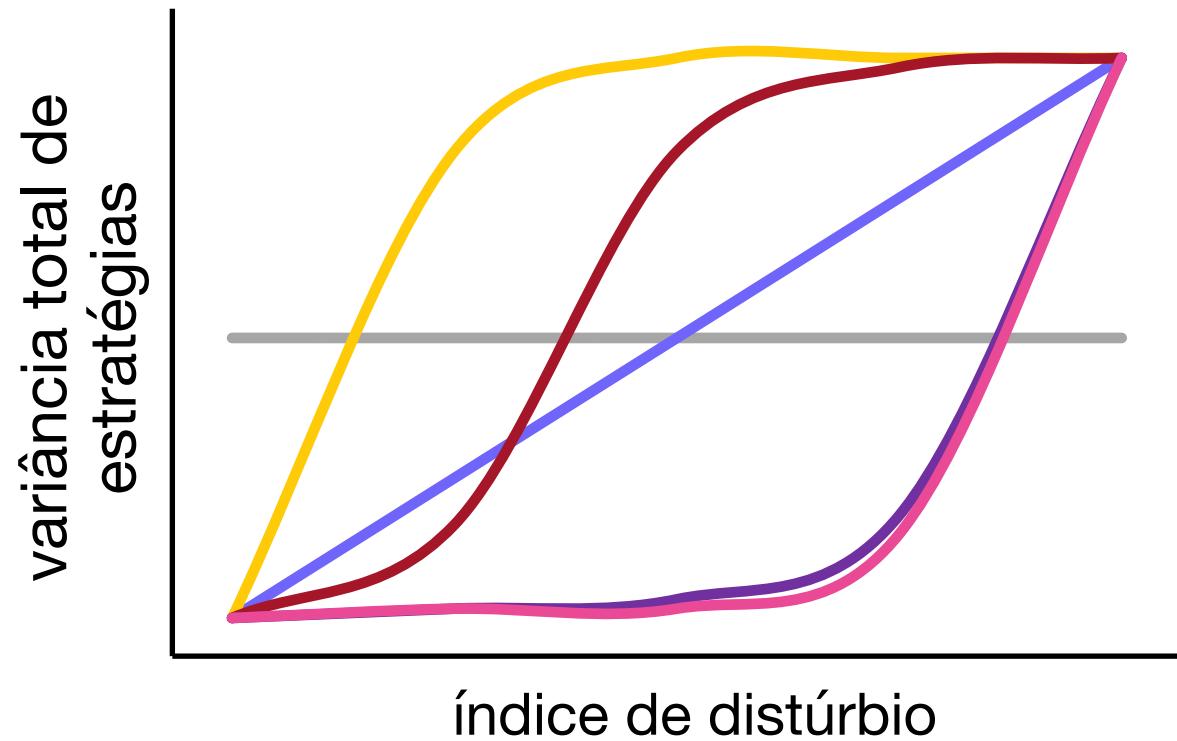
# modelos

estratégia média ~ distúrbio

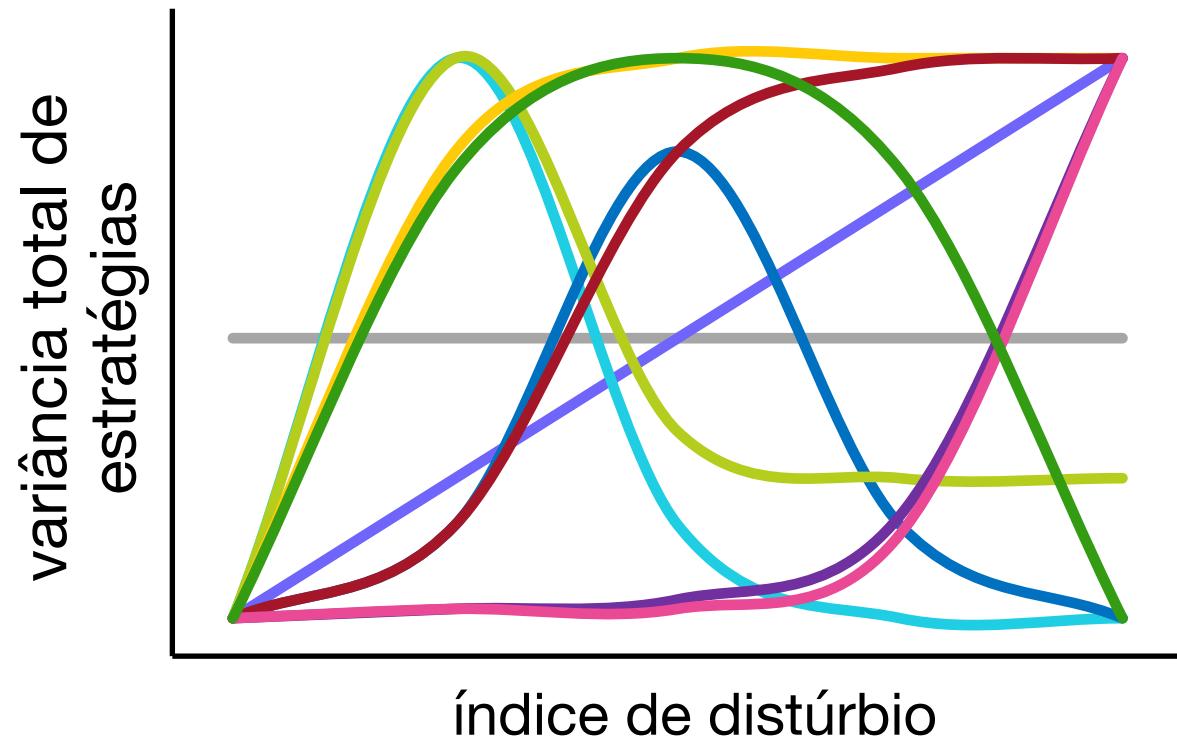
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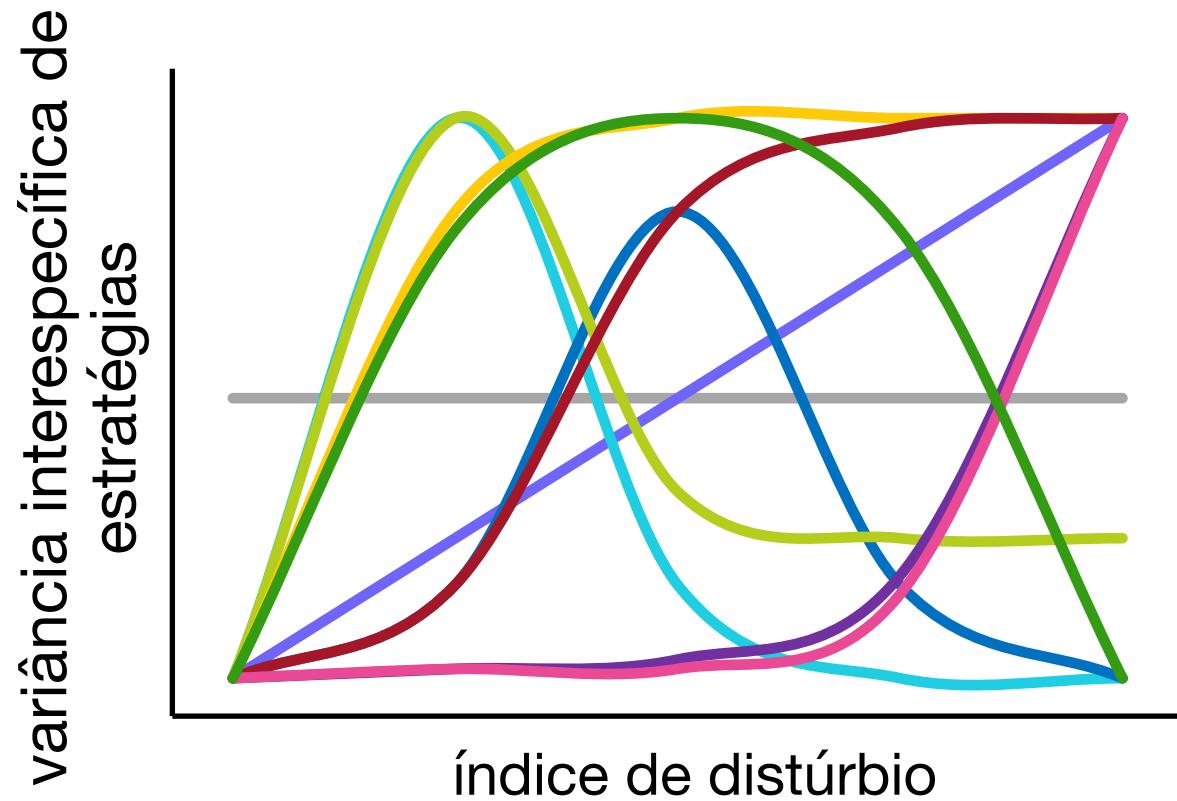
diversidade de estratégias ~ distúrbio



diversidade de estratégias ~ distúrbio



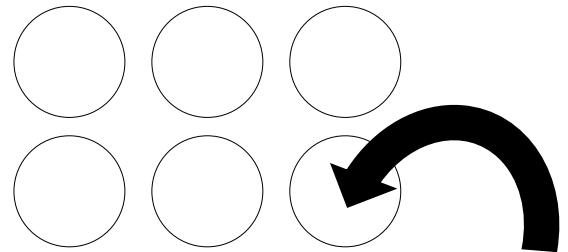
# heterogeneidade interespecífica de ~ estratéгias distúrbio





# seleção de modelos

## evolutivo

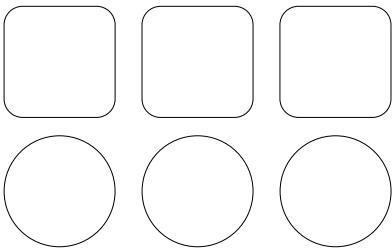


estratégia média

diversidade  
de estratégias

-

## ecológico

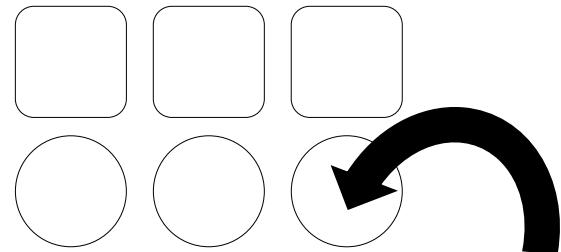


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

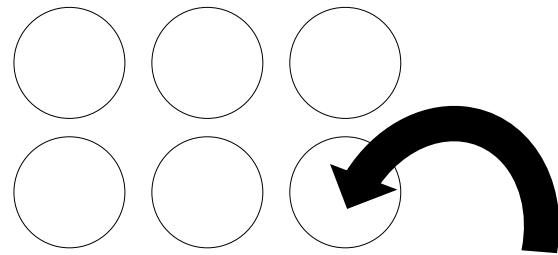


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

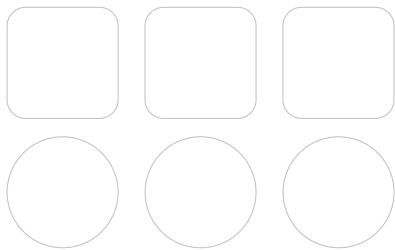


### estratégia média

diversidade  
de estratégias

-

## ecológico

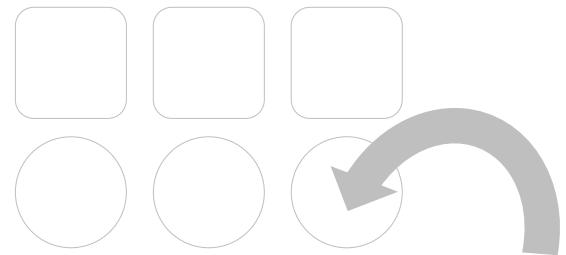


### estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

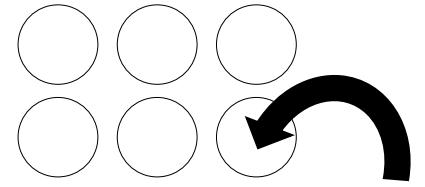
## eco-evolutivo



### estratégia média

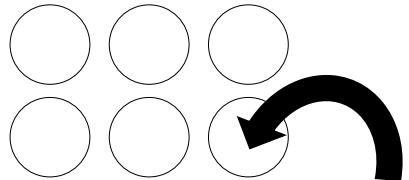
diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias



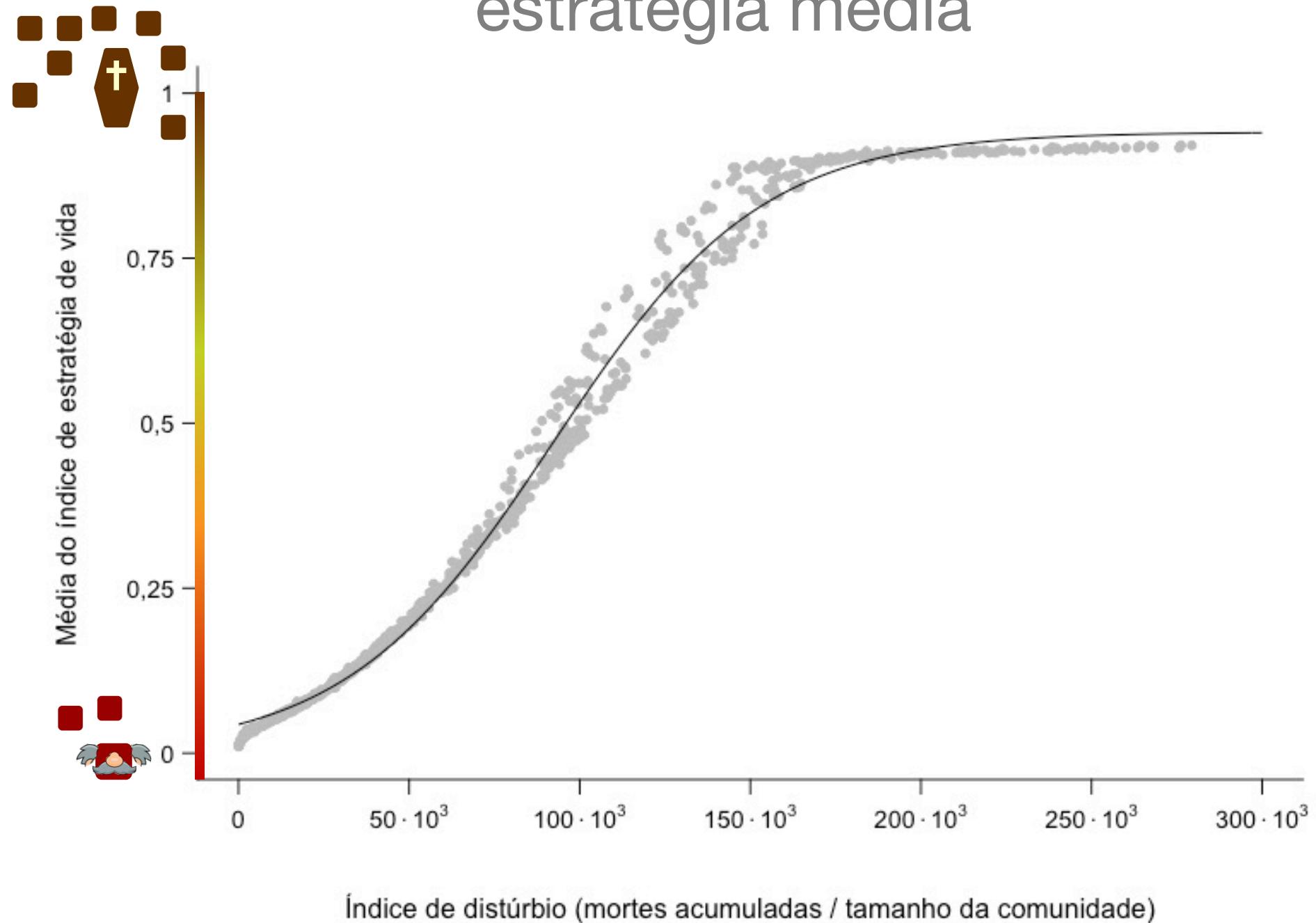
**evolutivo**

# estratégia média



**evolutivo**

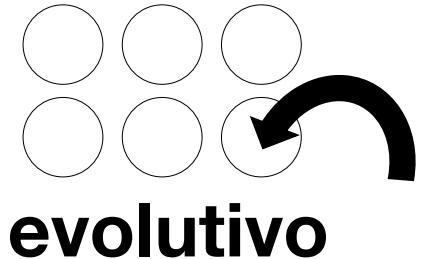
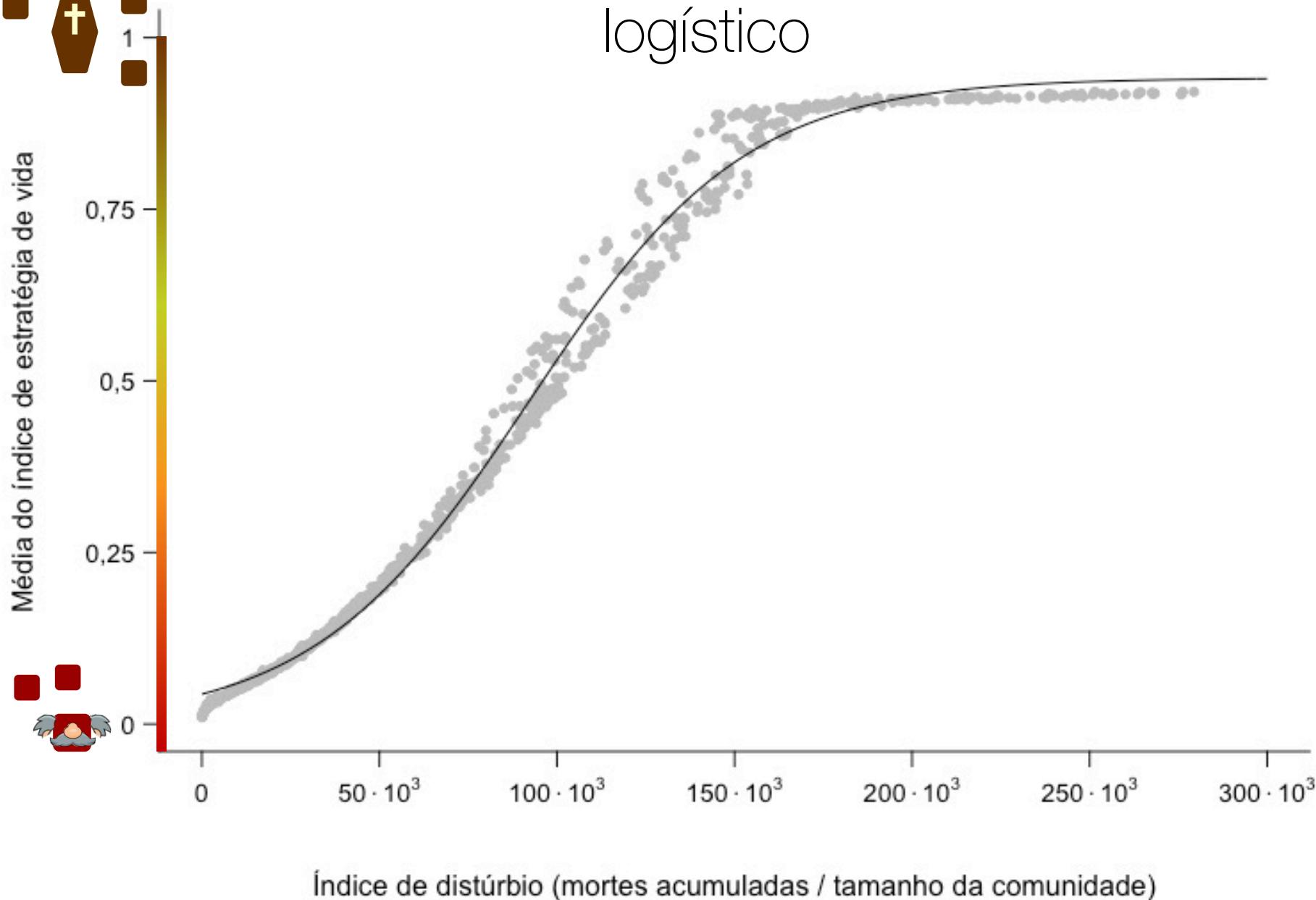
# estratégia média



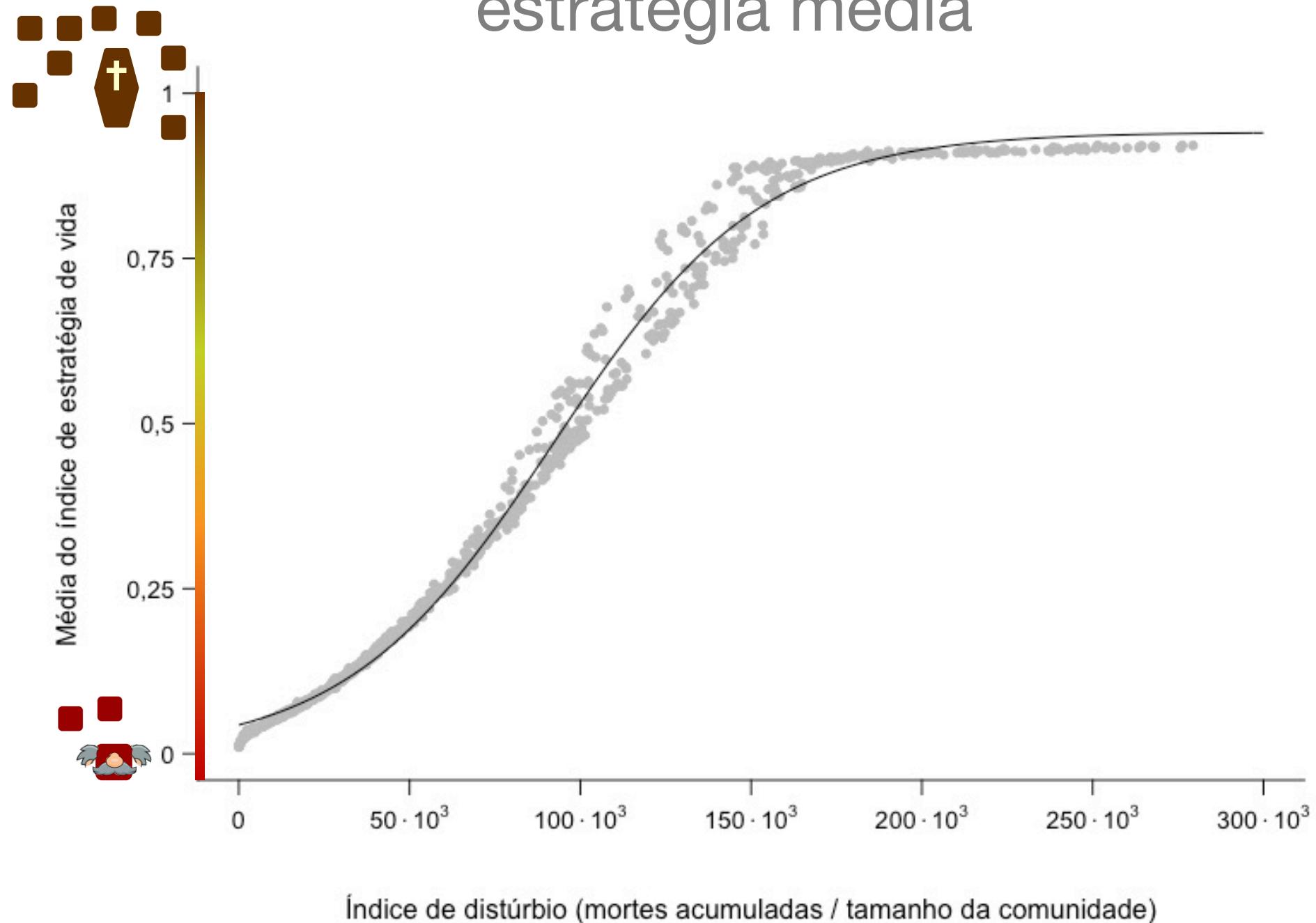
evolutivo

# estratégia média

logístico

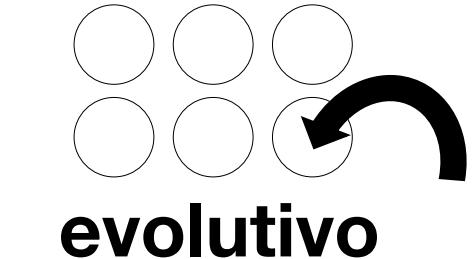
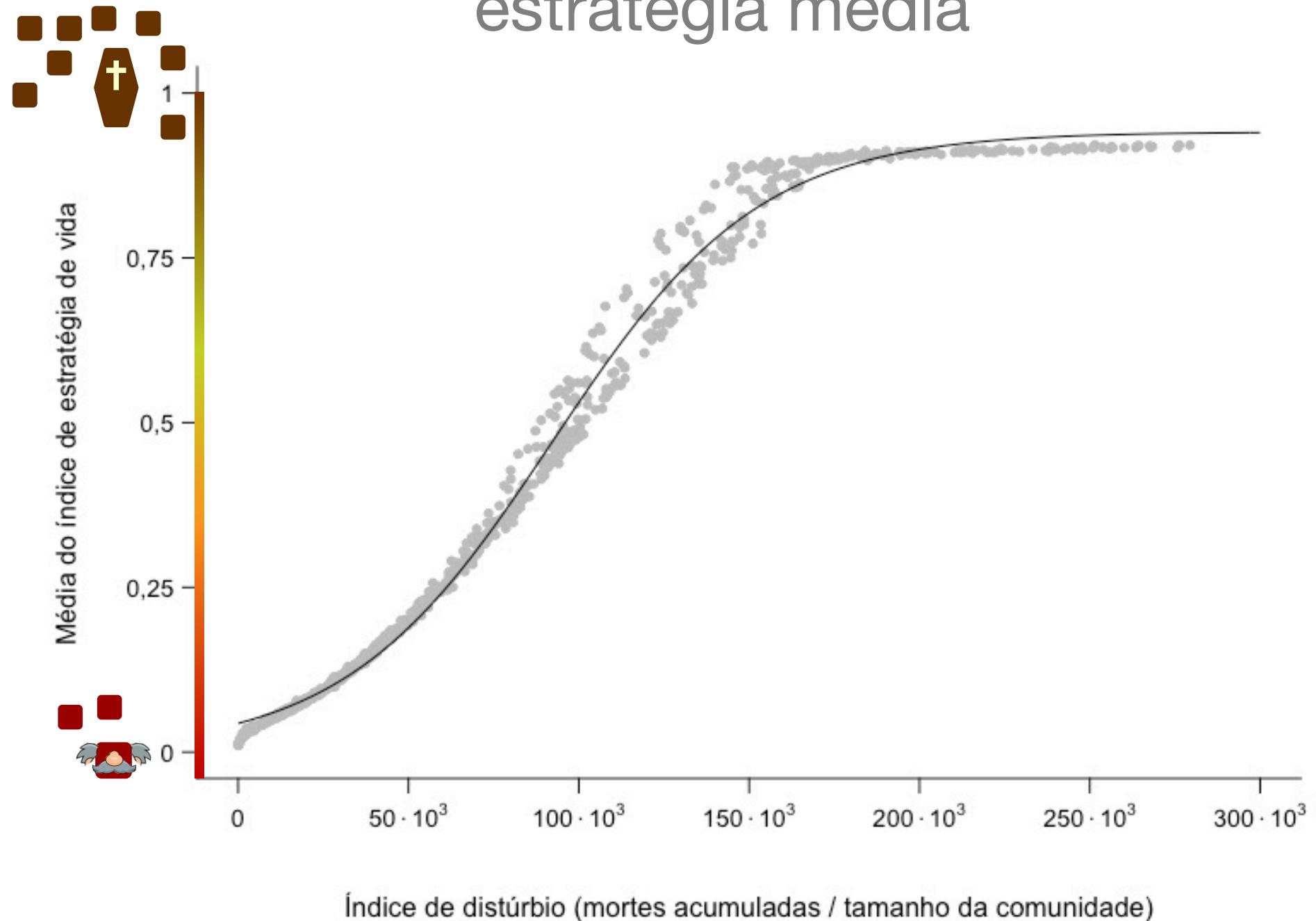


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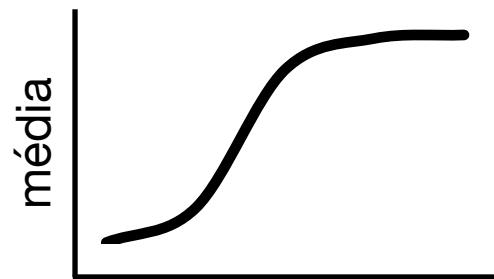
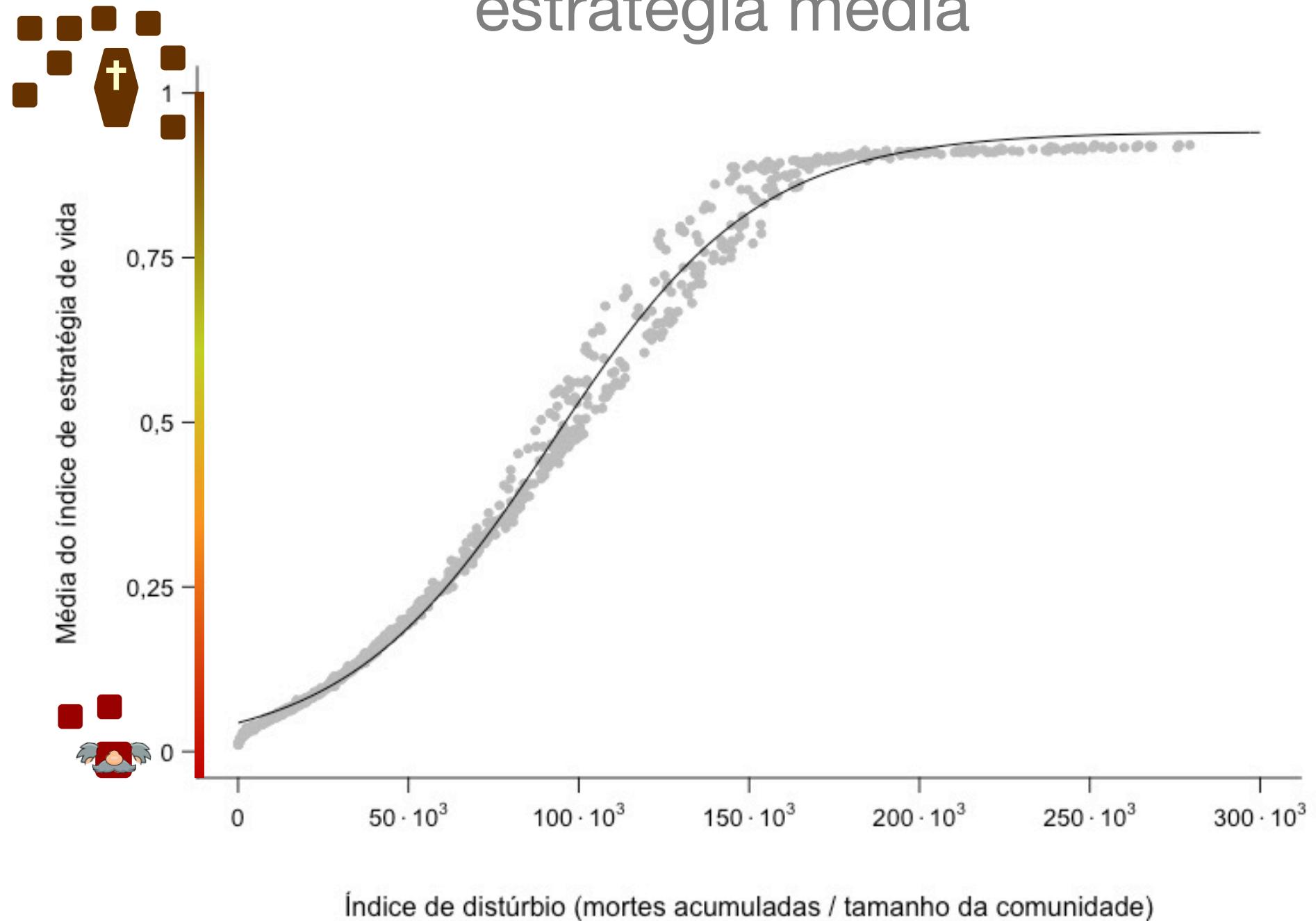


evolutivo

# estratégia média

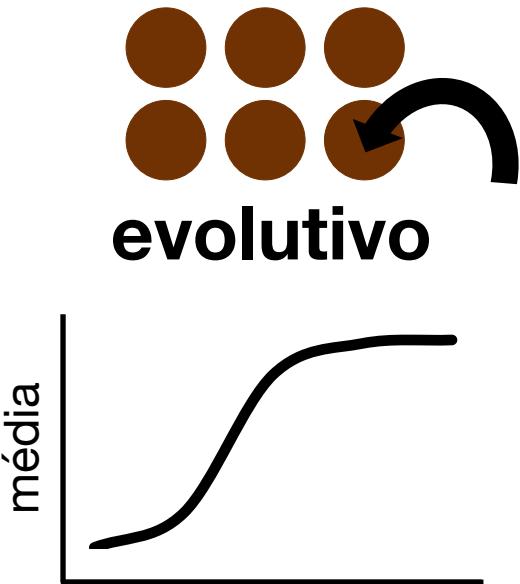


# estratégia média



# seleção natural

- variação herdável
- componente da aptidão



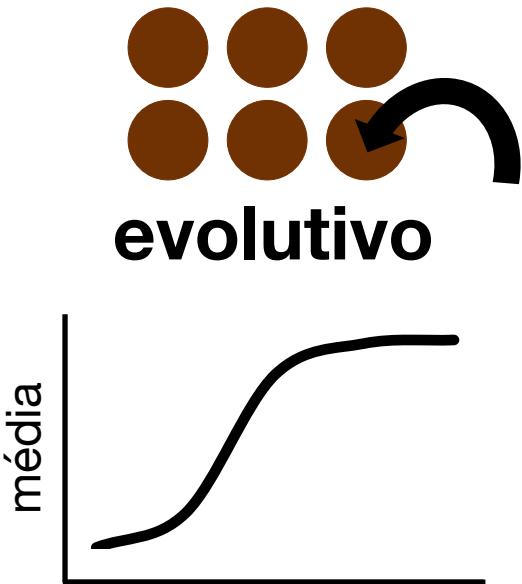
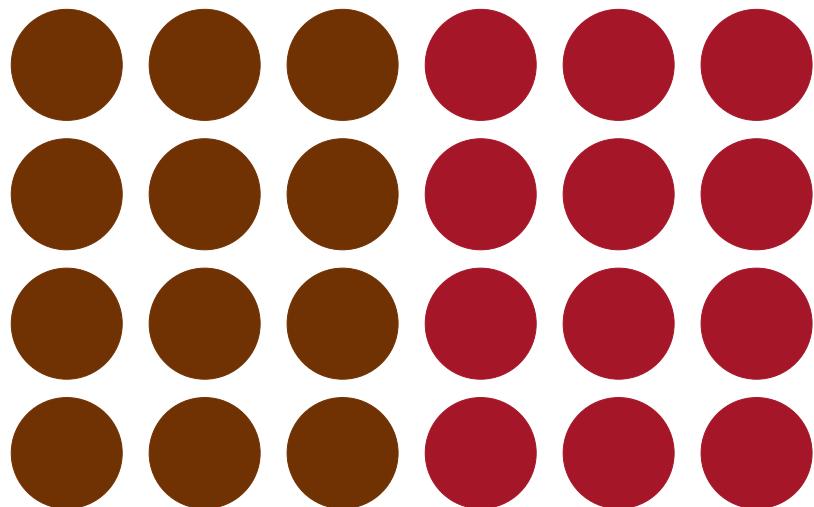
# seleção natural

- variação herdável
- componente da aptidão

banco

x 96

x 24



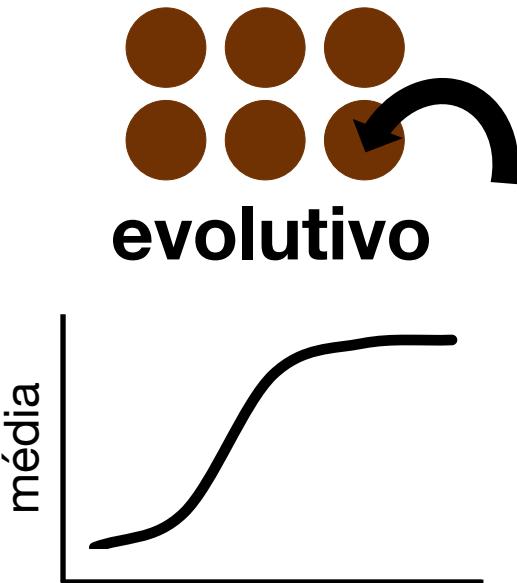
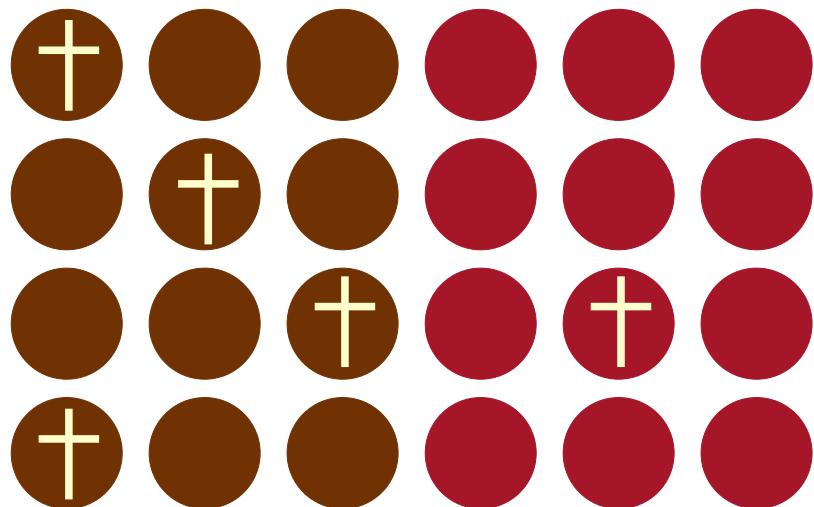
# seleção natural

- variação herdável
- componente da aptidão

banco

x 96

x 24



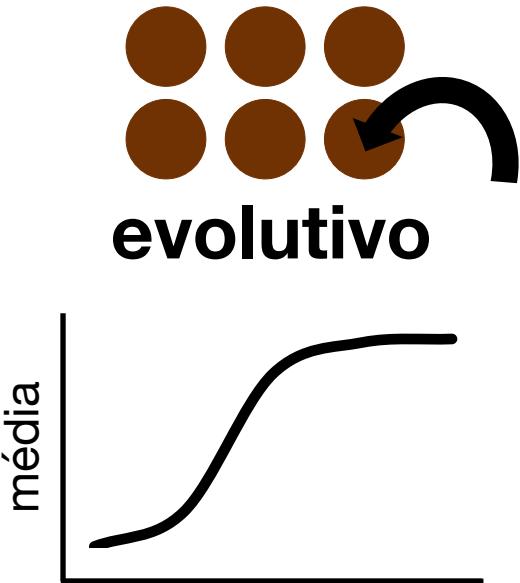
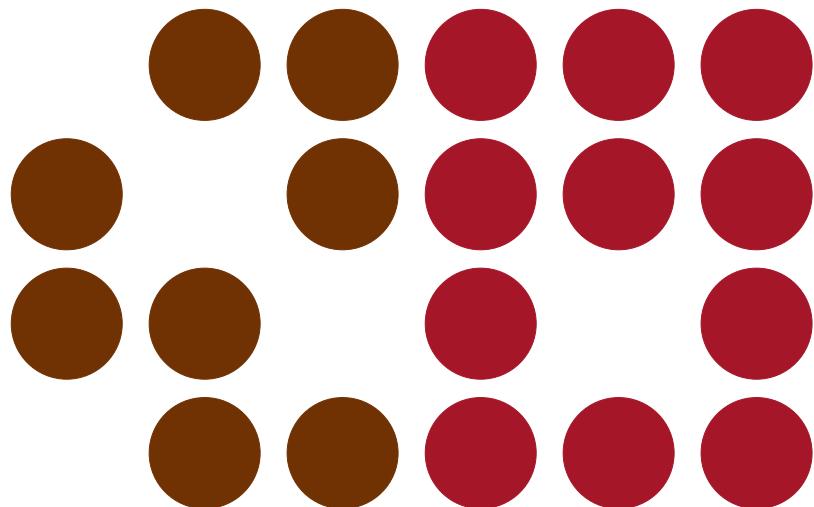
# seleção natural

- variação herdável
- componente da aptidão

banco

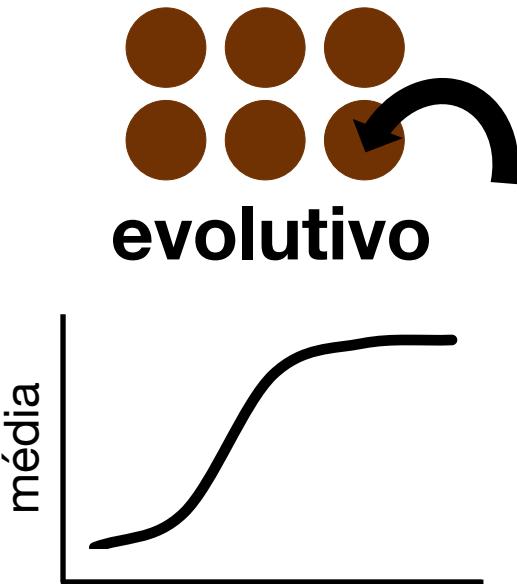
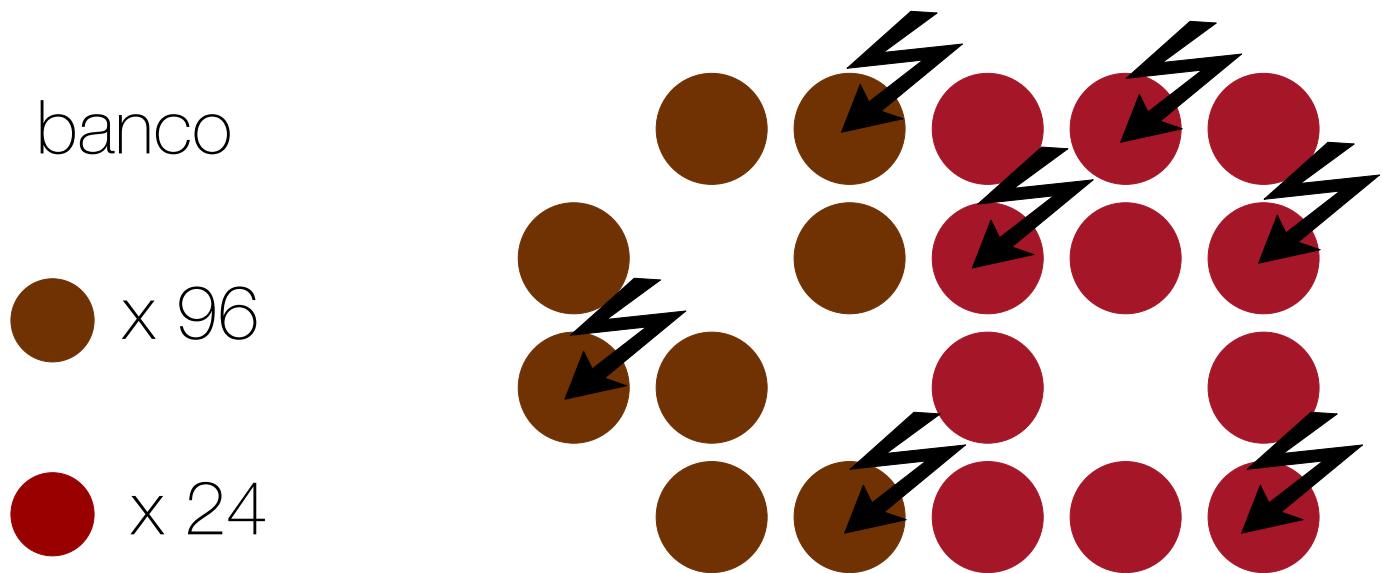
x 96

x 24



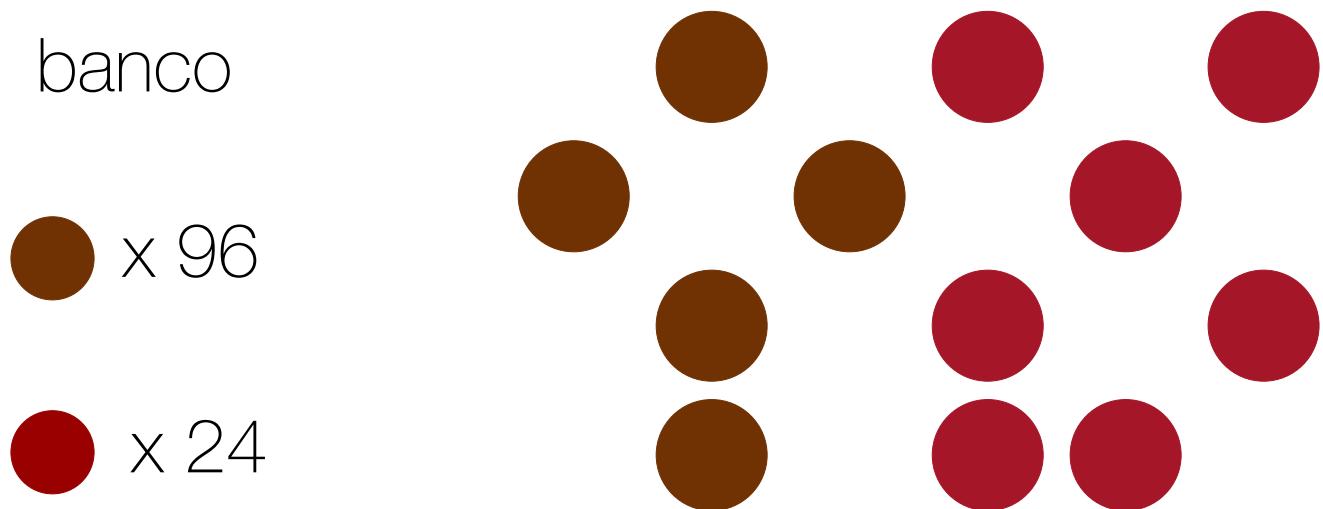
# seleção natural

- variação herdável
- componente da aptidão



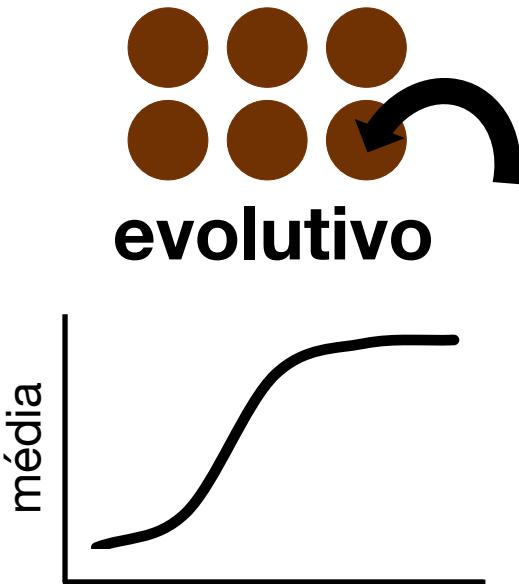
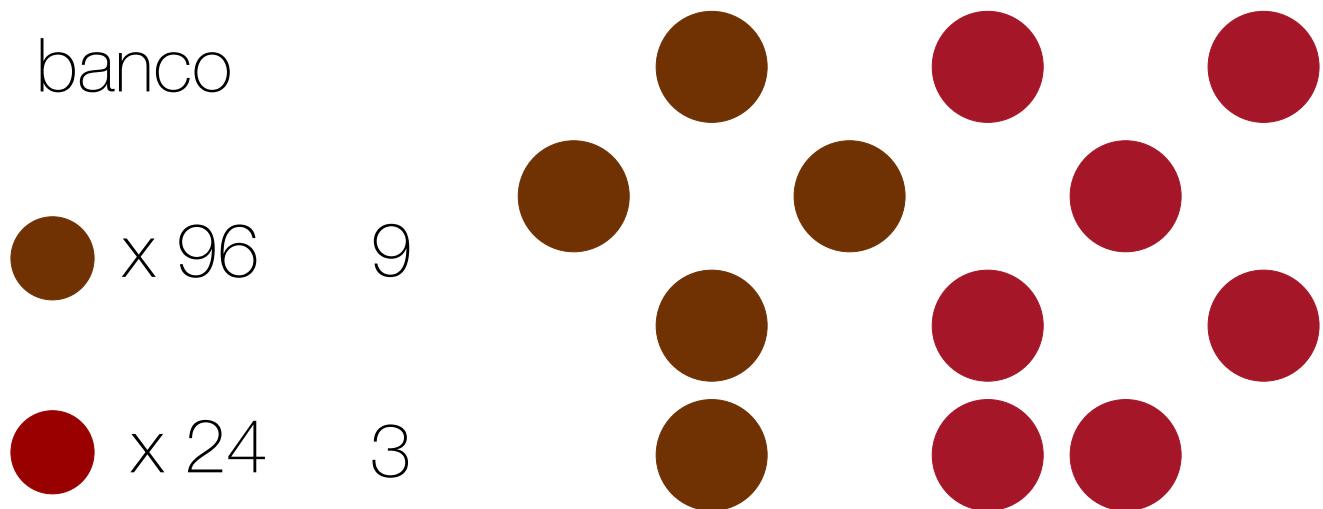
# seleção natural

- variação herdável
- componente da aptidão



# seleção natural

- variação herdável
- componente da aptidão



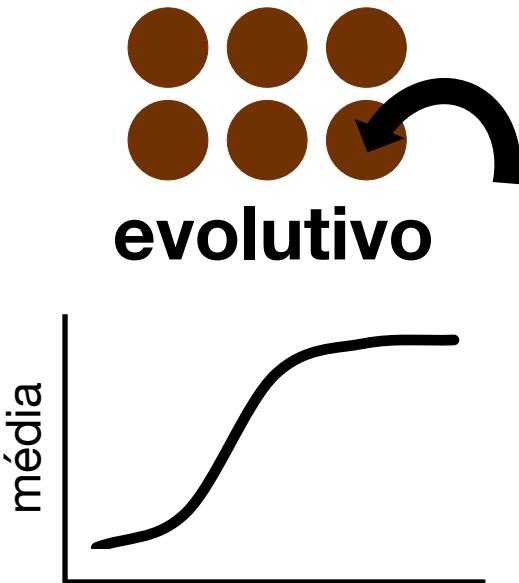
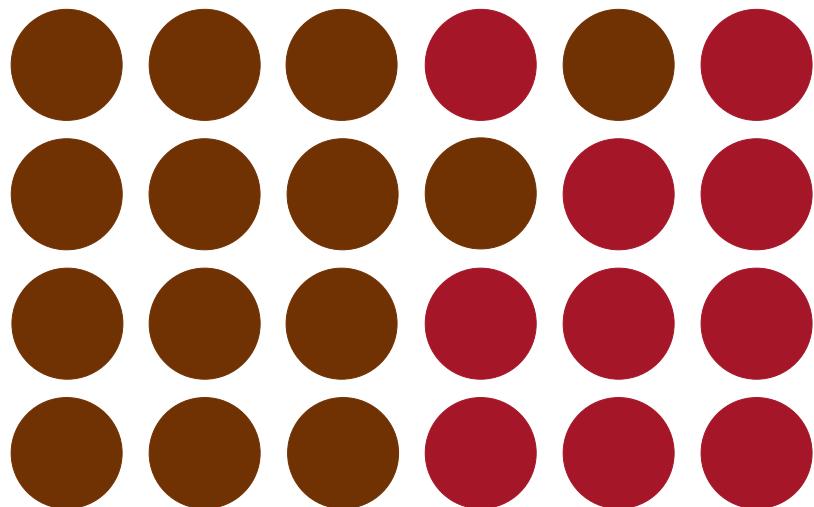
# seleção natural

- variação herdável
- componente da aptidão

banco

x 112

x 20



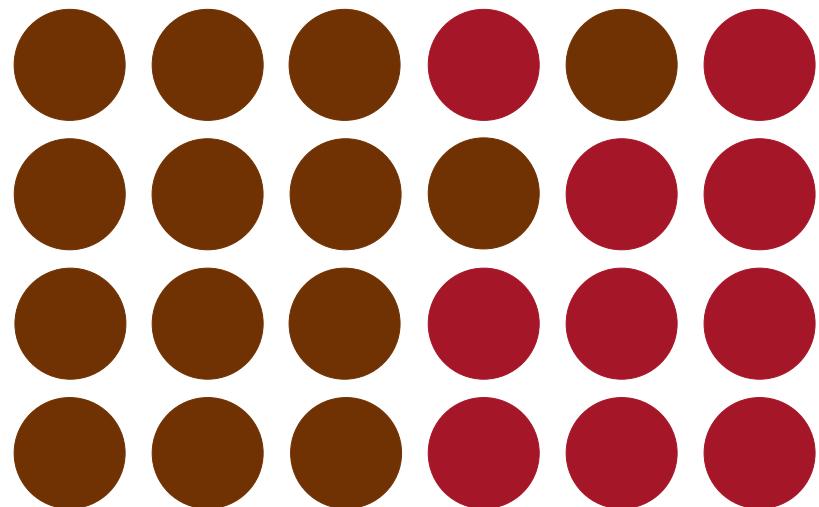
# seleção natural

- variação herdável
- componente da aptidão

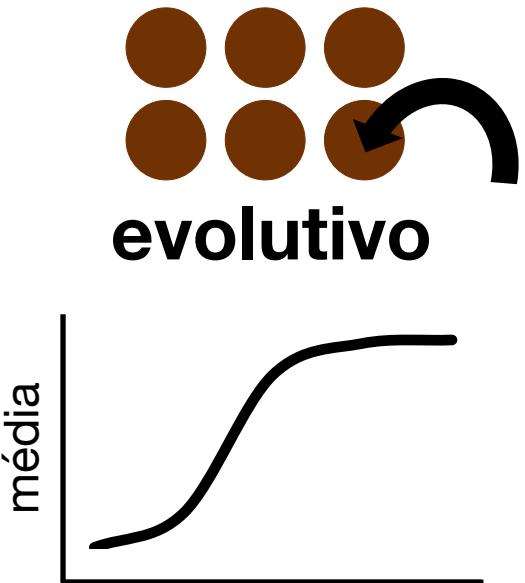
banco

x 112

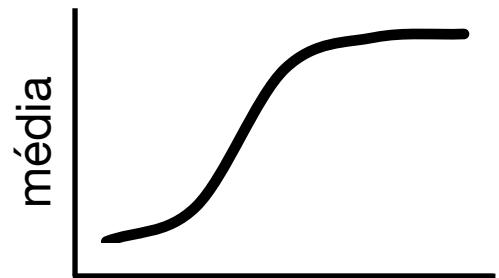
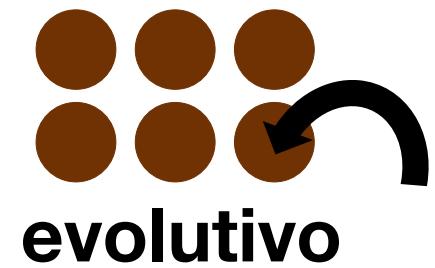
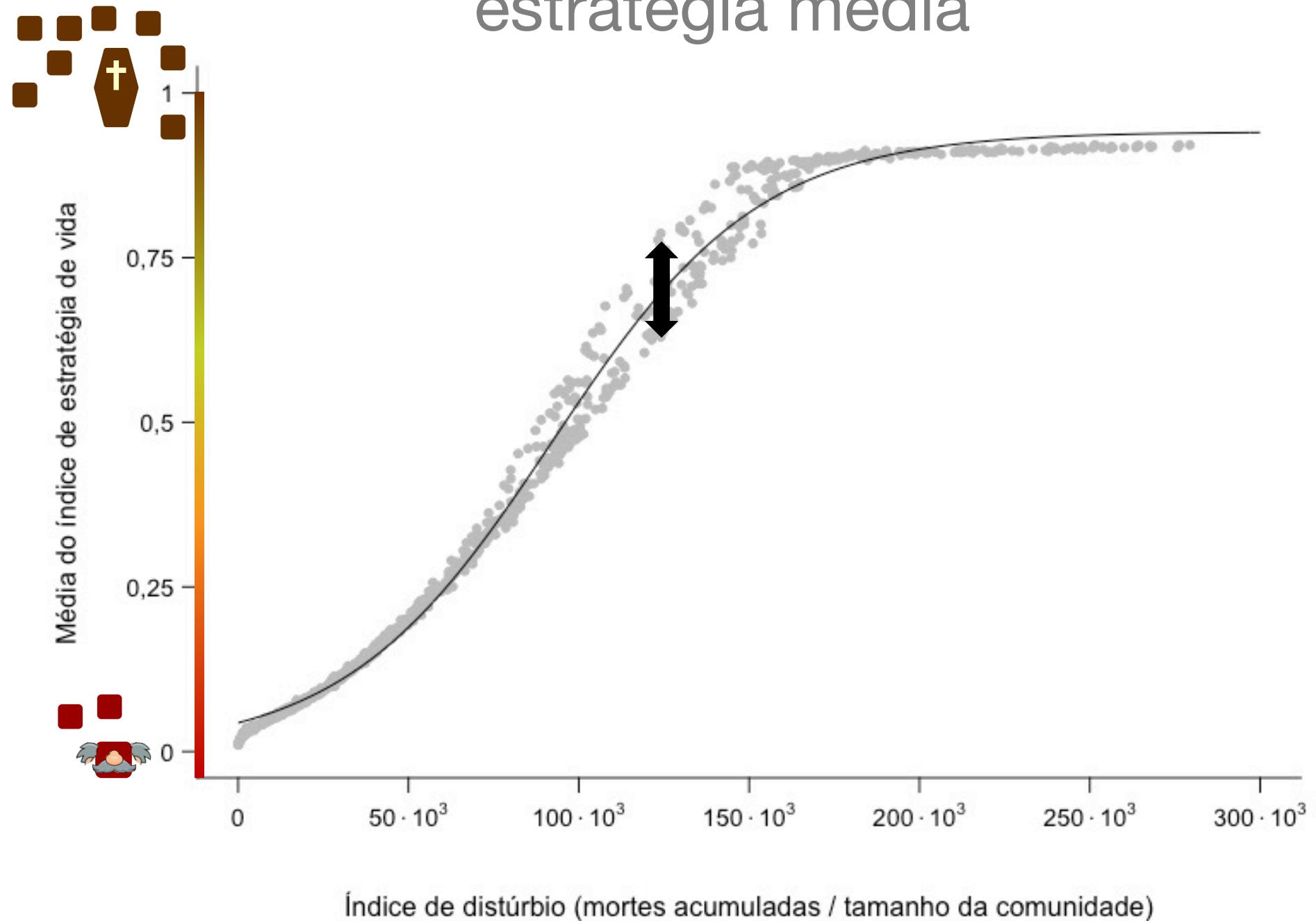
x 20



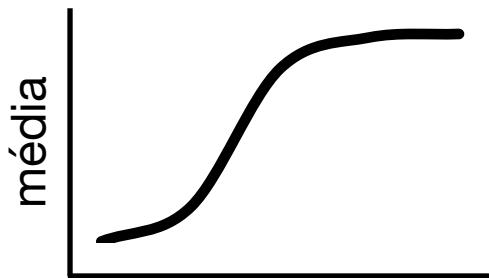
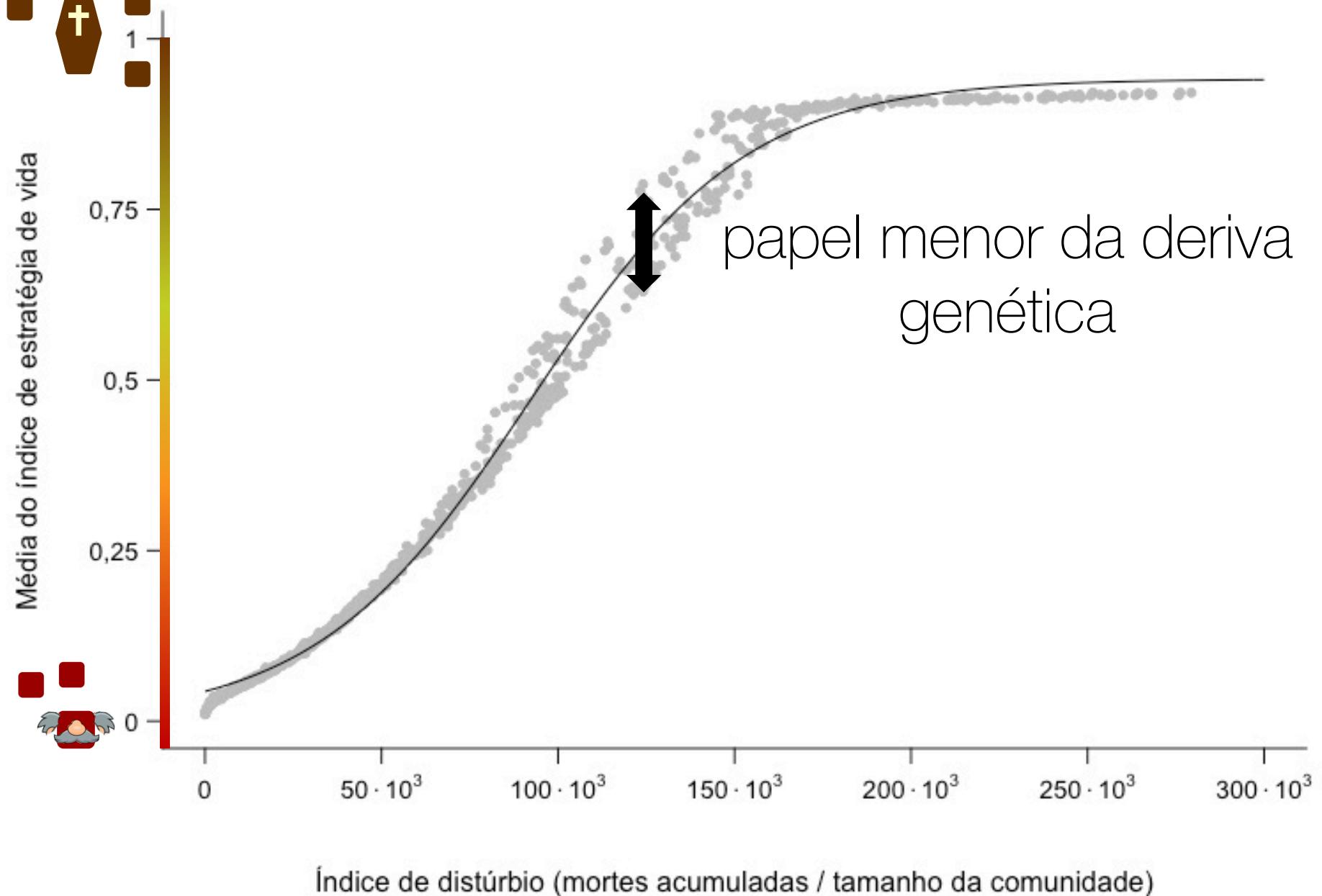
estratégia de maior fecundidade mais apta



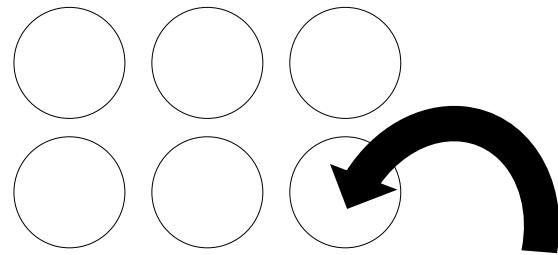
# estratégia média



# estratégia média



## evolutivo

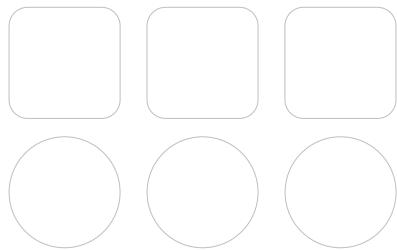


### estratégia média

diversidade  
de estratégias

-

## ecológico

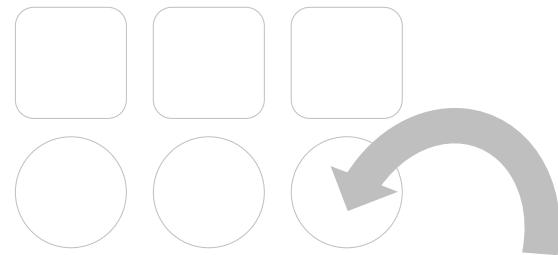


### estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

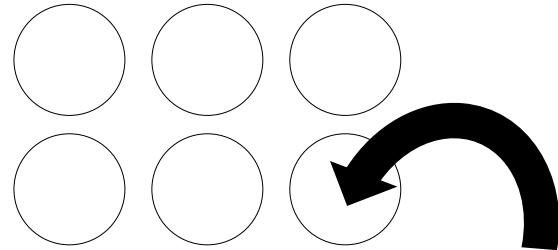


### estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

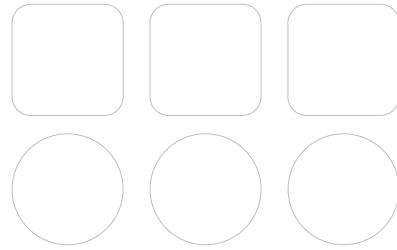


estratégia média

diversidade  
de estratégias

-

## ecológico

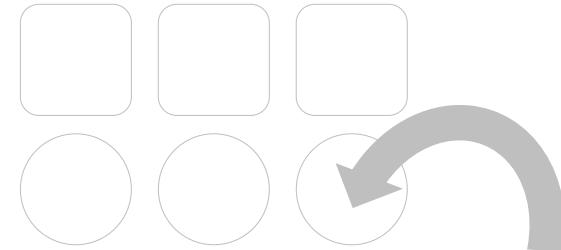


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

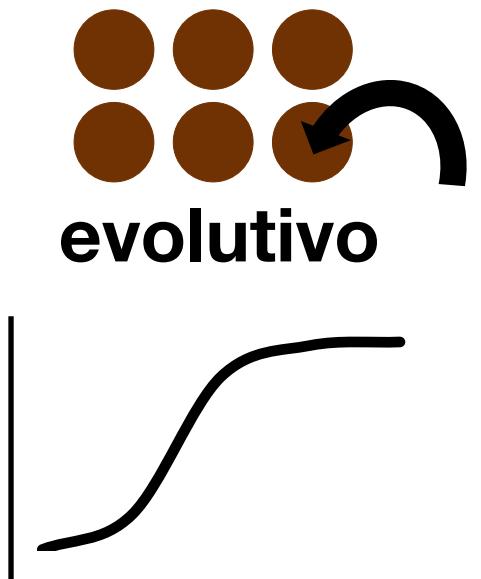
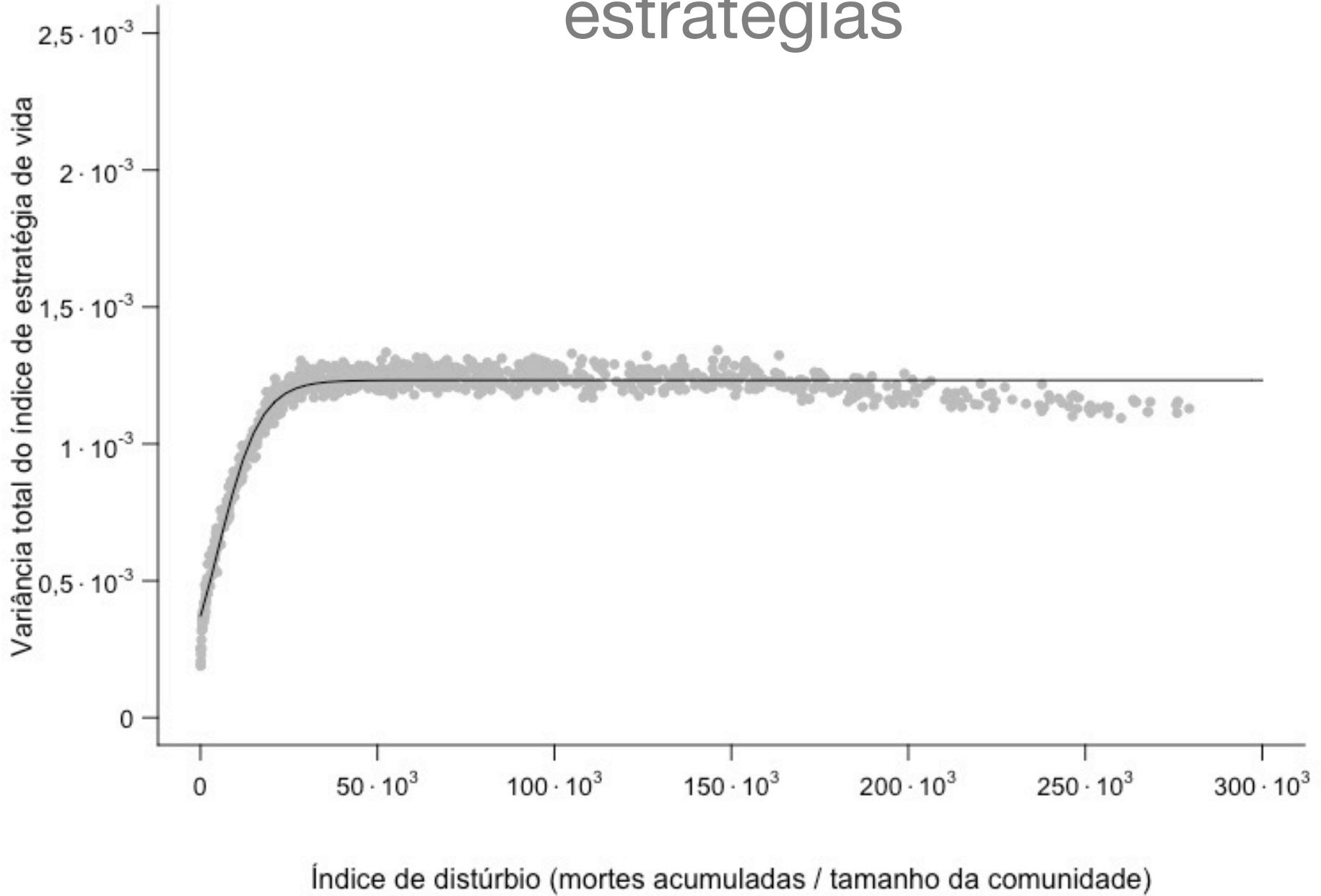


estratégia média

diversidade  
de estratégias

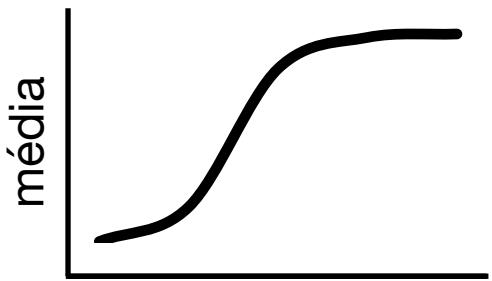
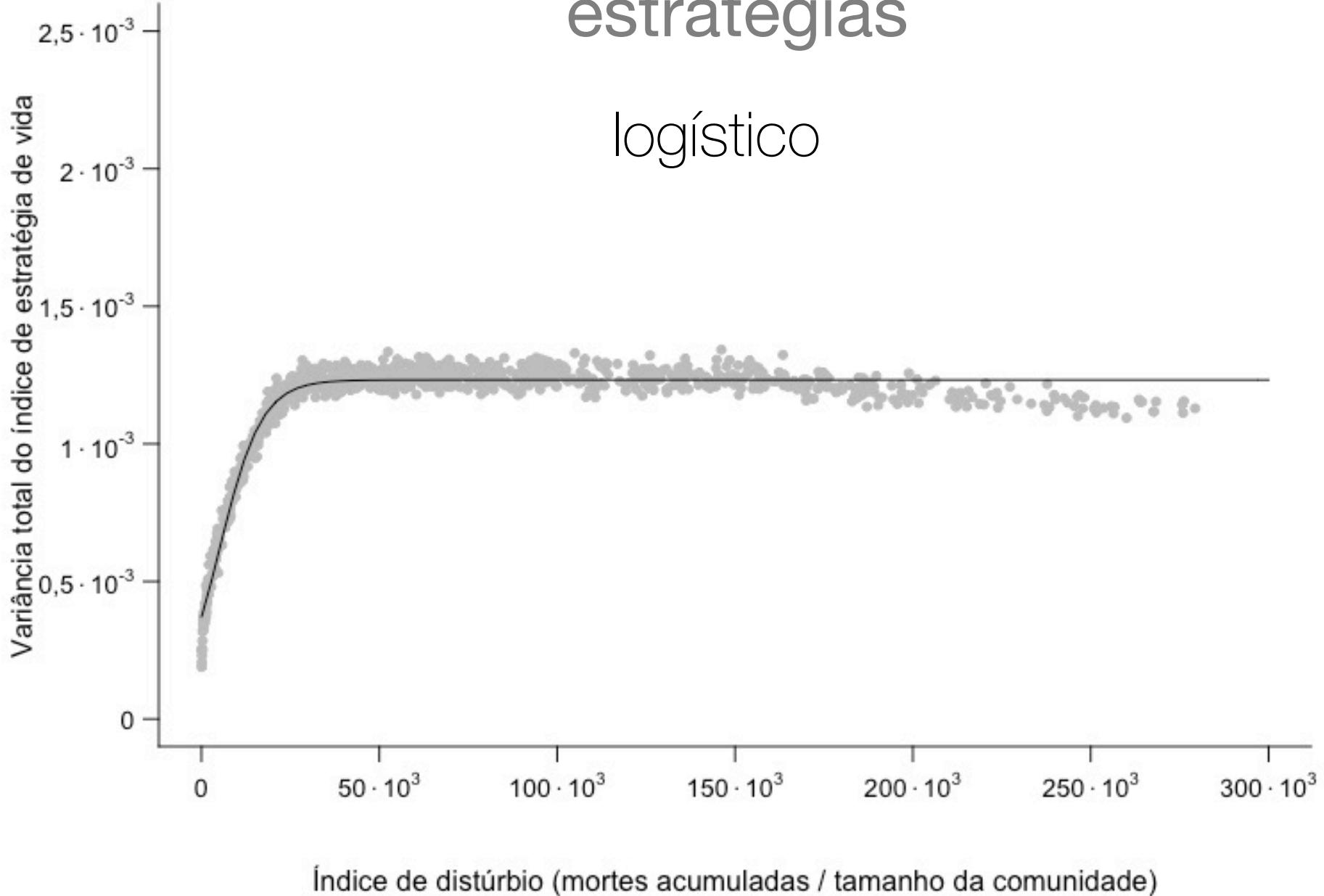
heterogeneidade  
interespecífica de  
estratégias

# diversidade de estratégias

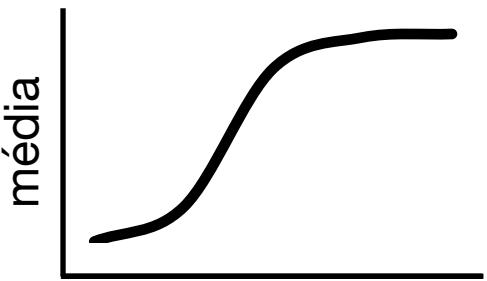
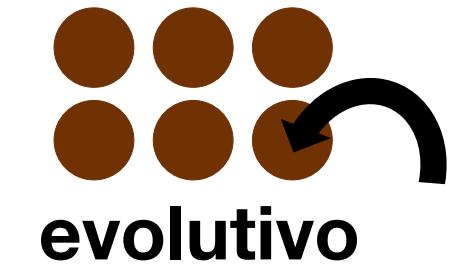
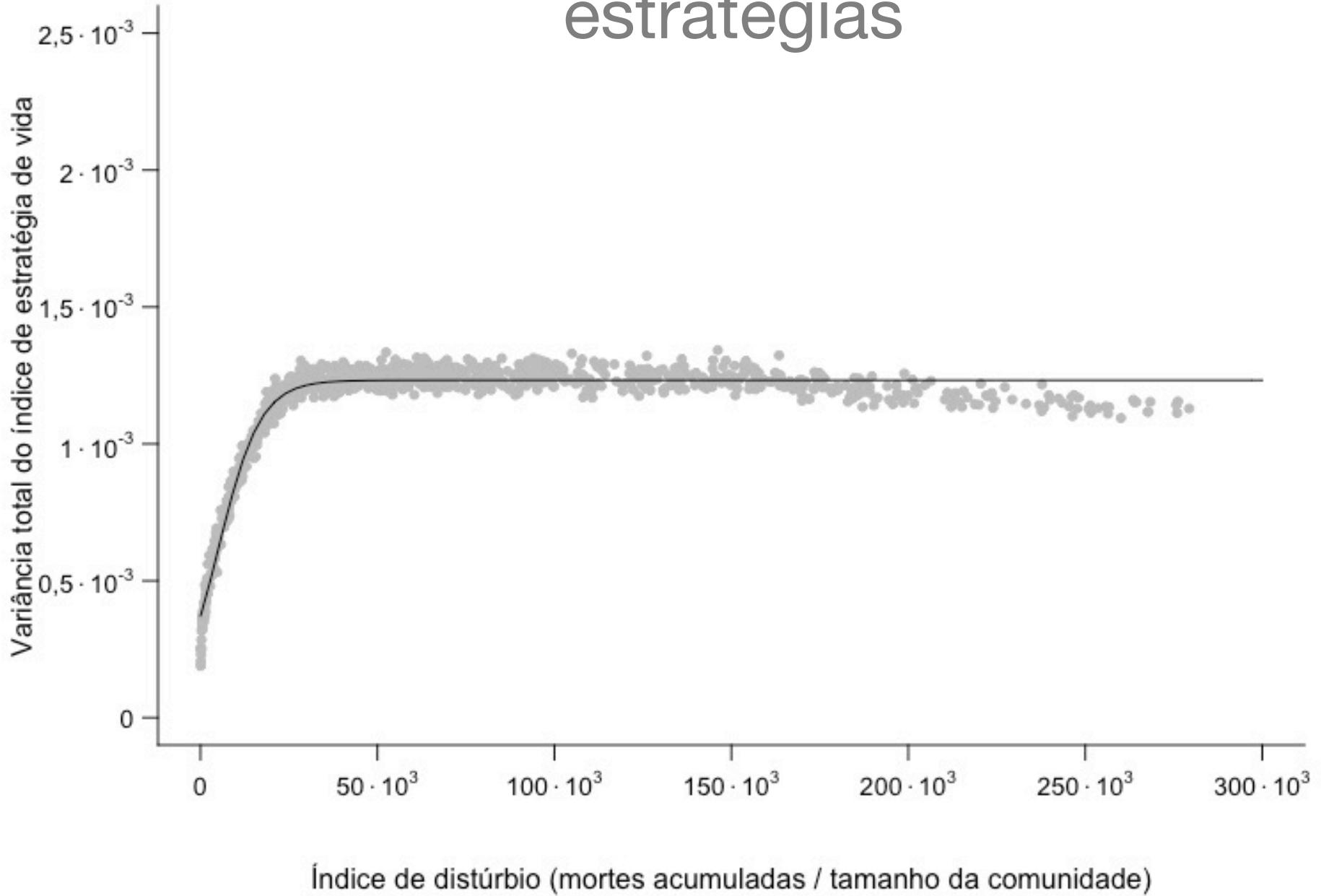


# diversidade de estratégias

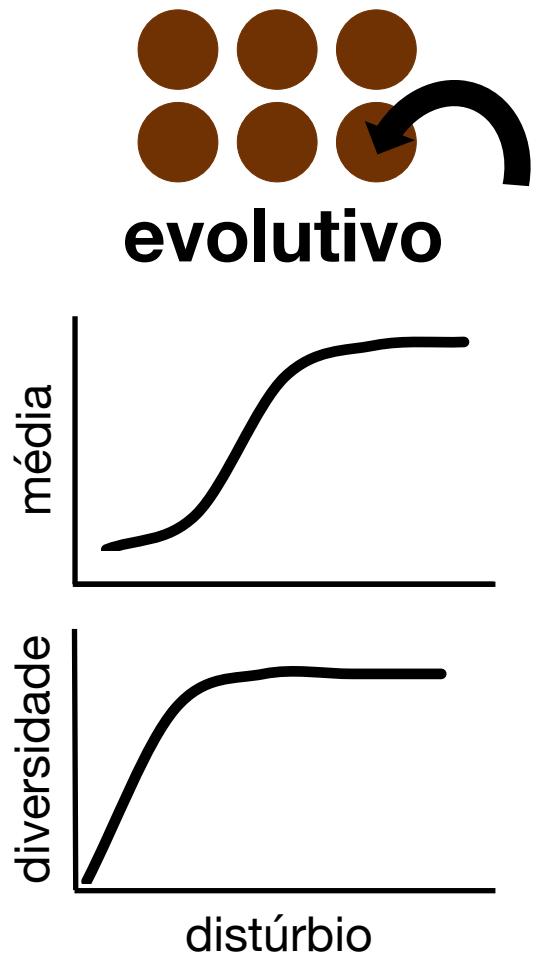
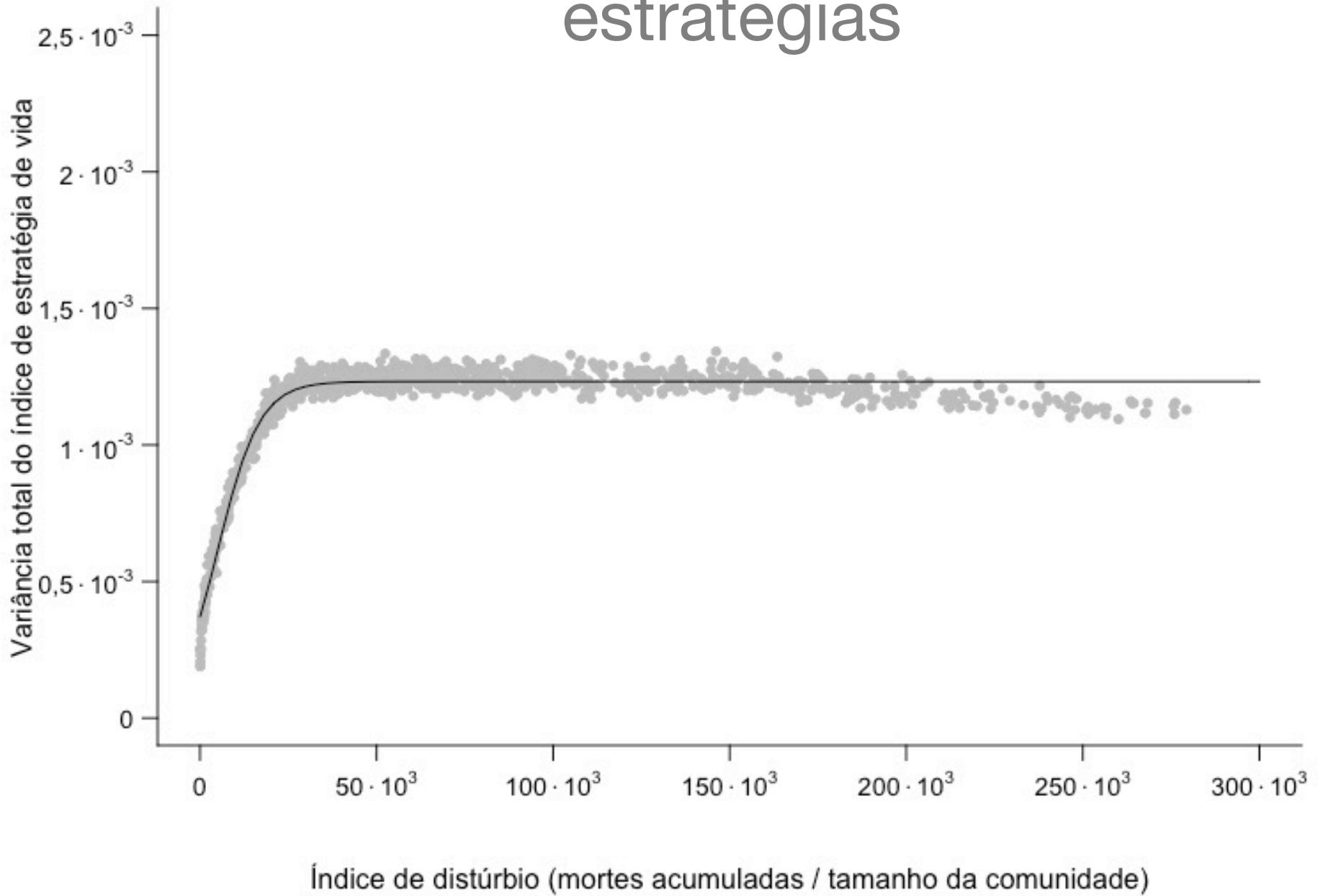
logístico



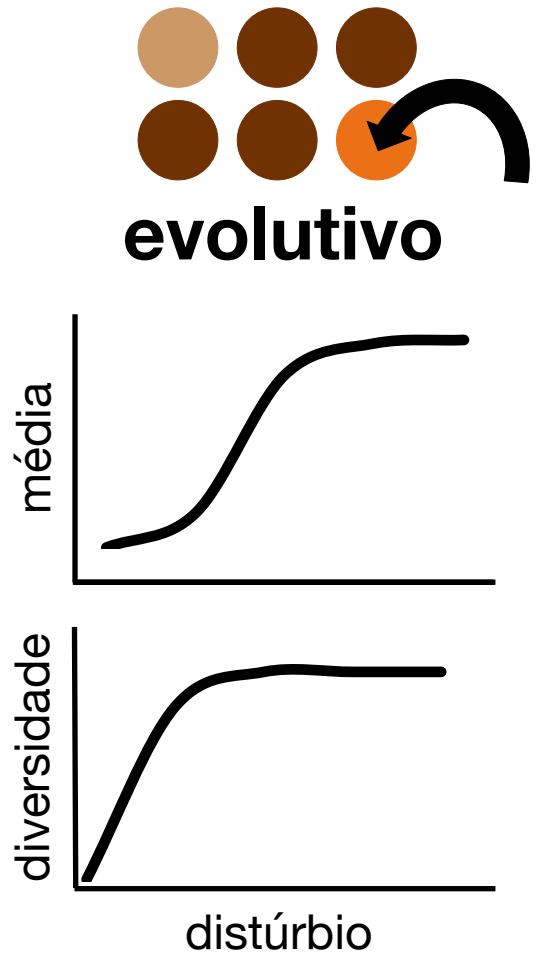
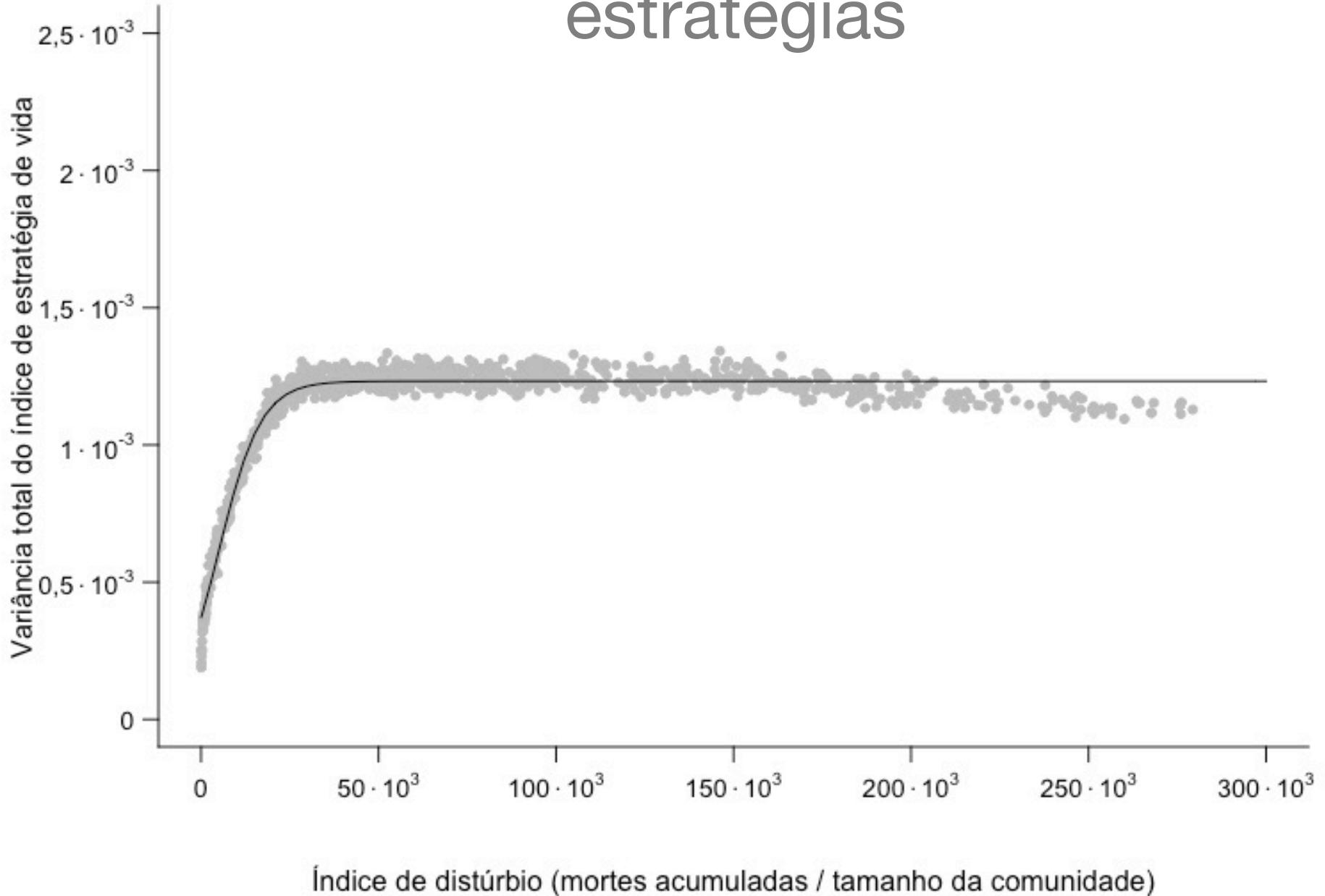
# diversidade de estratégias



# diversidade de estratégias



# diversidade de estratégias

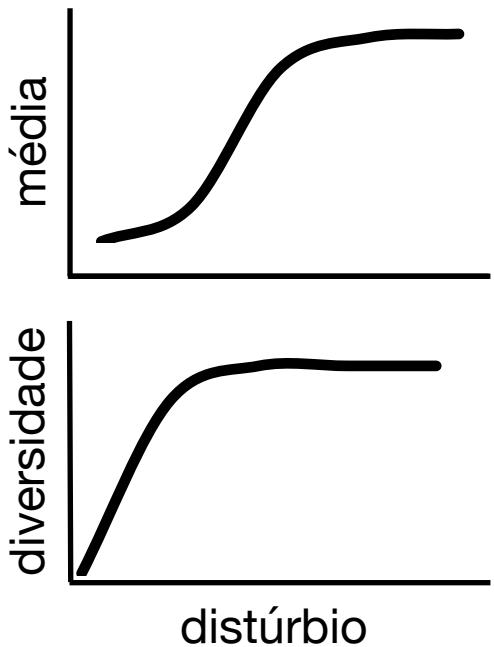
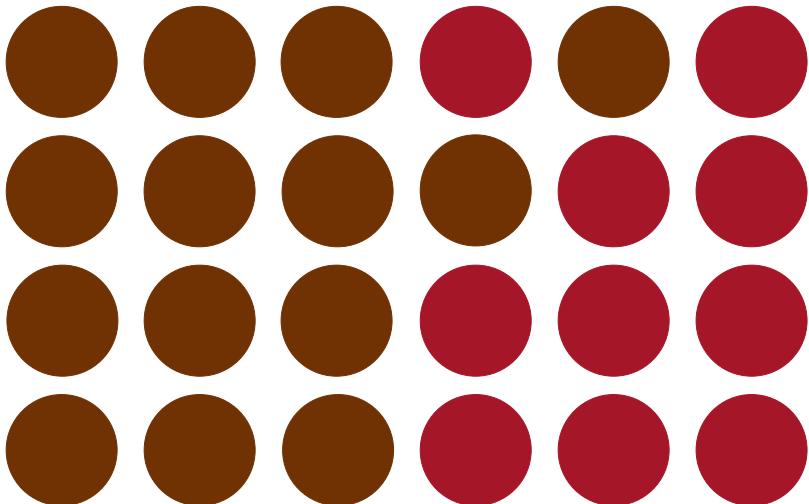


# mutação + amostragem

banco

● x 112

● x 20

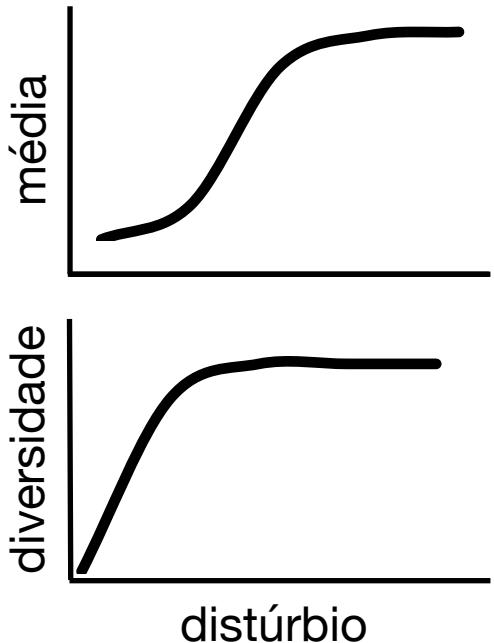
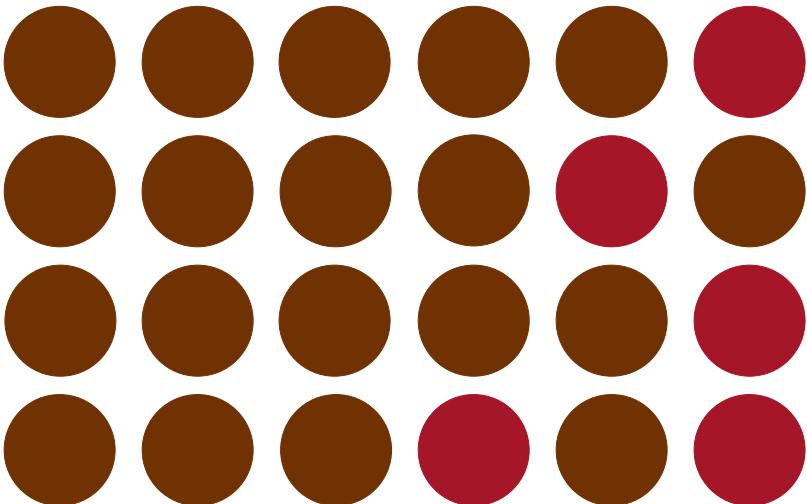


# mutação + amostragem

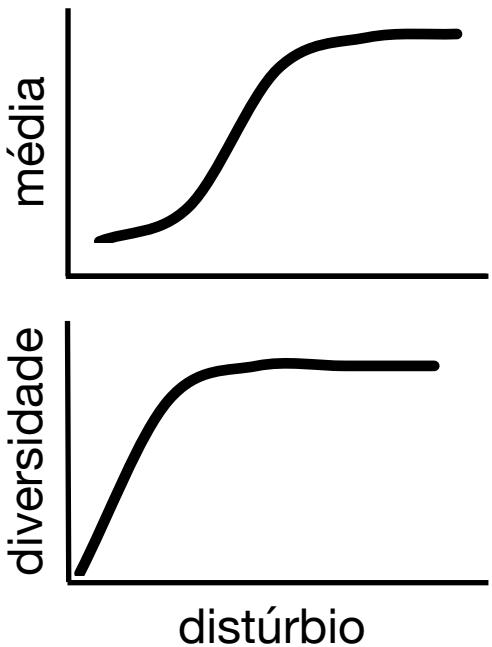
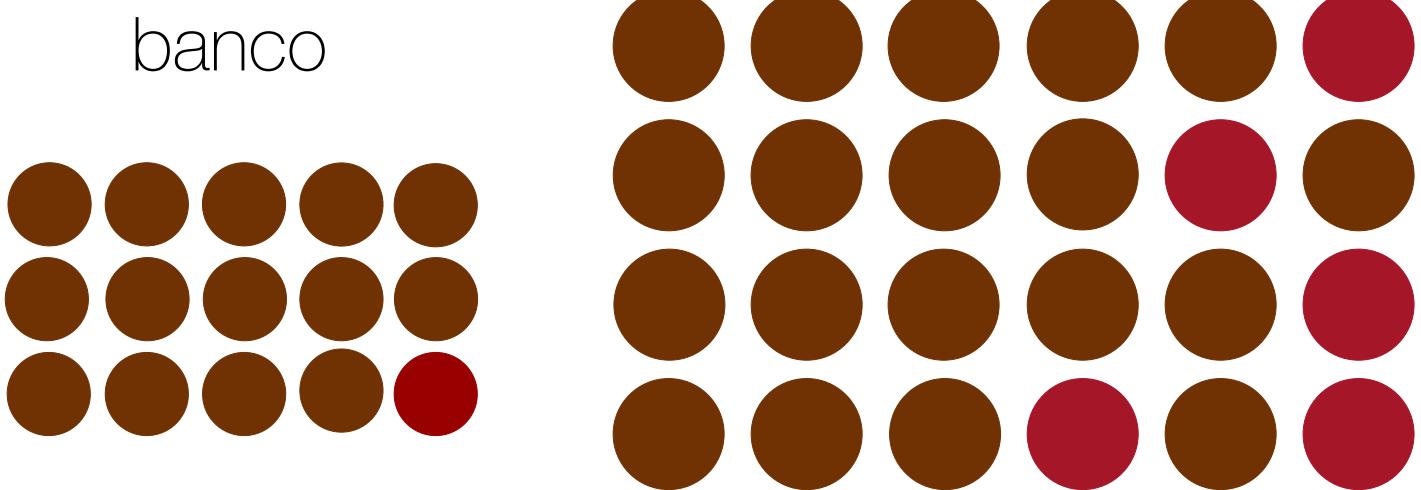
banco

● x 152

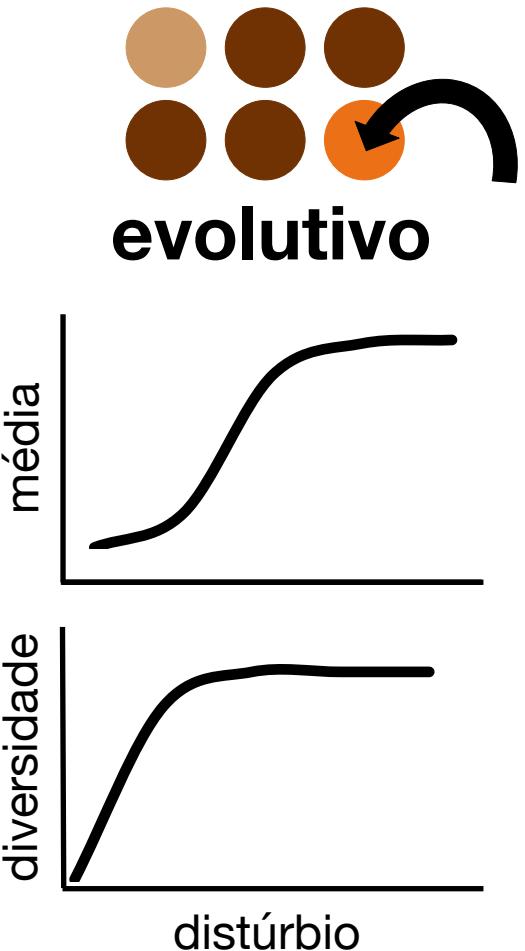
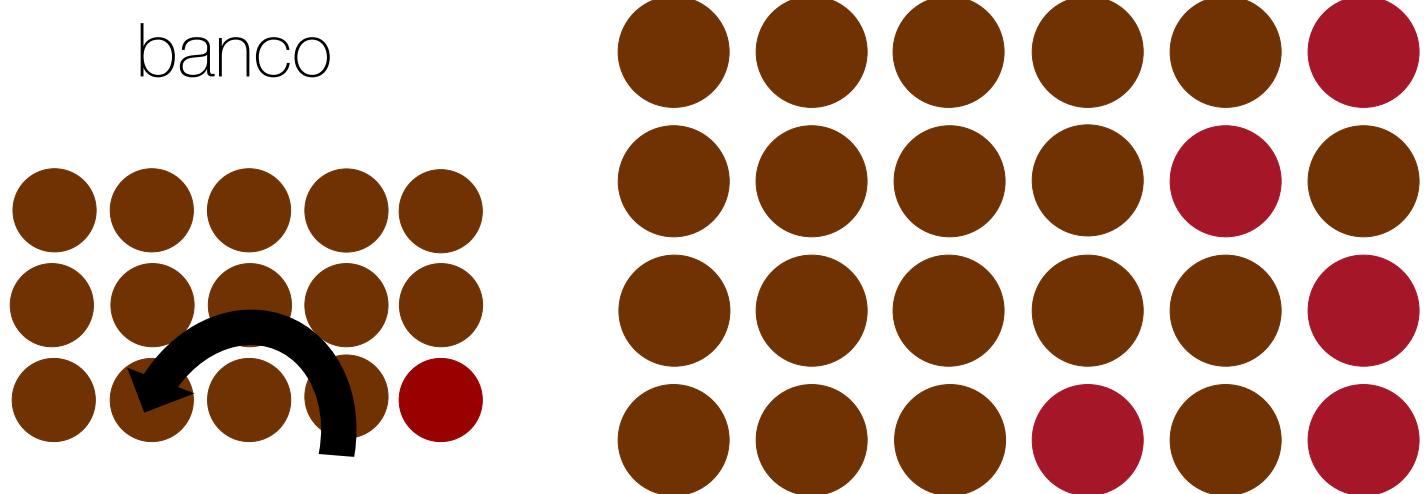
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# mutação + amostragem

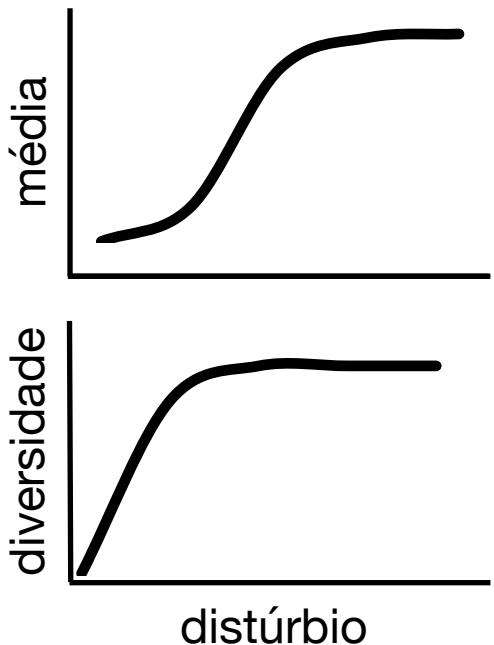
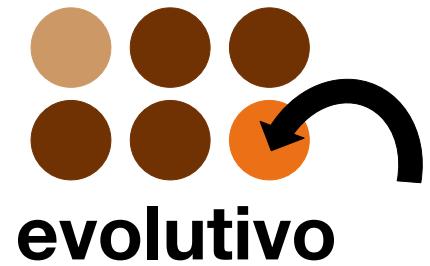
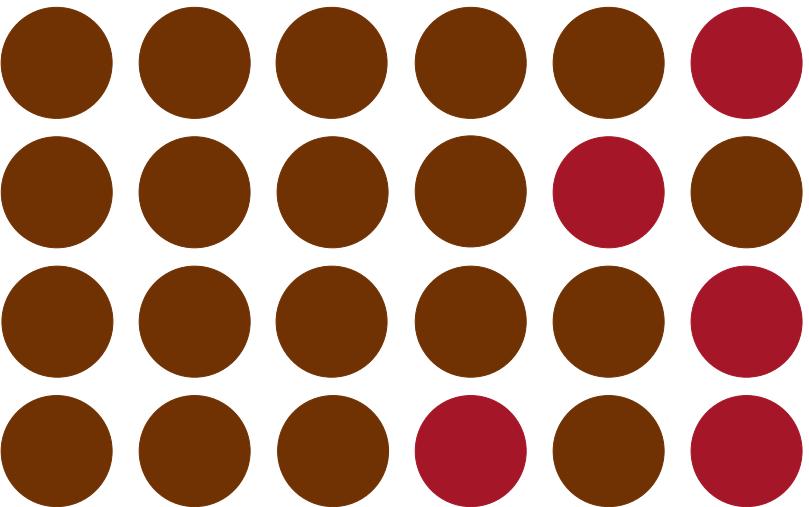
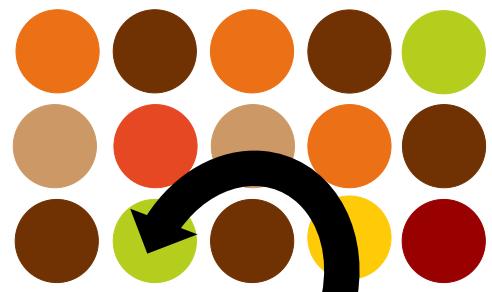


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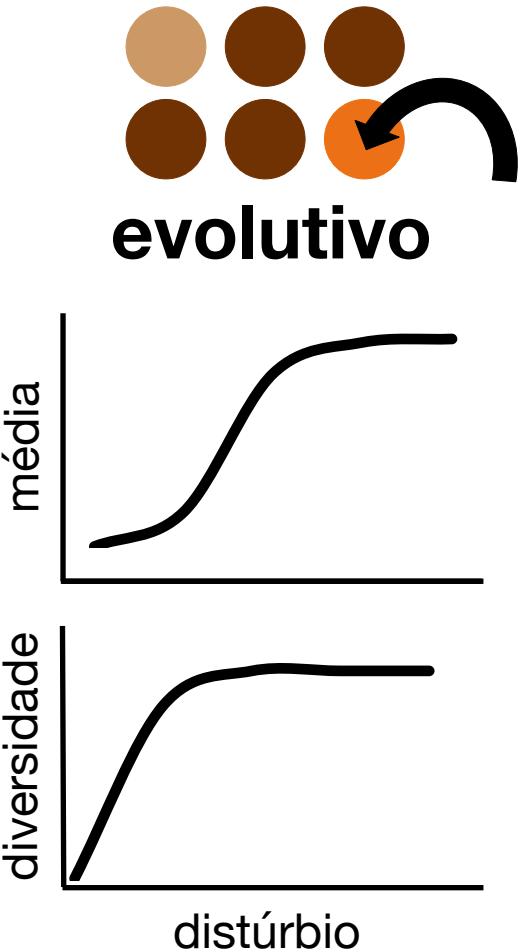
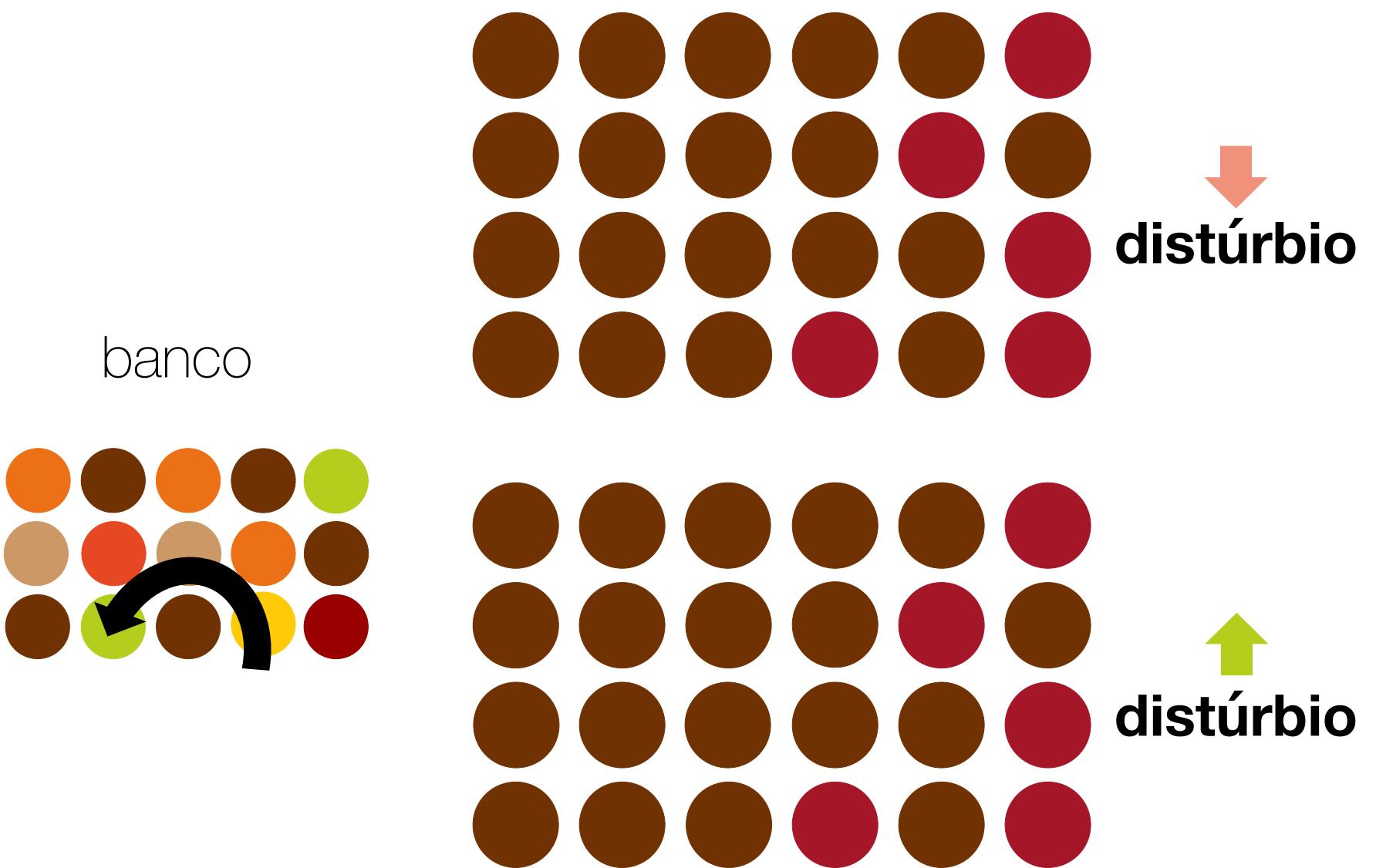


# mutação + amostragem

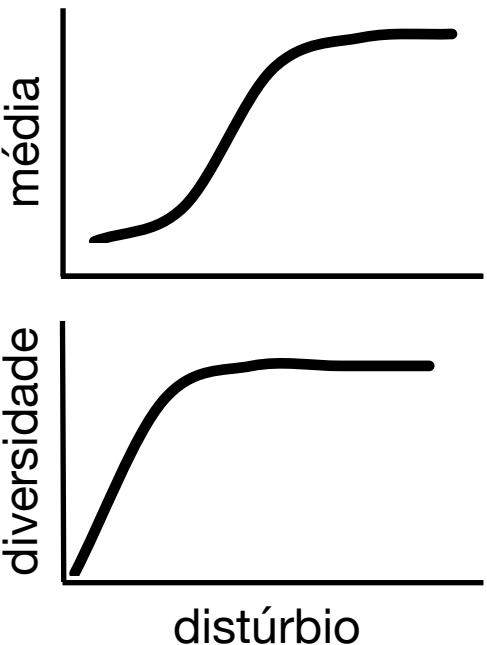
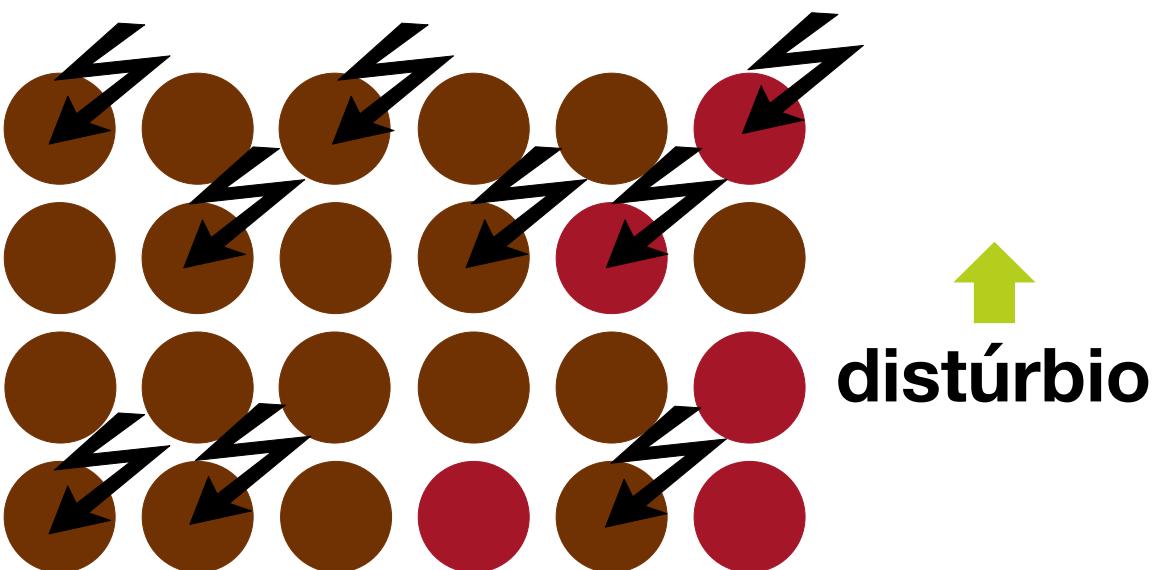
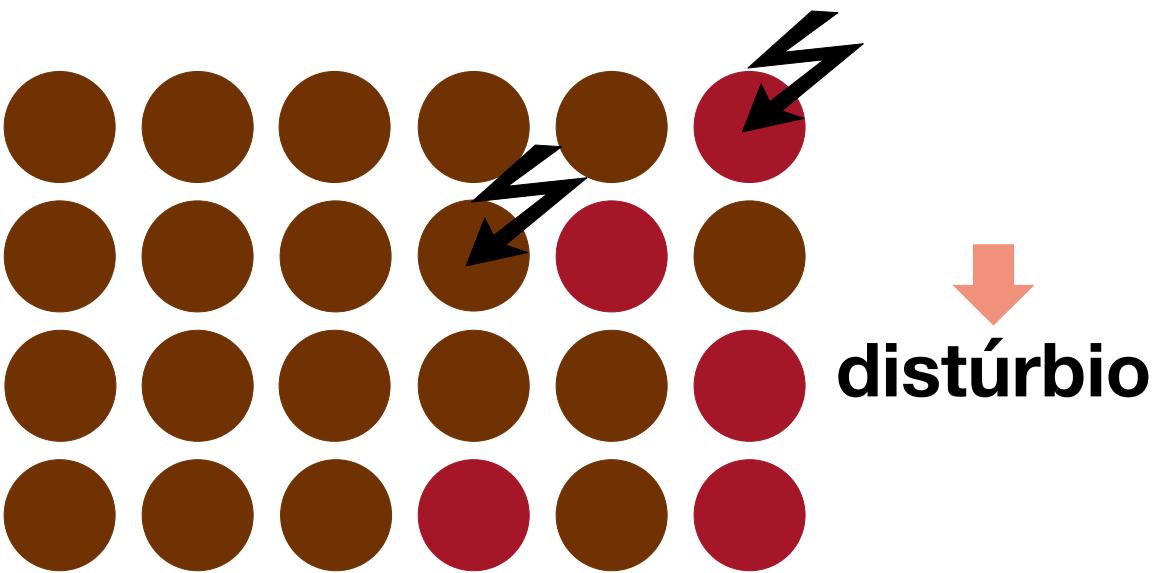
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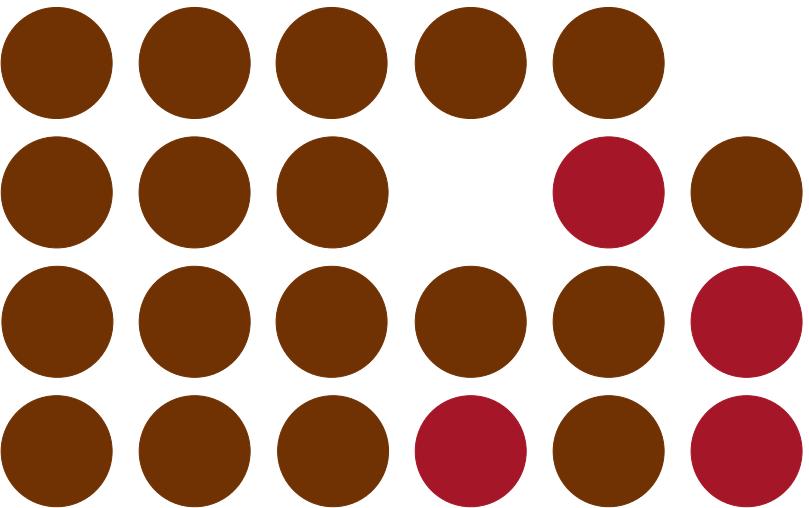
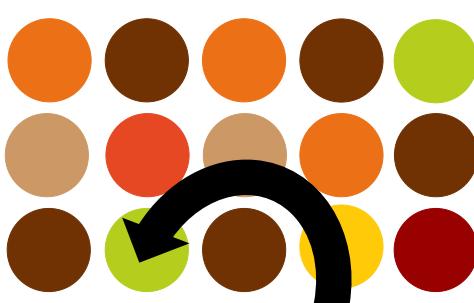
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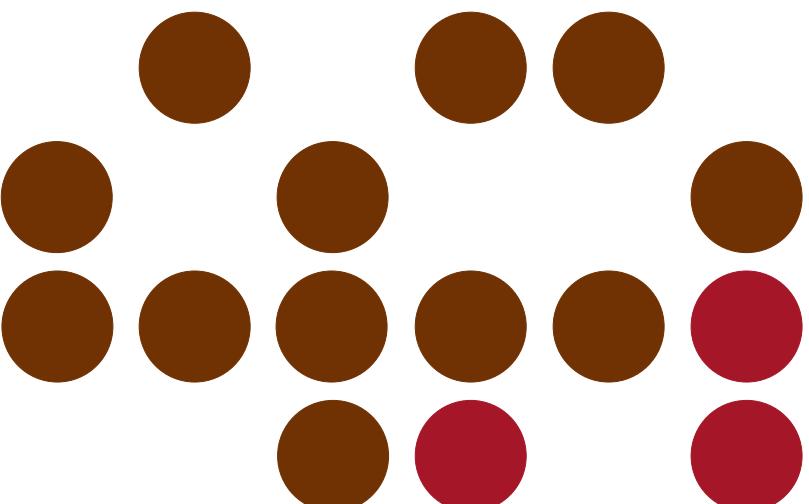
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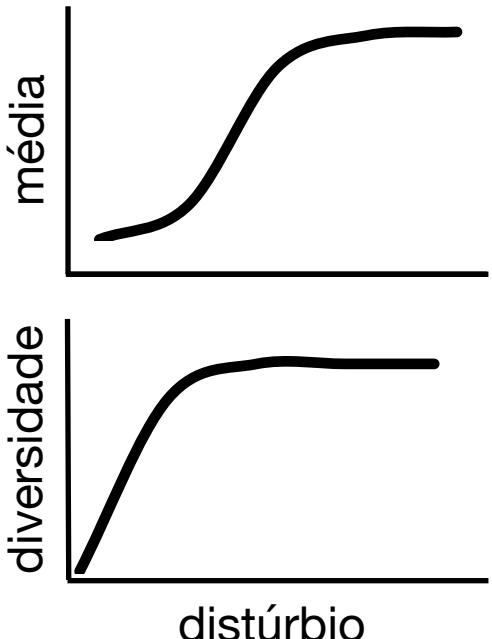
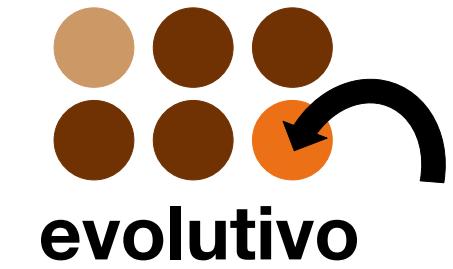
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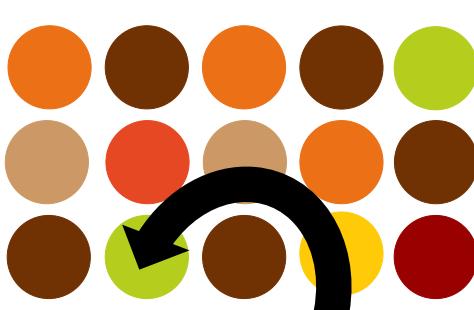
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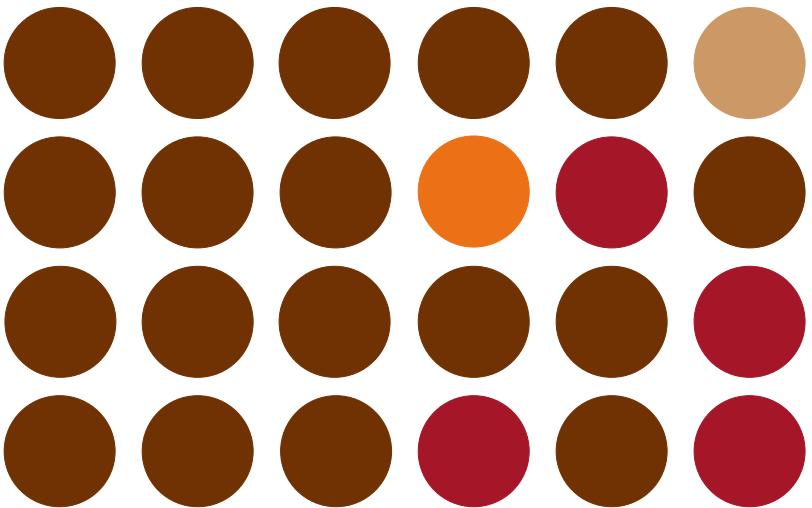
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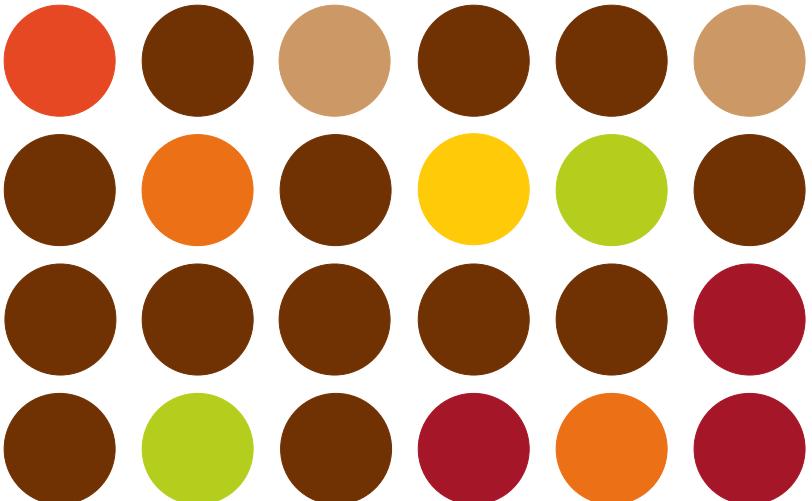
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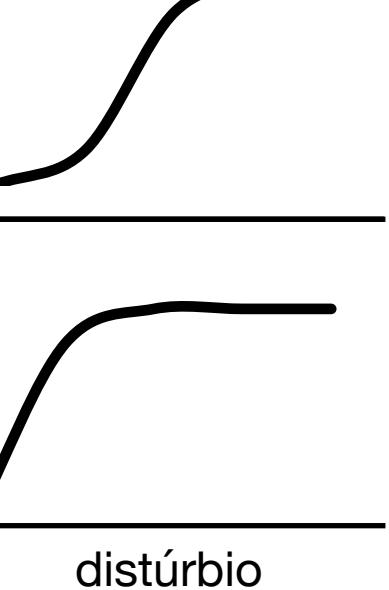
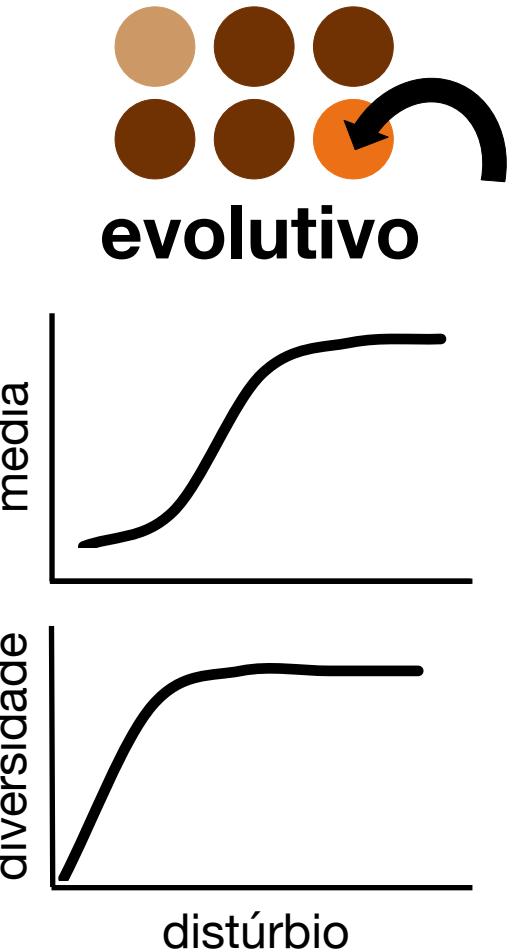
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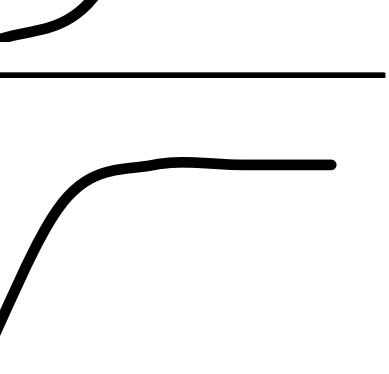
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distúrbio



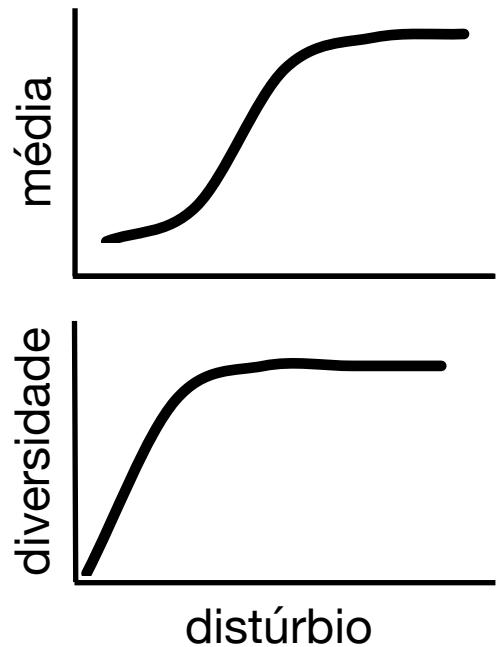
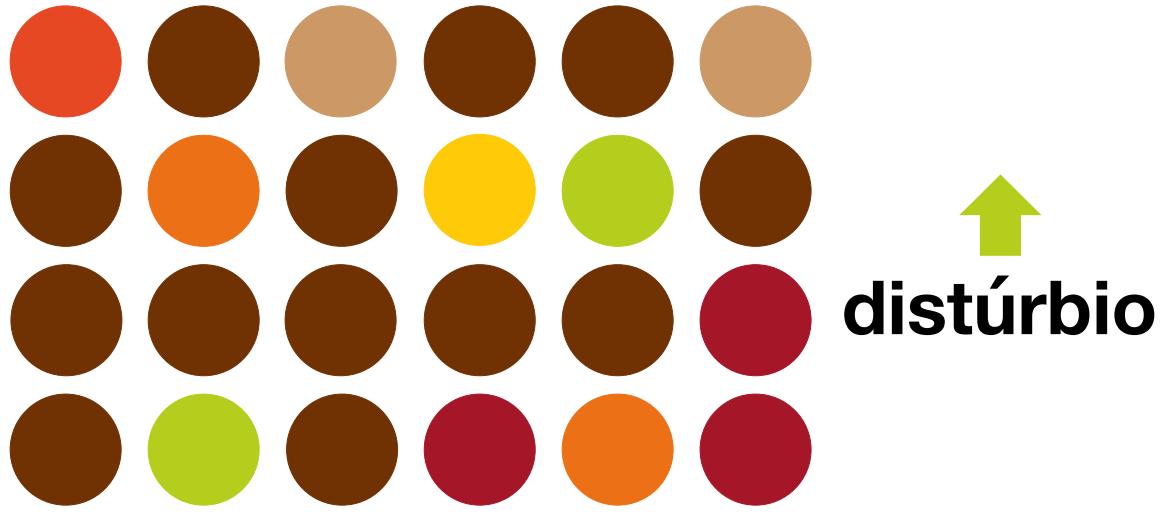
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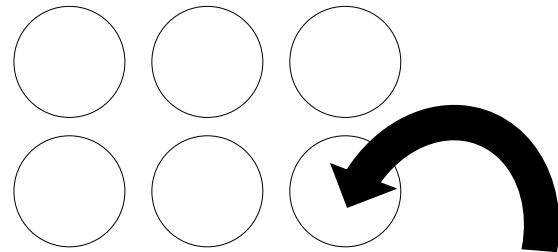
diversidade

distúrbio

# mutação



## evolutivo

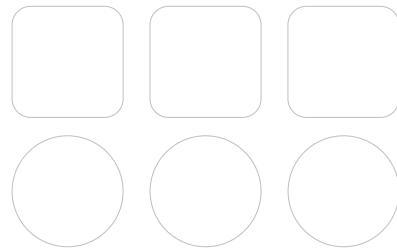


estratégia média

diversidade  
de estratégias

-

## ecológico

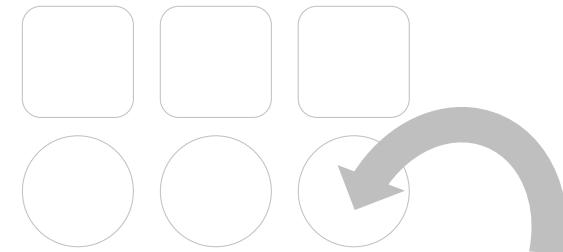


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

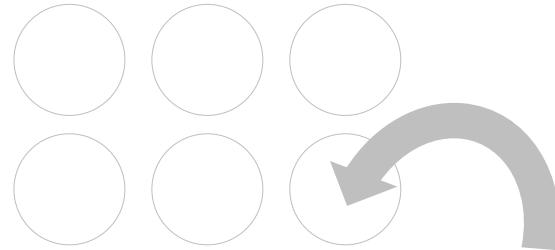


estratégia média

diversidade  
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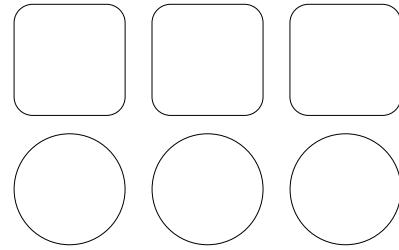


estratégia média

diversidade  
de estratégias

-

## ecológico

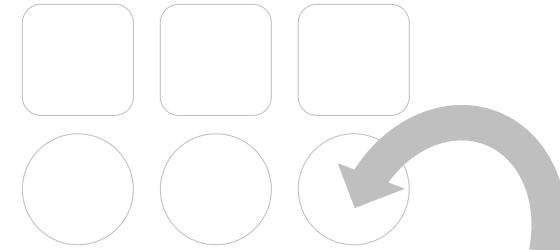


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

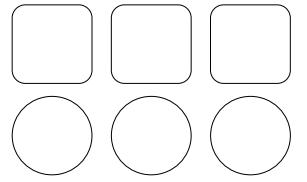
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estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
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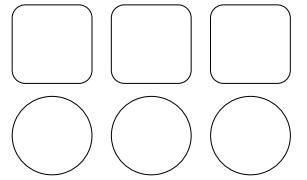
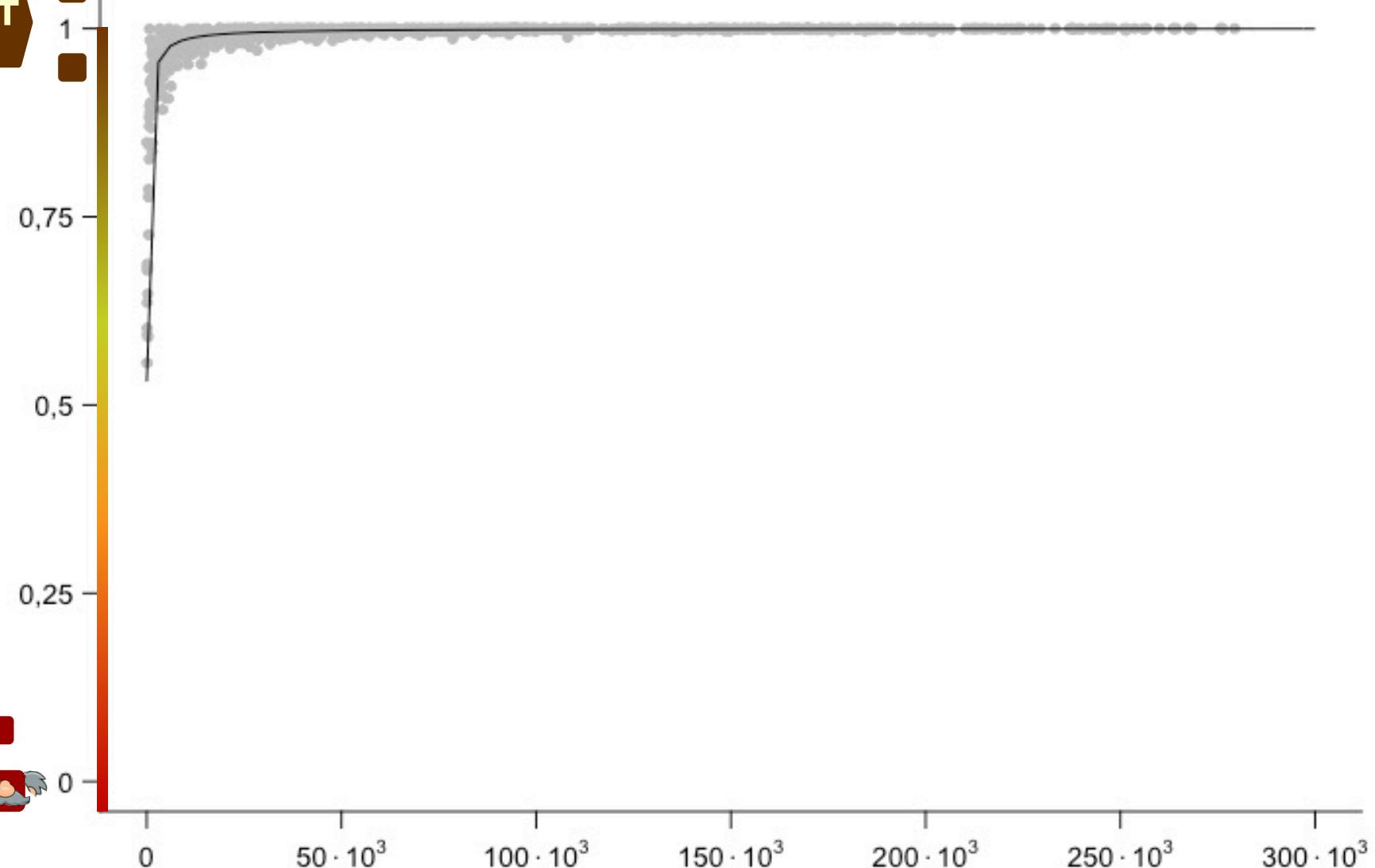


**ecológico**

# estratégia média



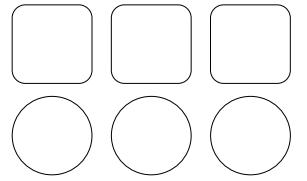
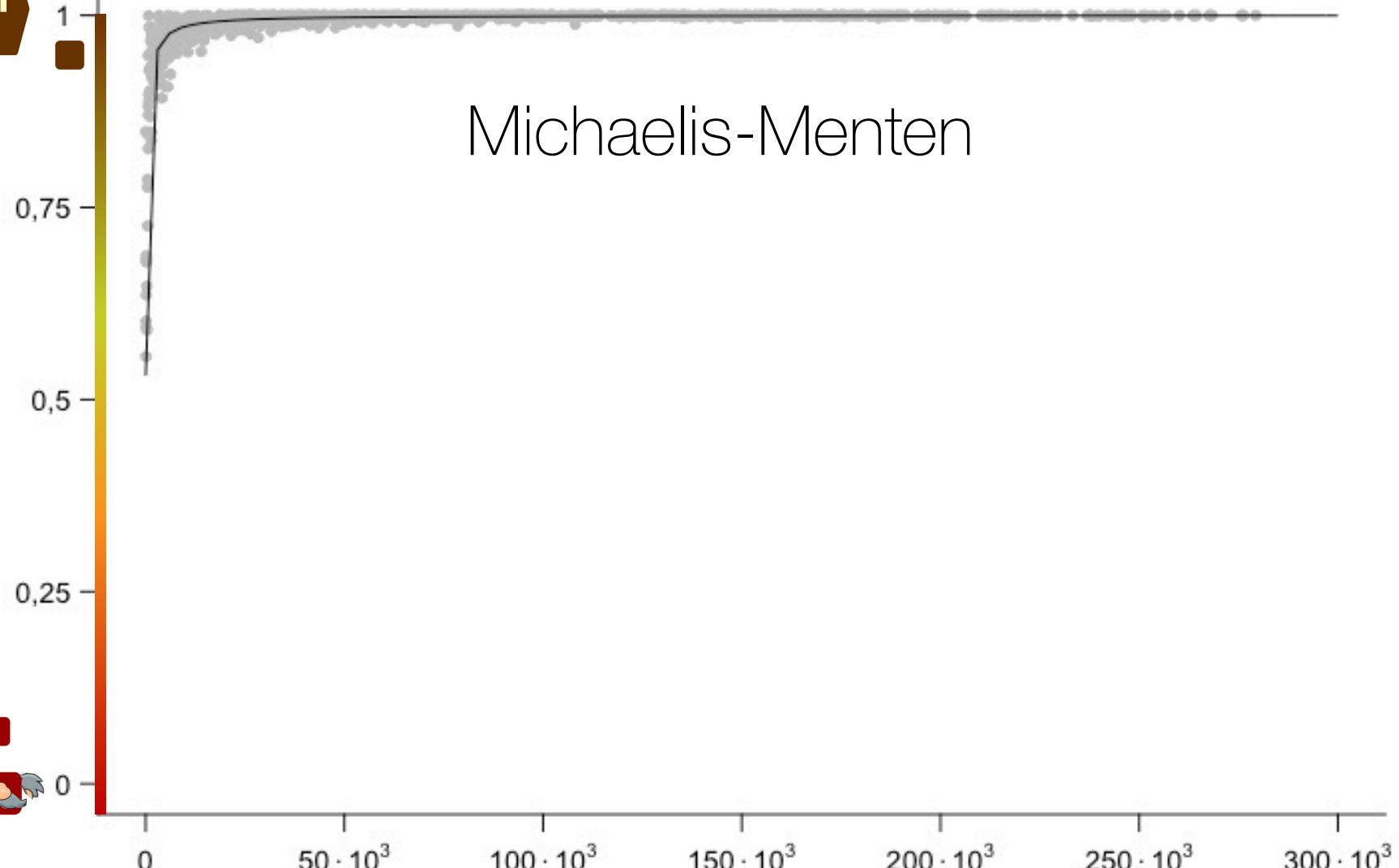
Média do índice de estratégia de vida

**ecológico**

Índice de distúrbio (mortes acumuladas / tamanho da comunidade)

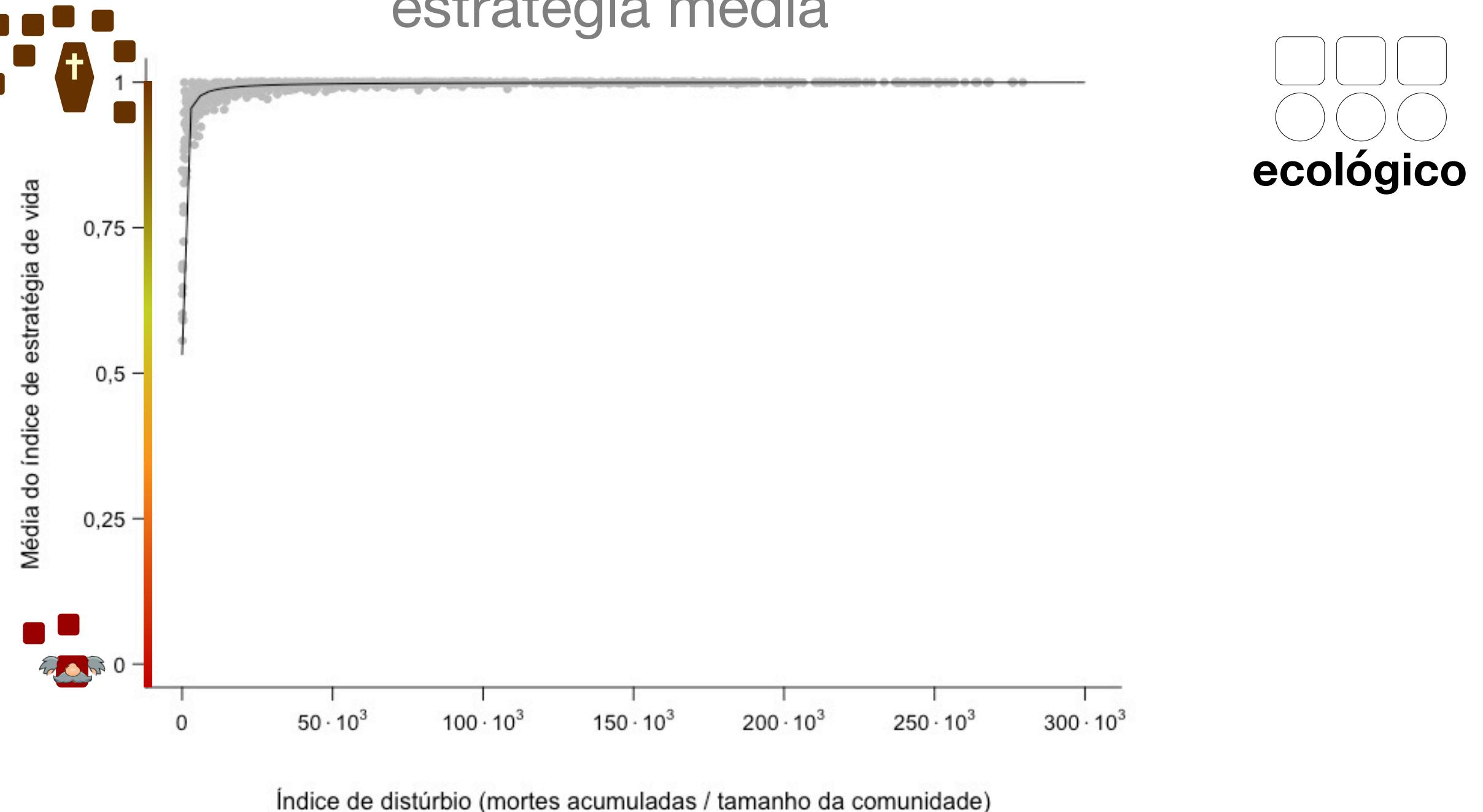
# estratégia média

Média do índice de estratégia de vida

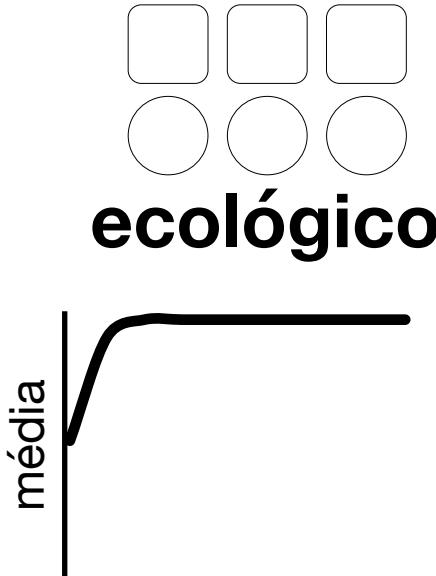
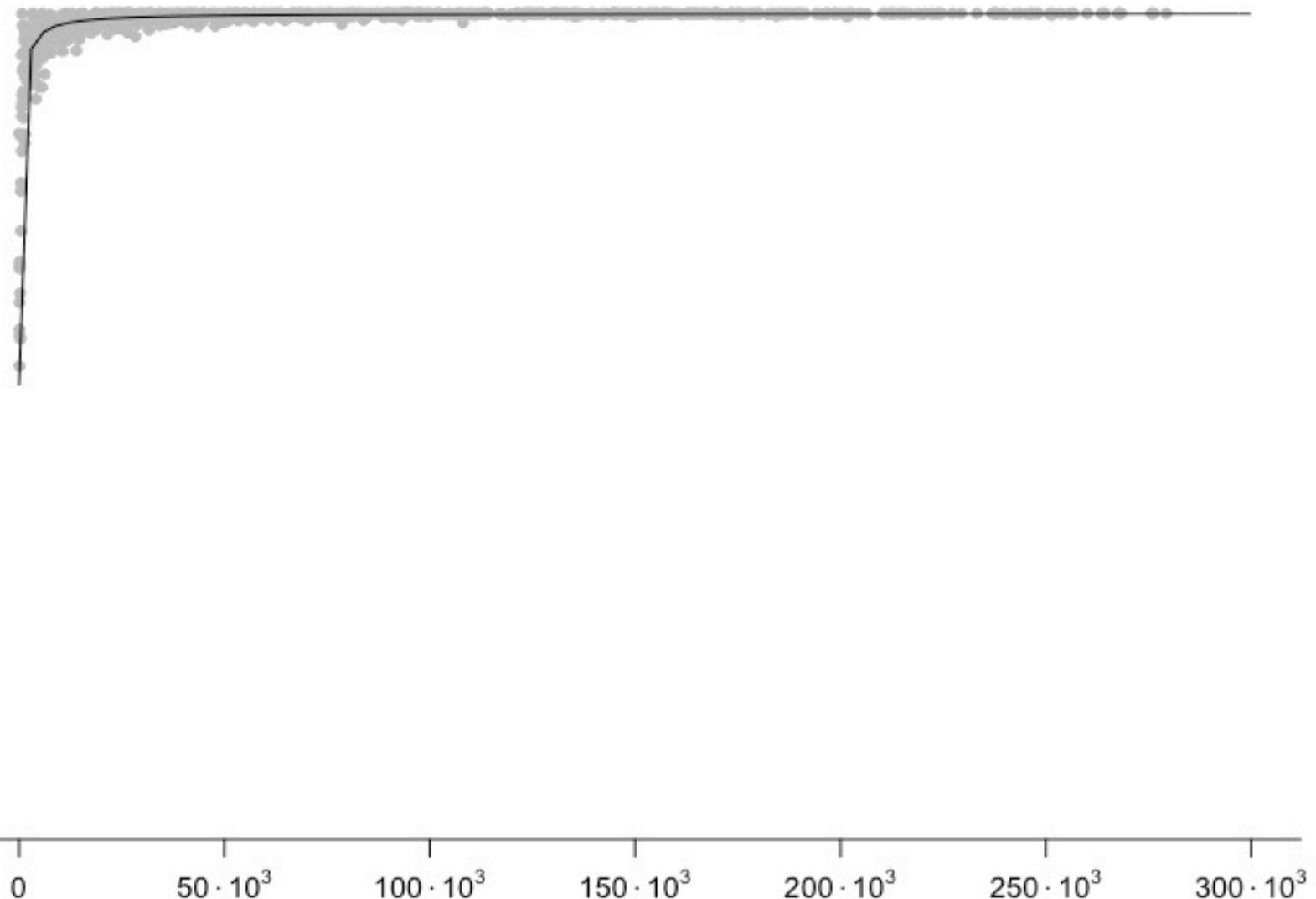


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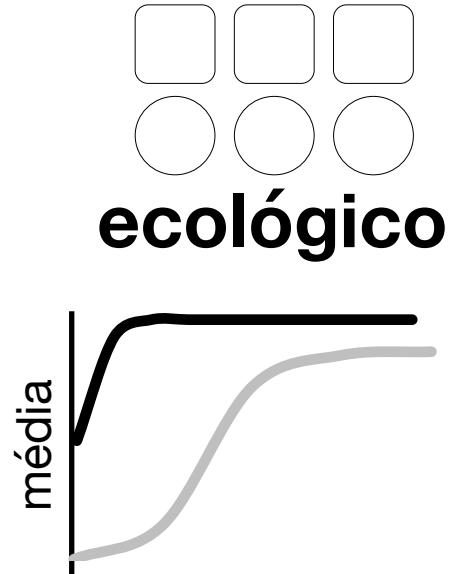
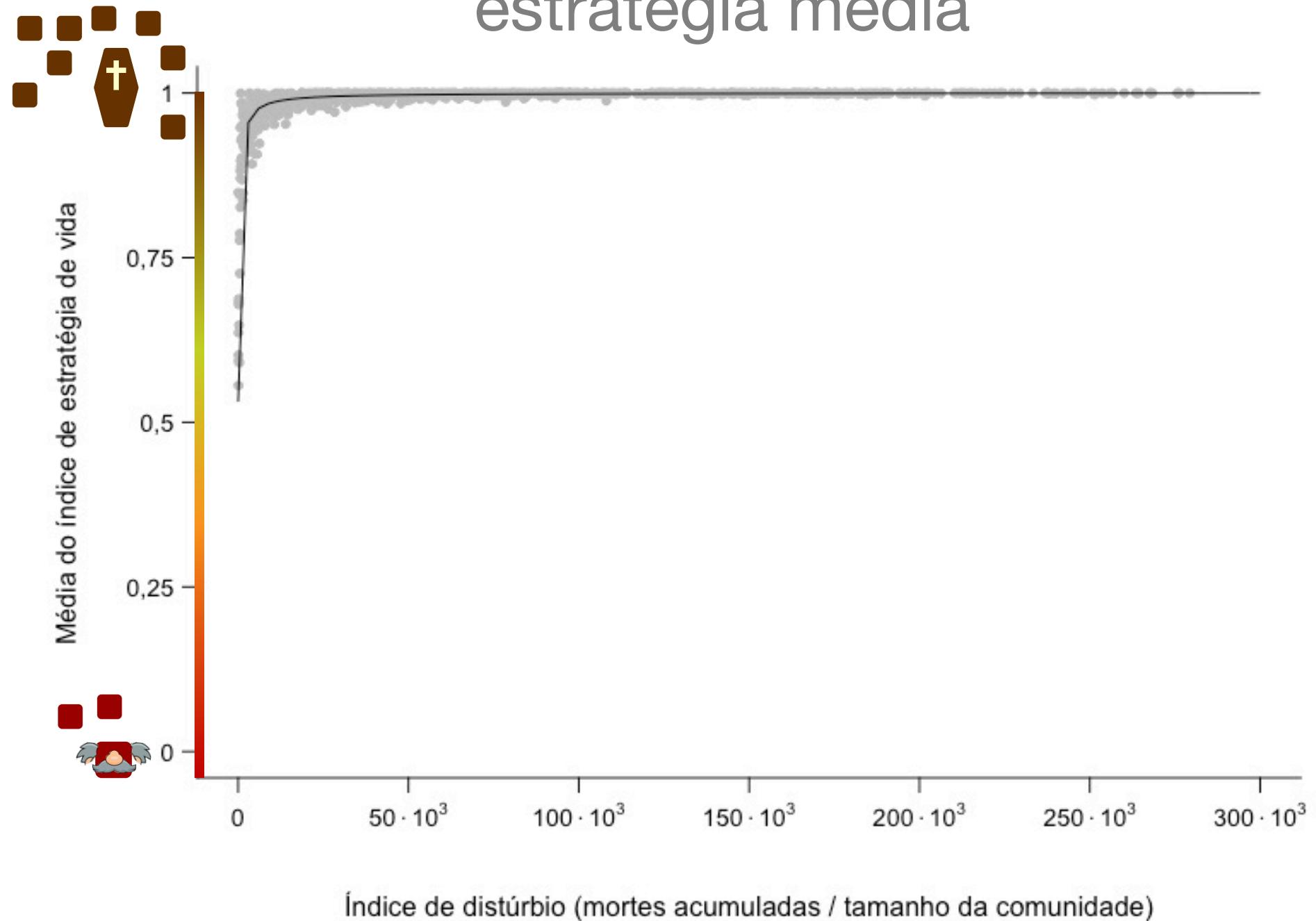
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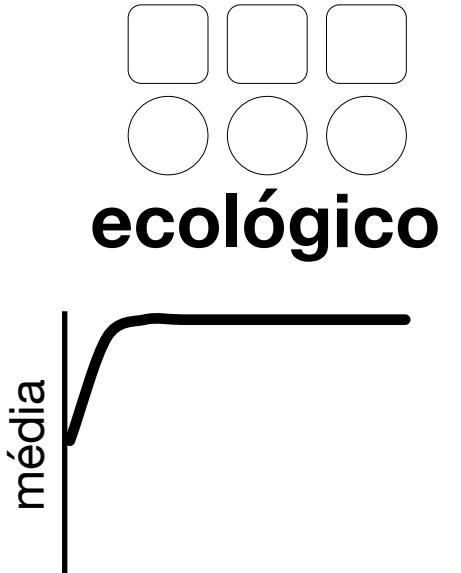
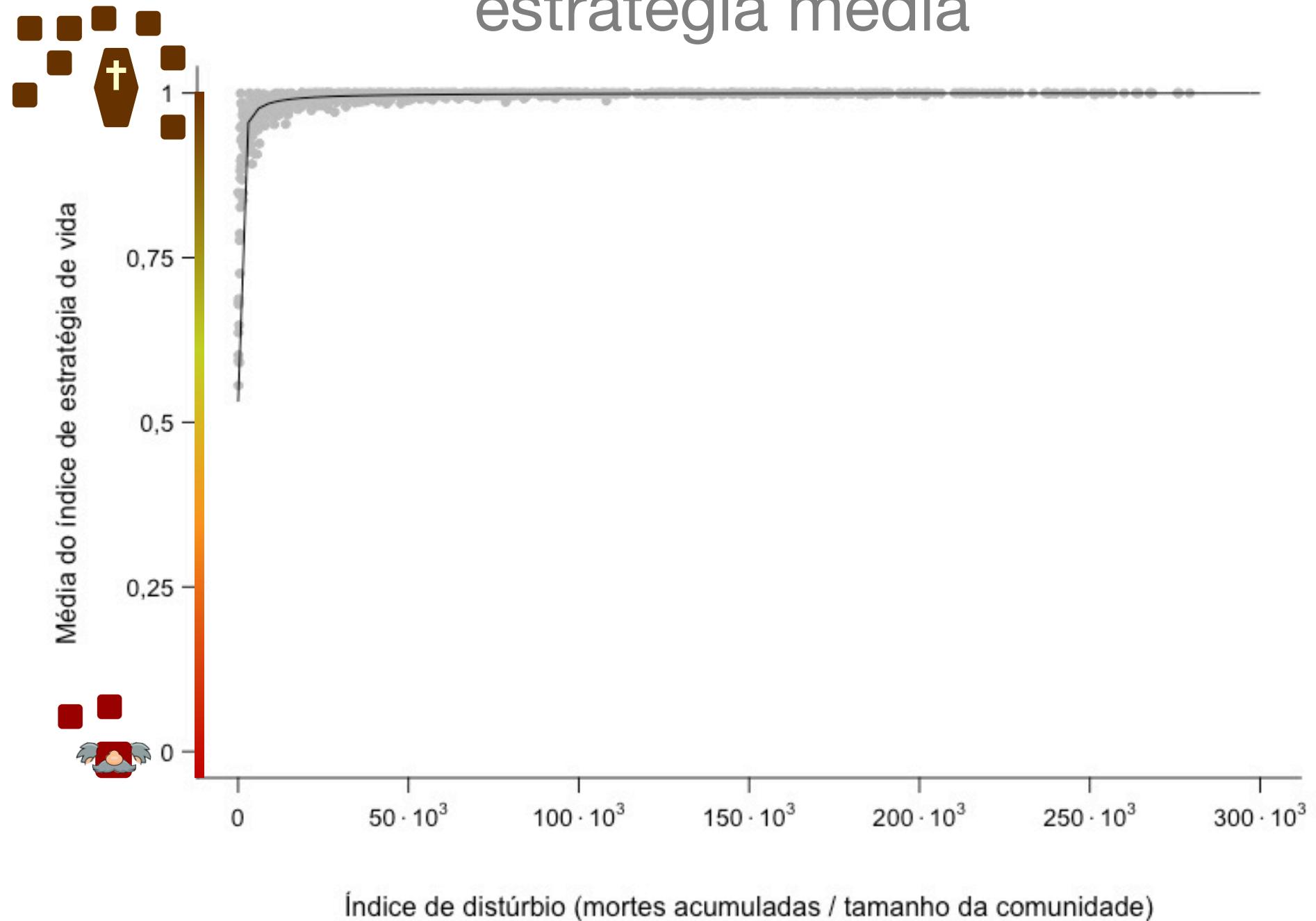
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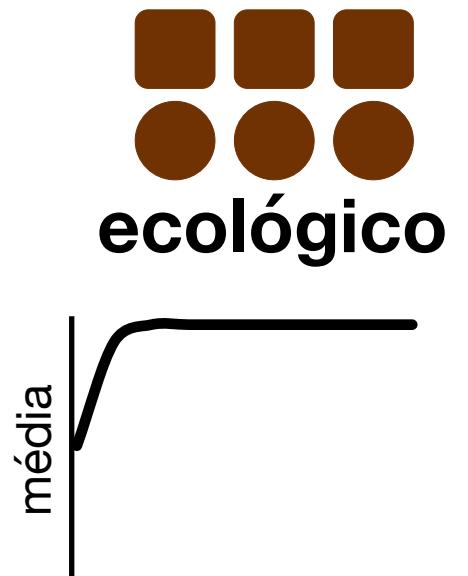
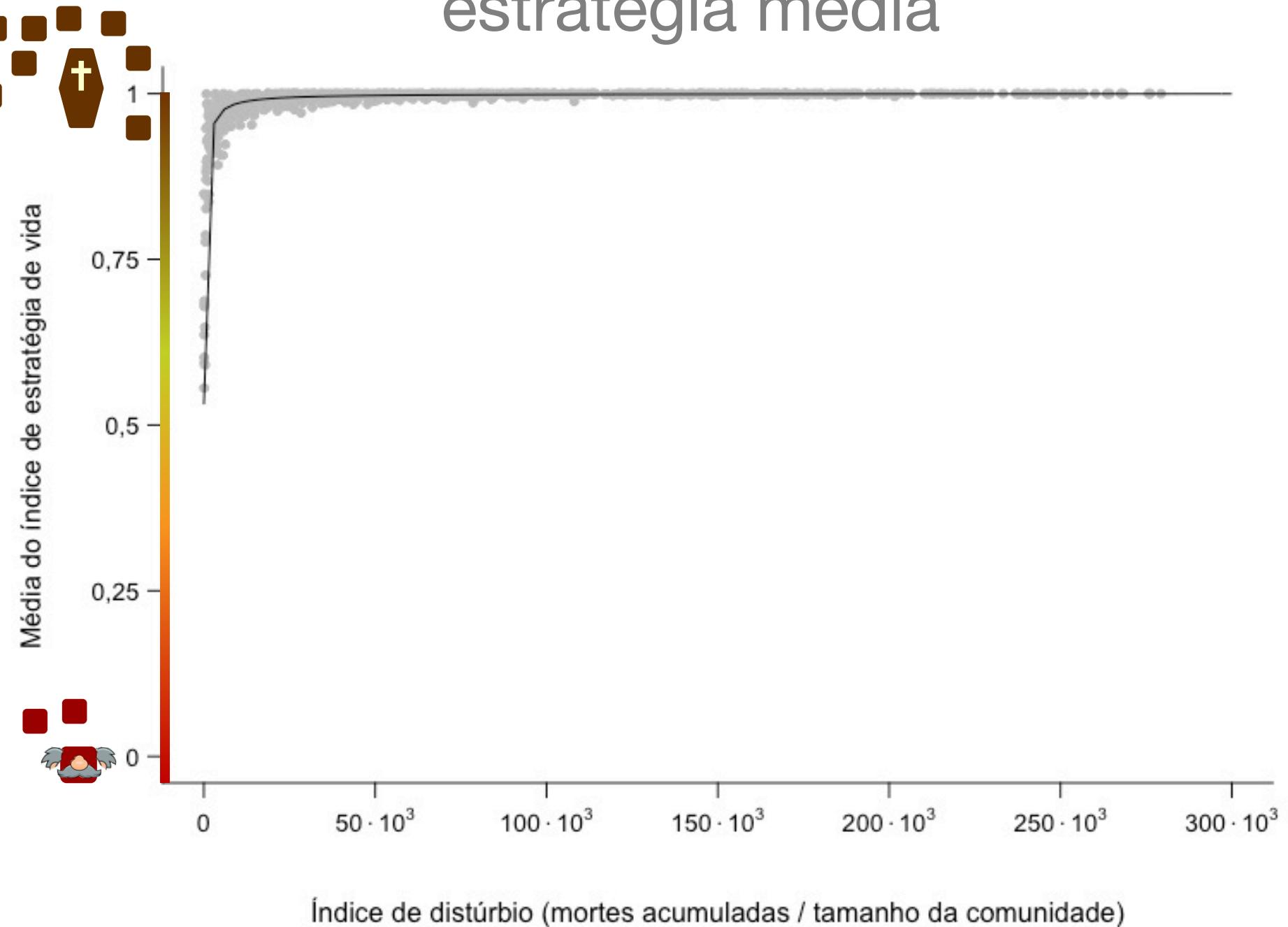
# estratégia média



# estratégia média



# estratégia média

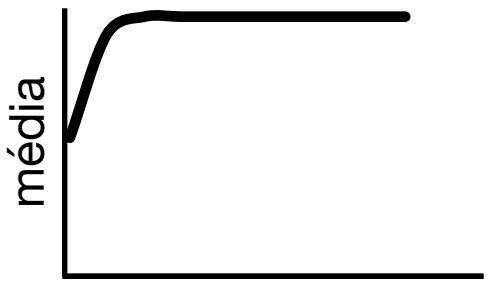
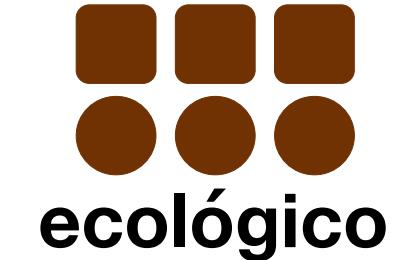
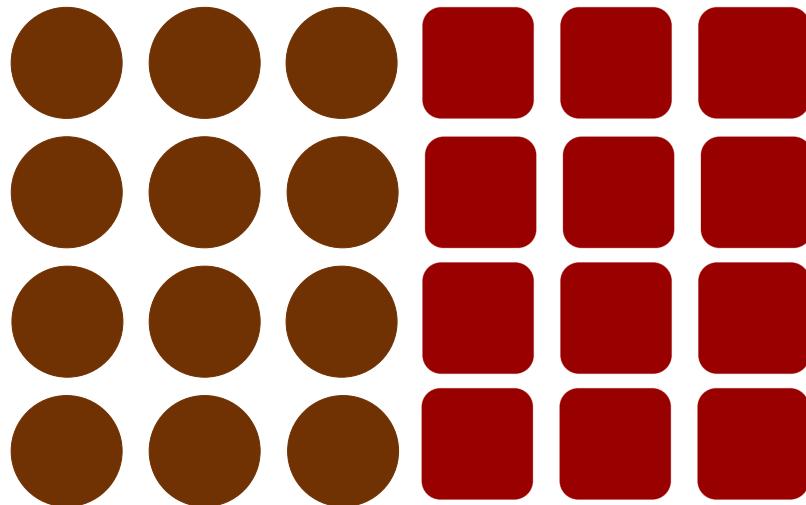


# exclusão competitiva de espécies

banco

x 96

x 24

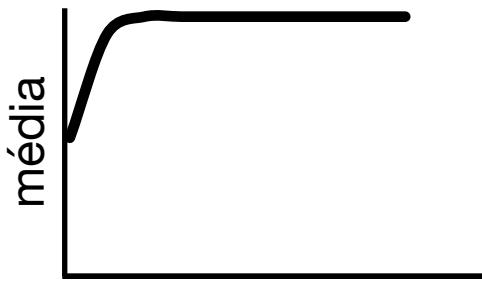
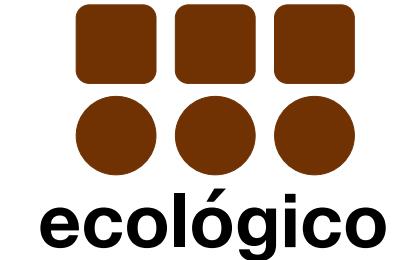
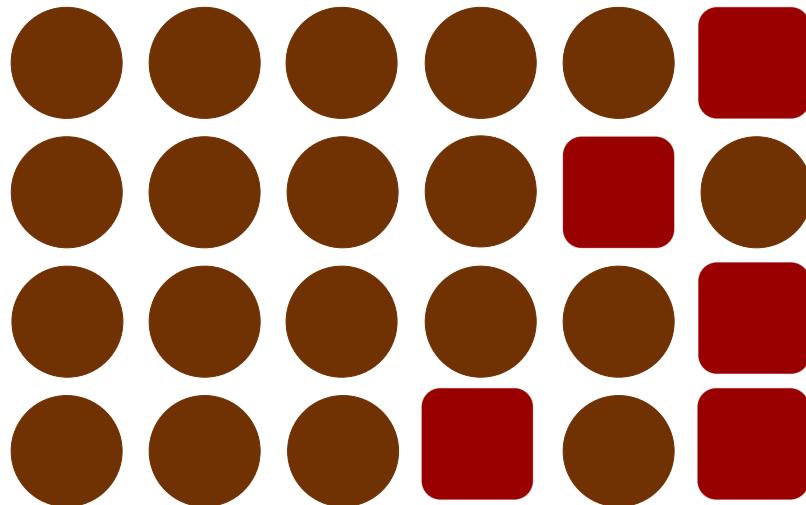


# exclusão competitiva de espécies

banco

● x 152

■ x 10

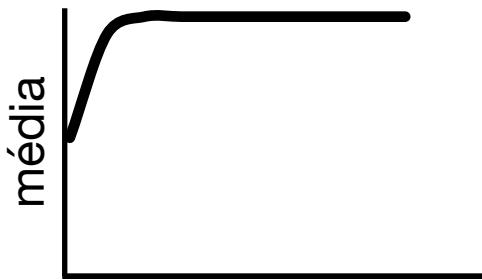
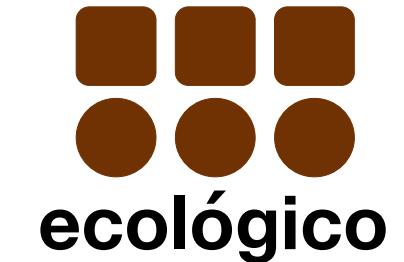
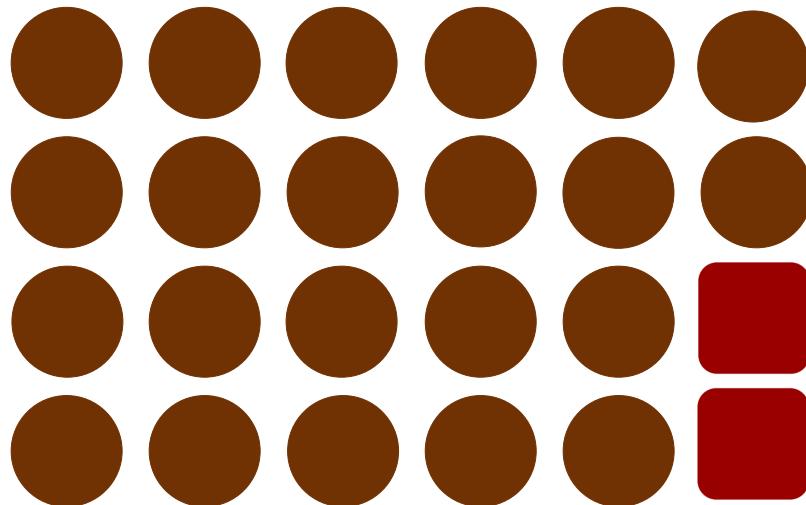


# exclusão competitiva de espécies

banco

● x 176

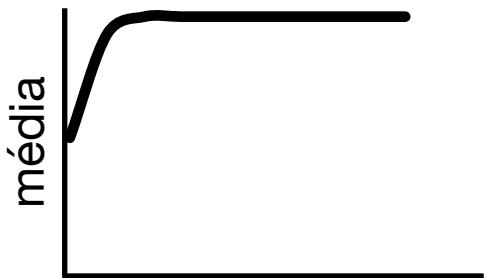
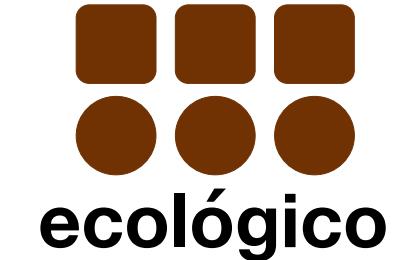
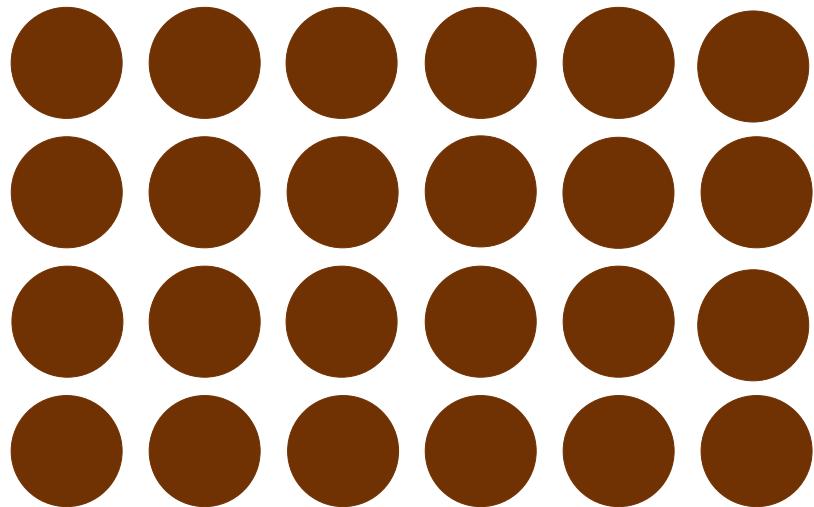
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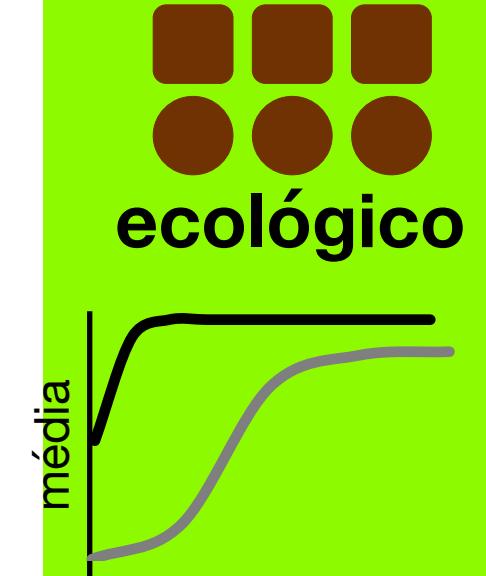
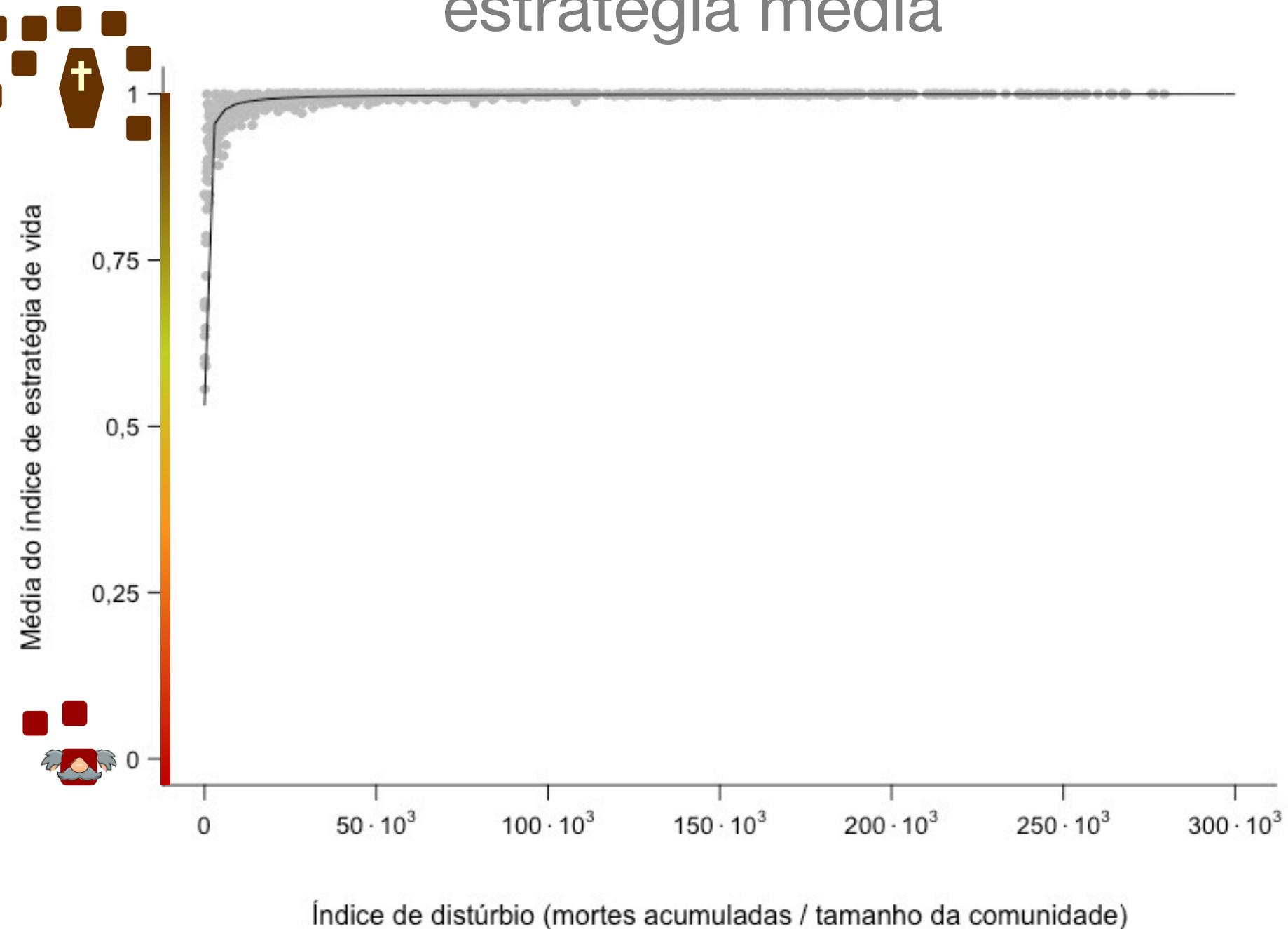
# exclusão competitiva de espécies

banco

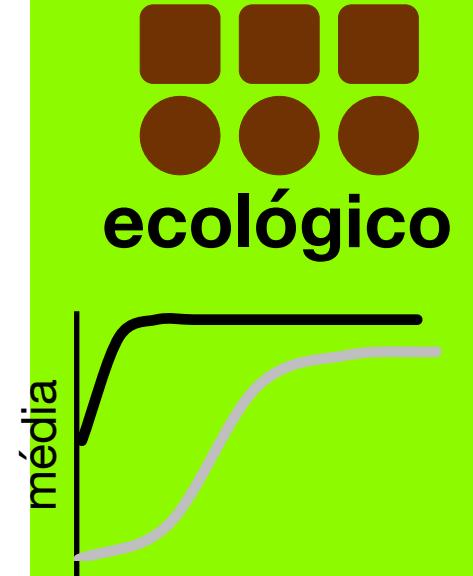
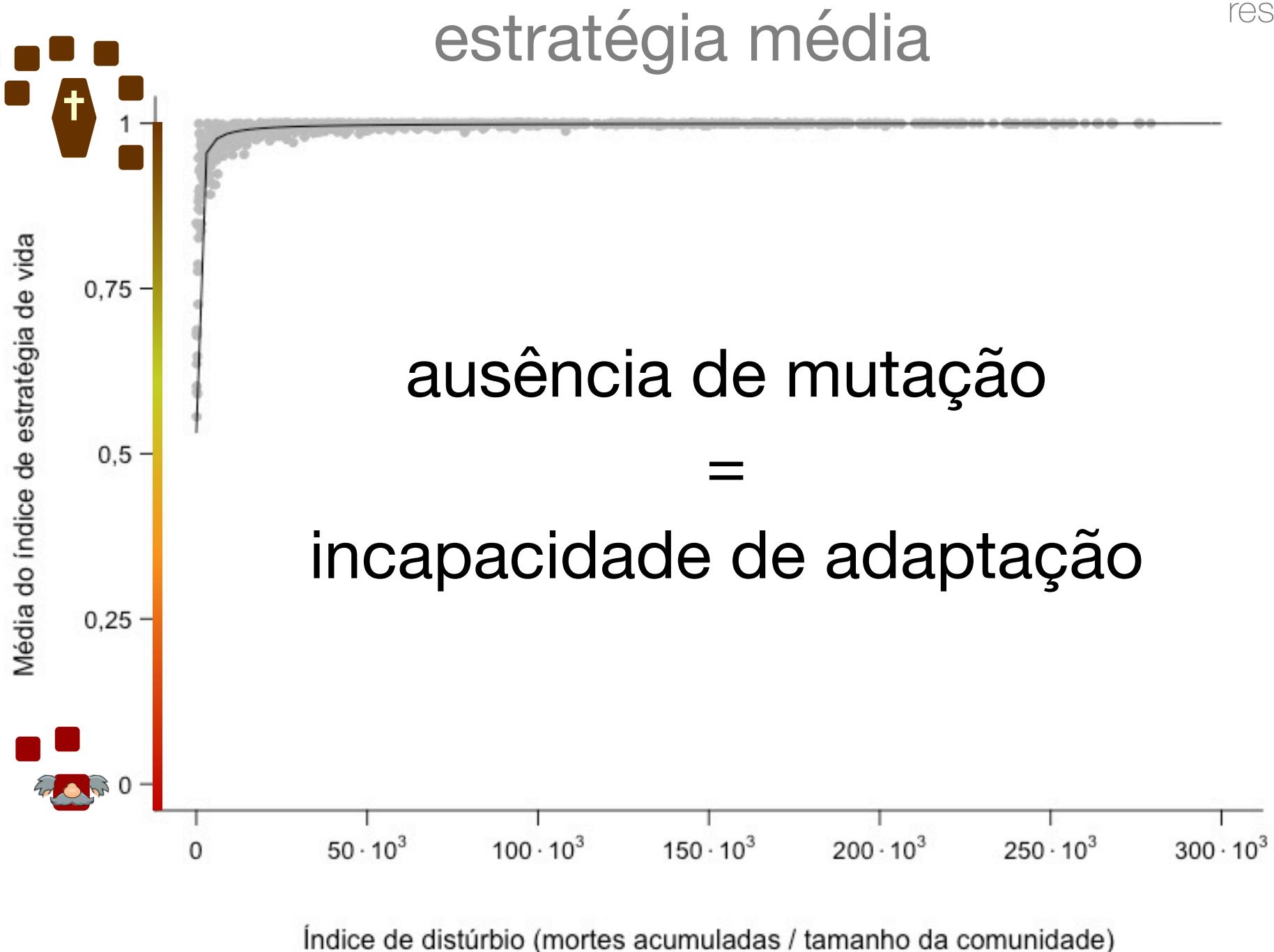
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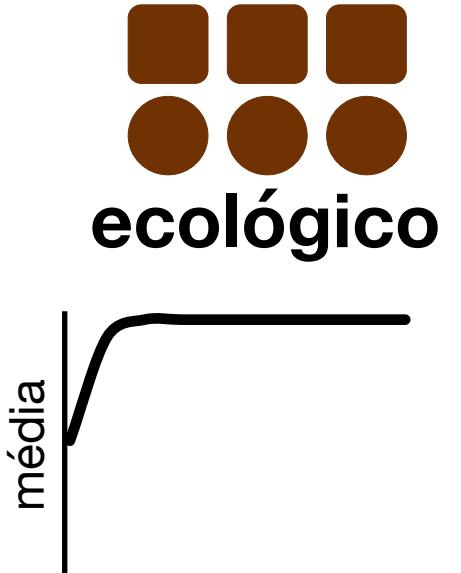
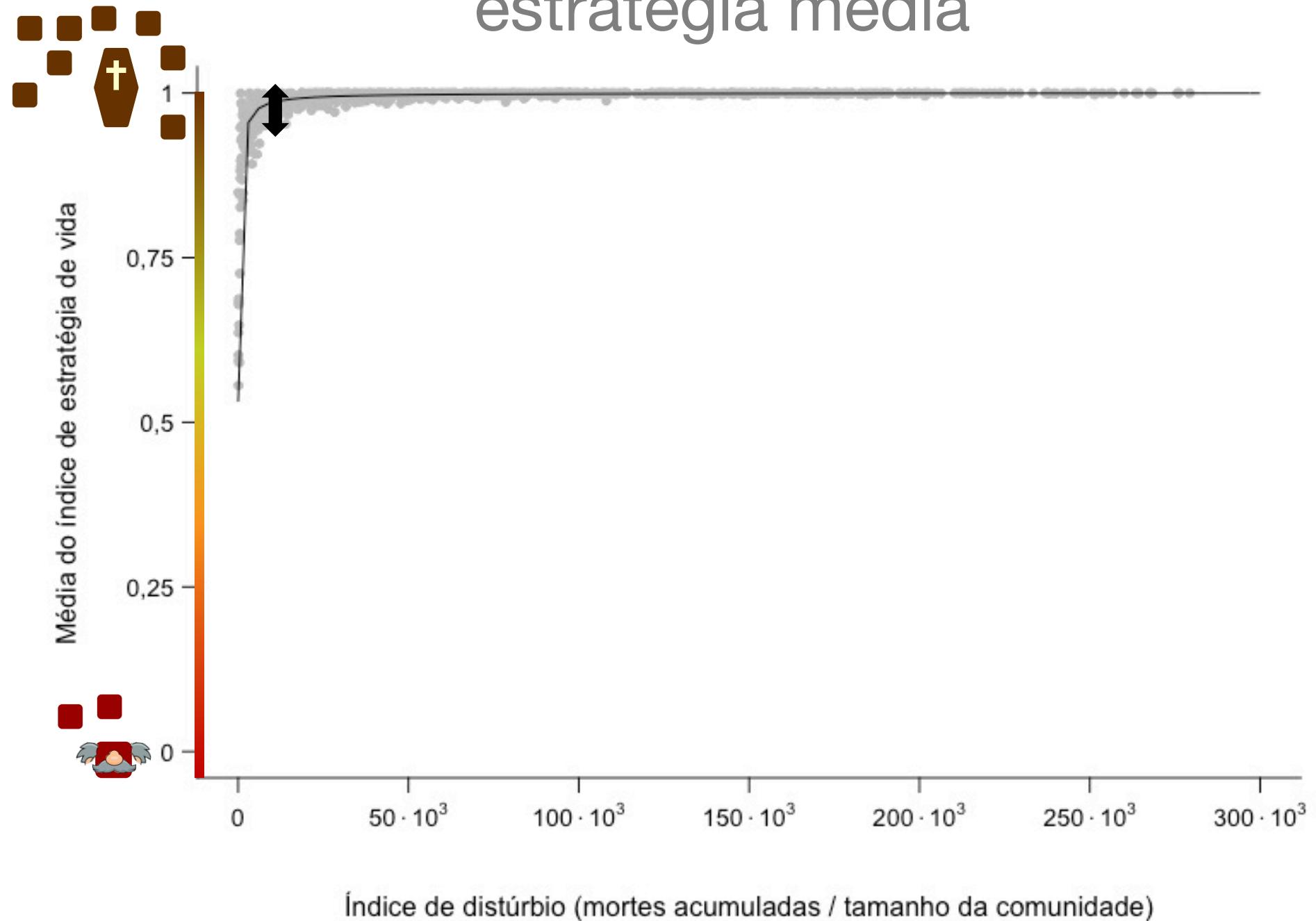
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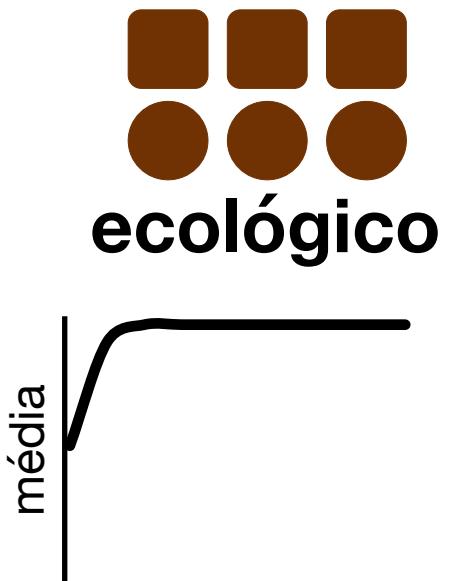
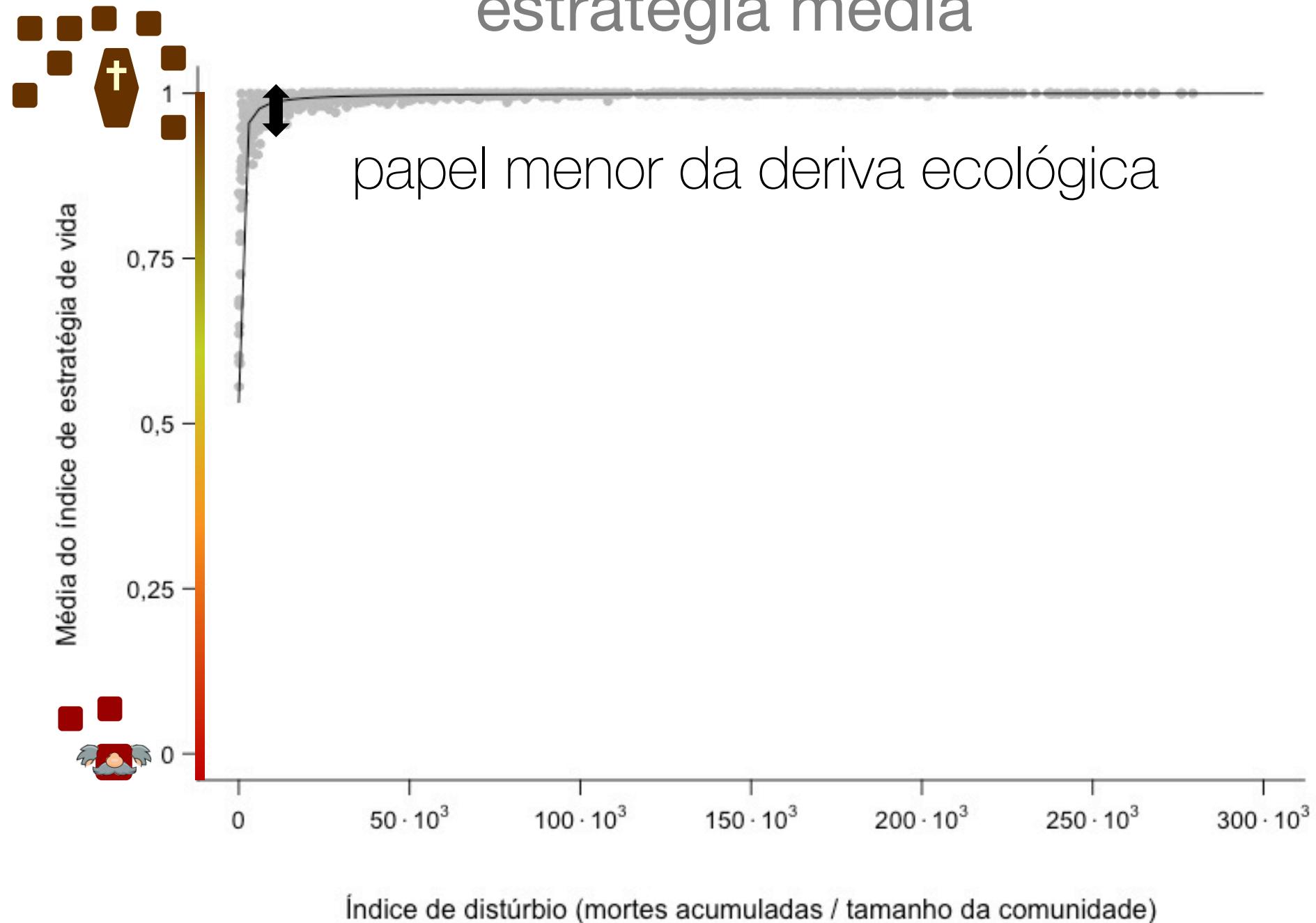
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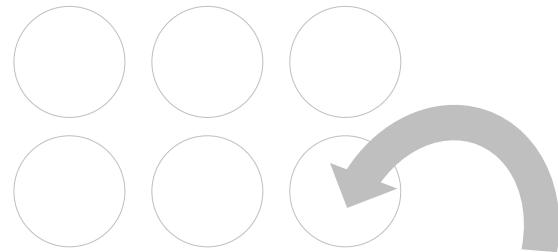
# estratégia média



# estratégia média



## evolutivo

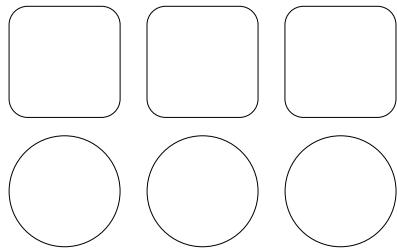


estratégia média

diversidade  
de estratégias

-

## ecológico

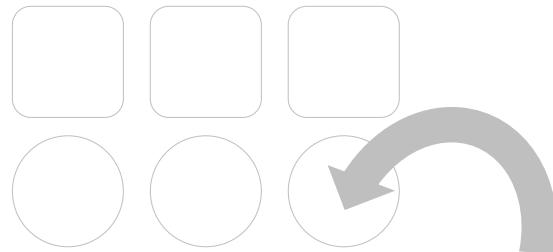


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

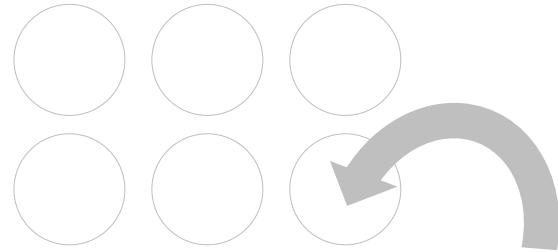


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

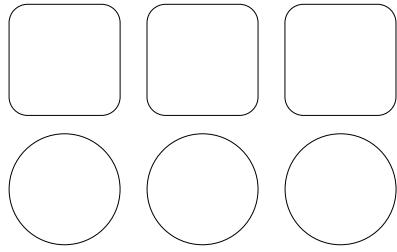


estratégia média

diversidade  
de estratégias

-

## ecológico

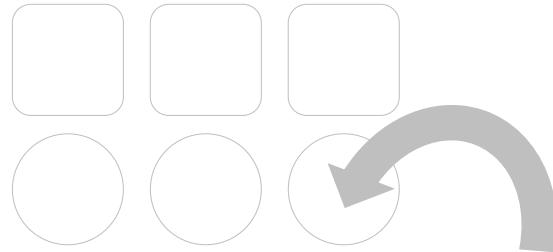


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

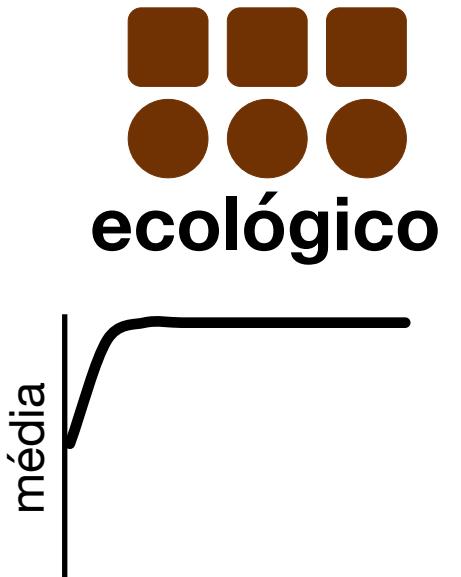
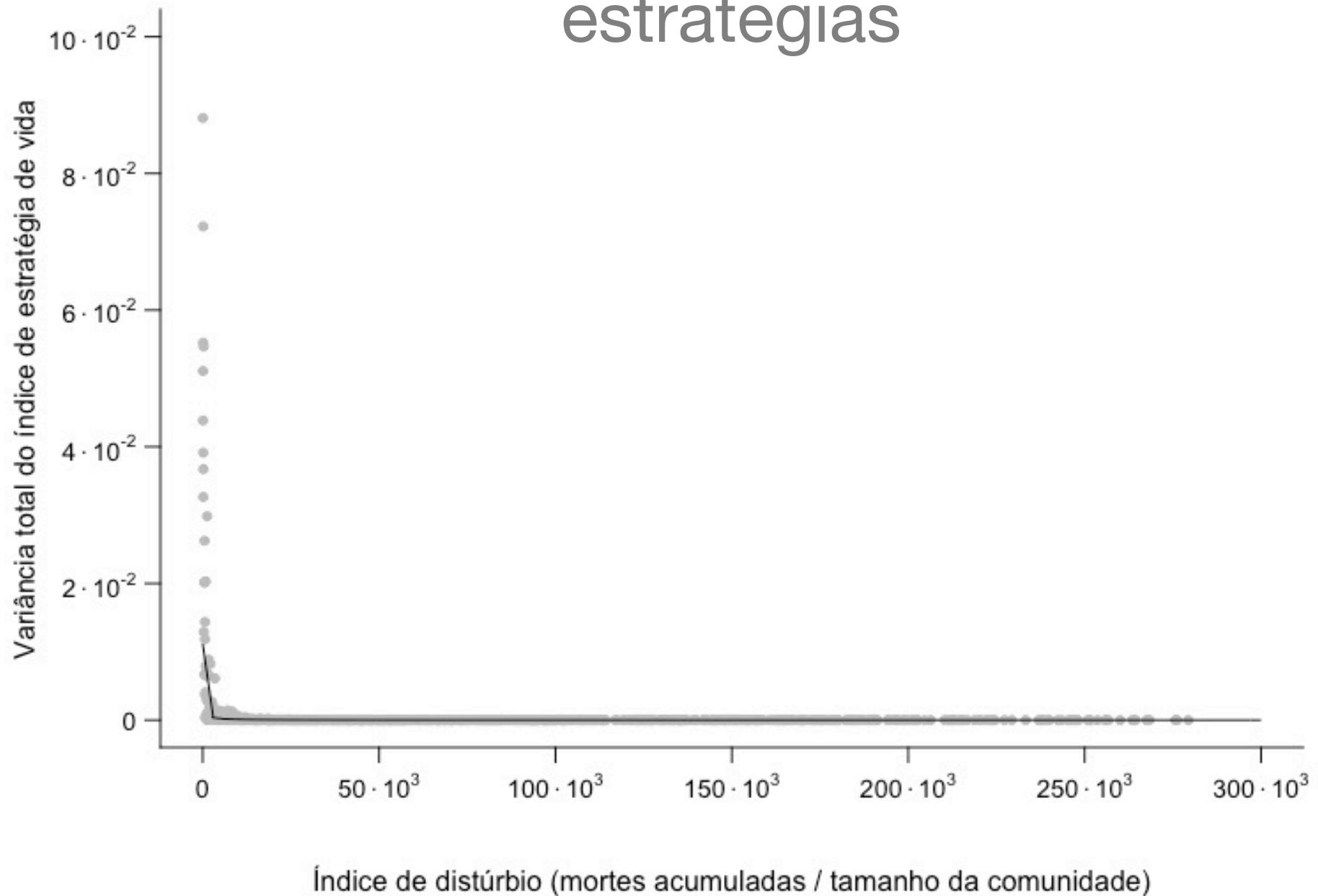


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

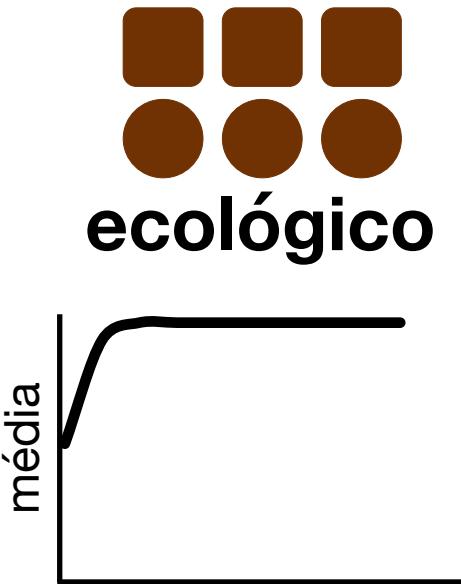
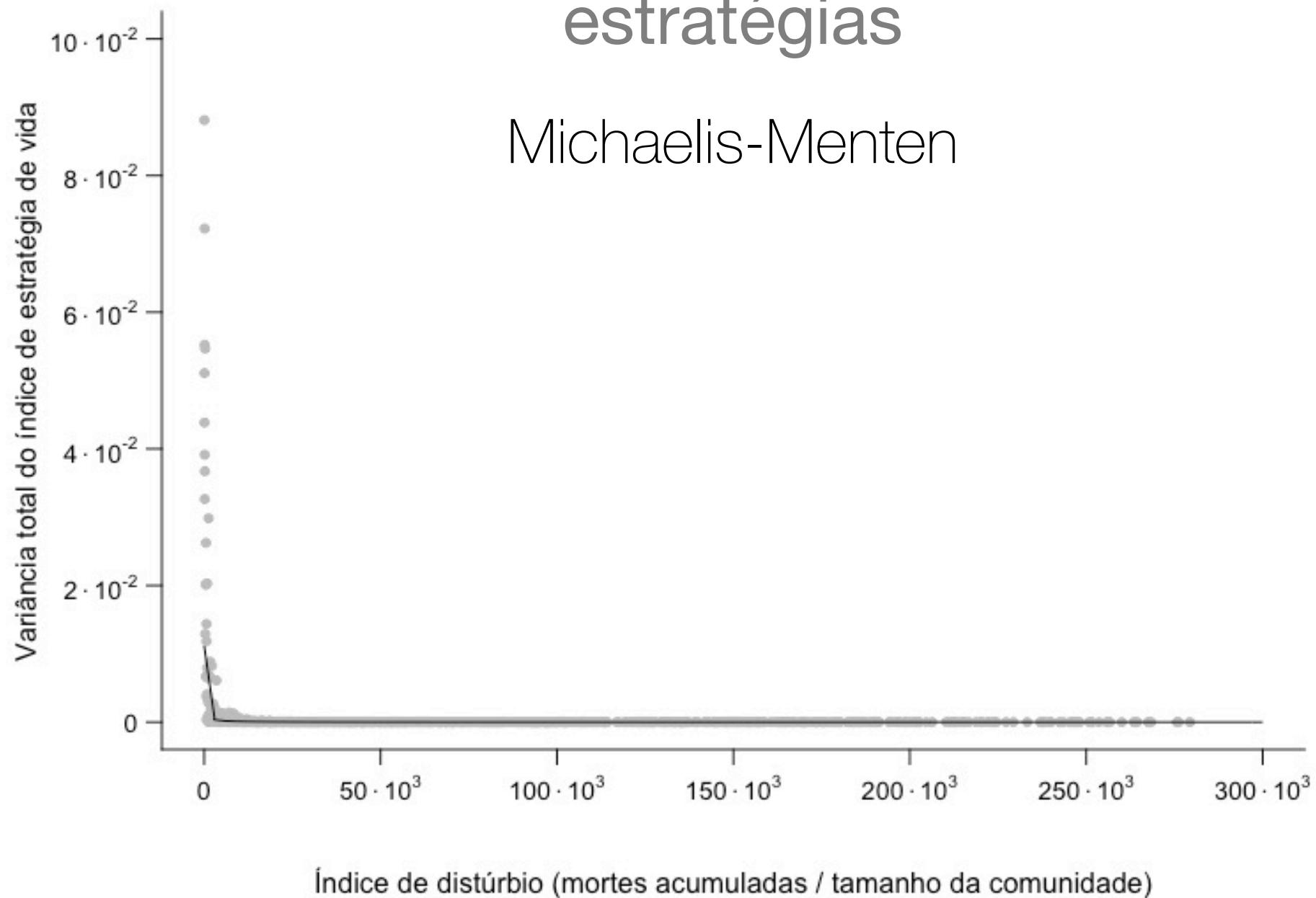
# diversidade de estratégias



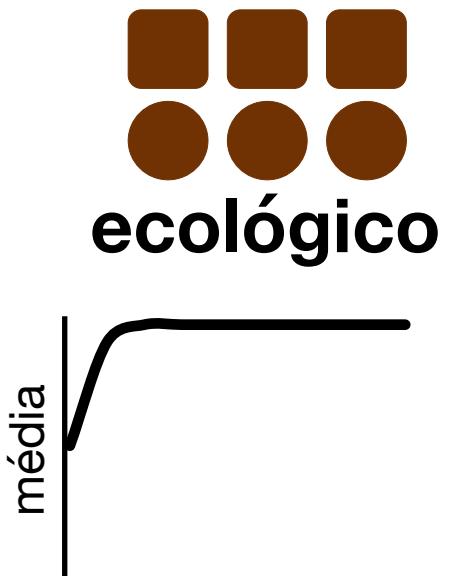
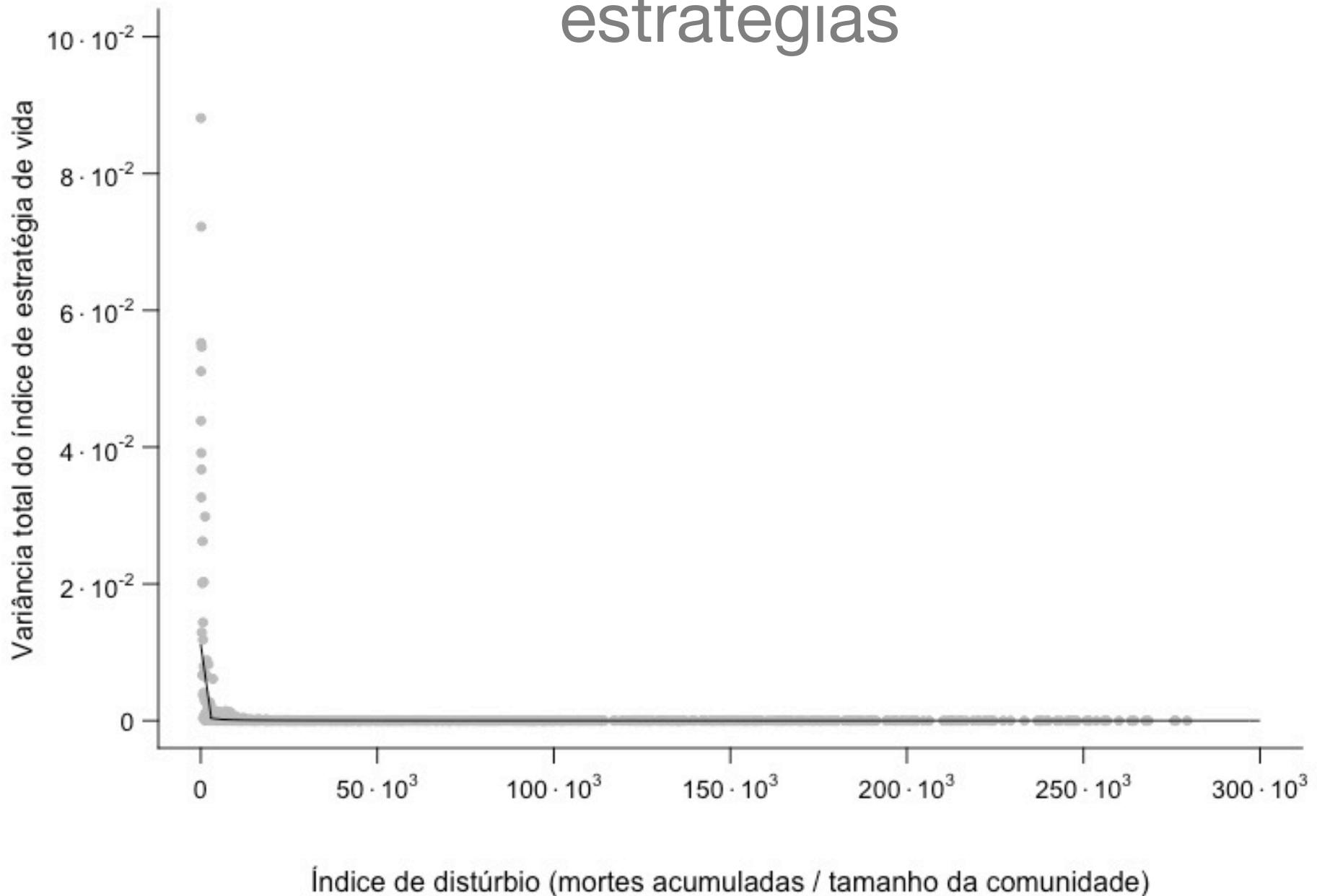
**ecológico**

# diversidade de estratégias

## resultados e discussão

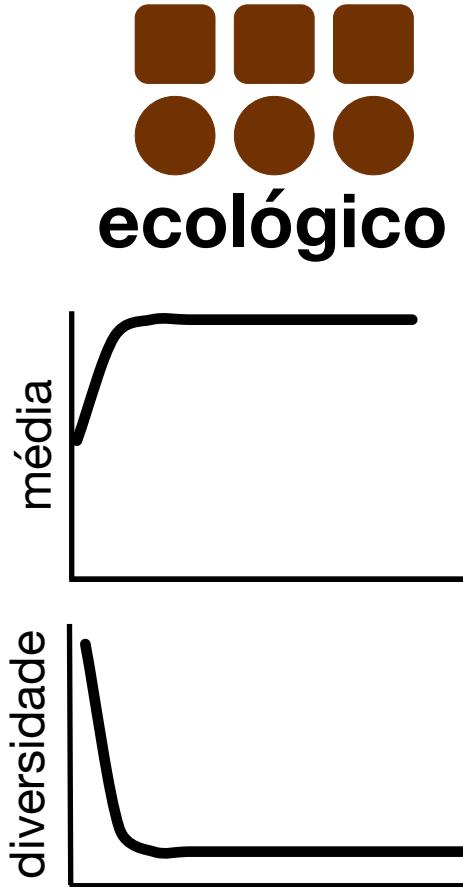
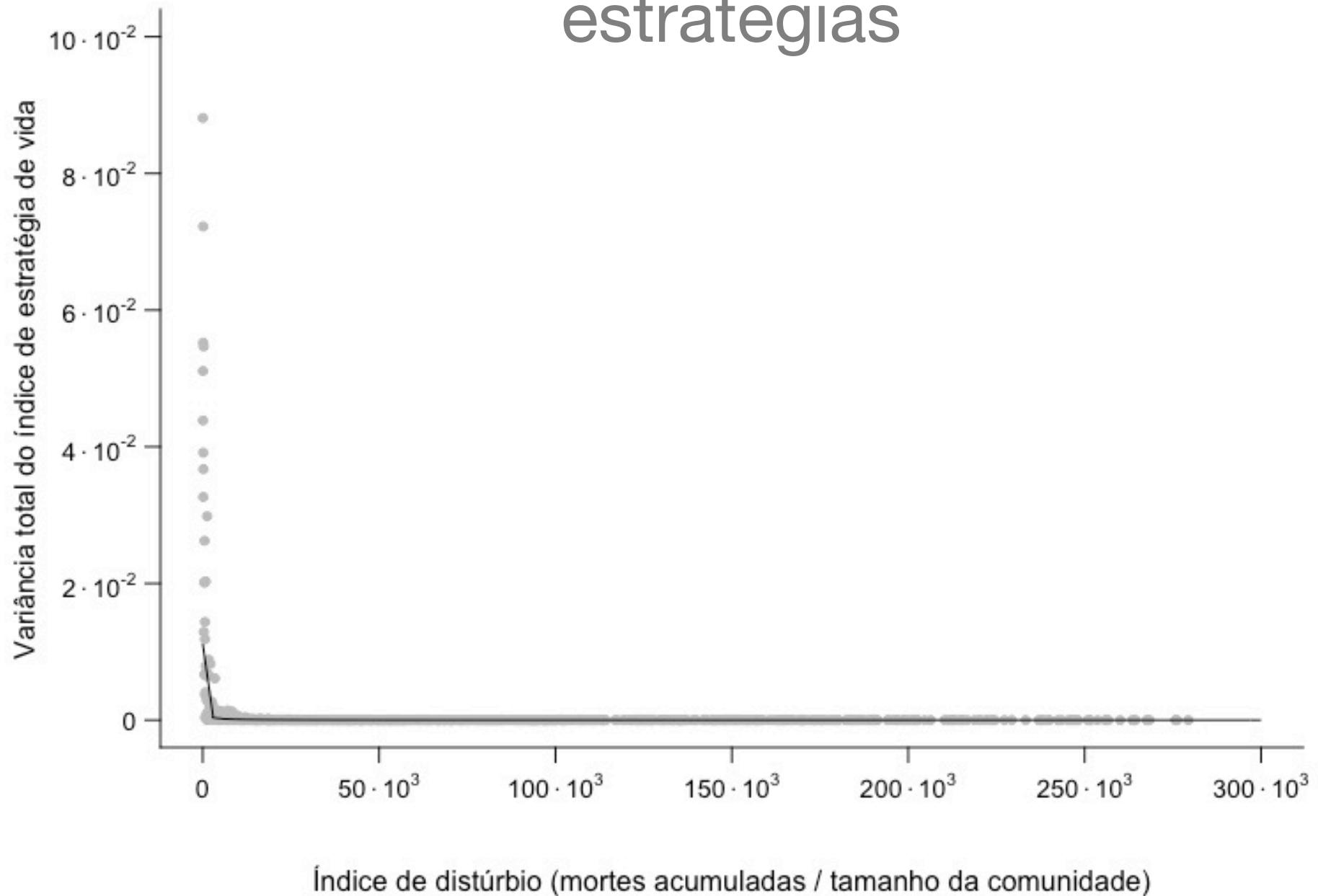


# diversidade de estratégias

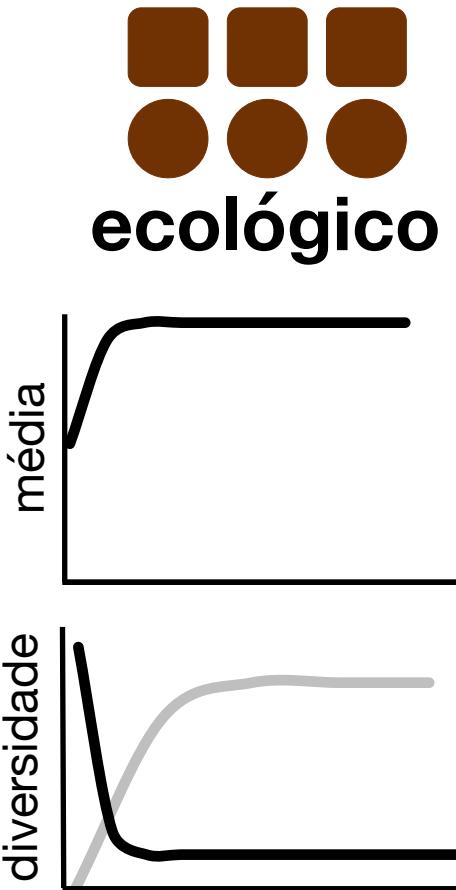
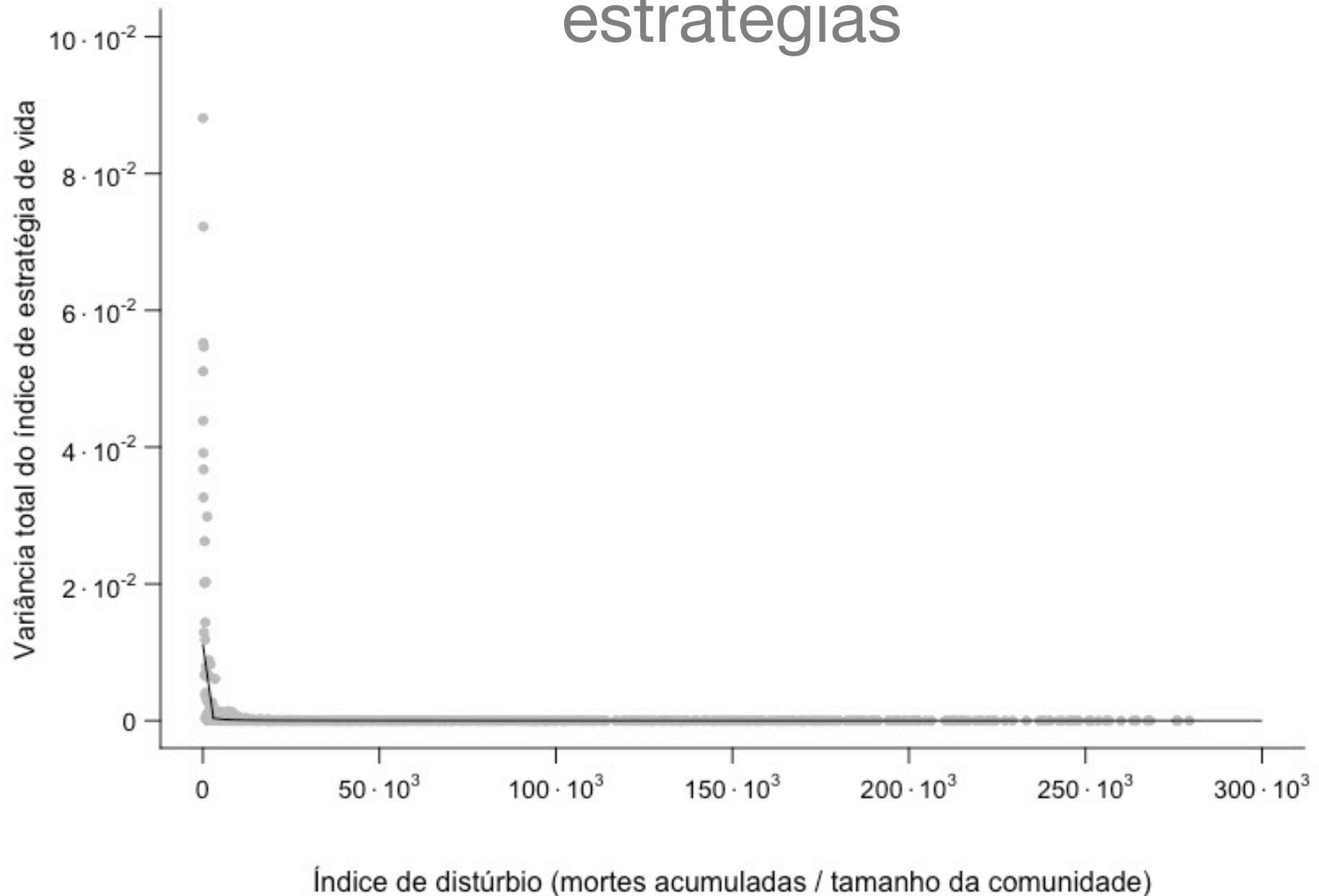


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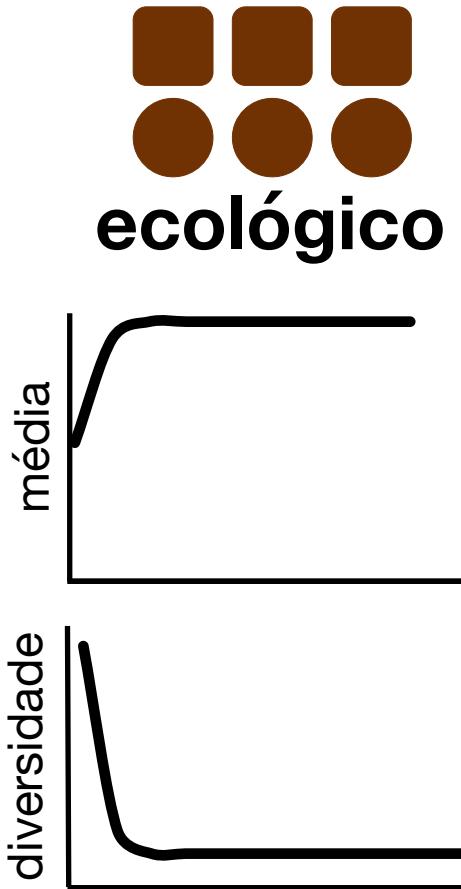
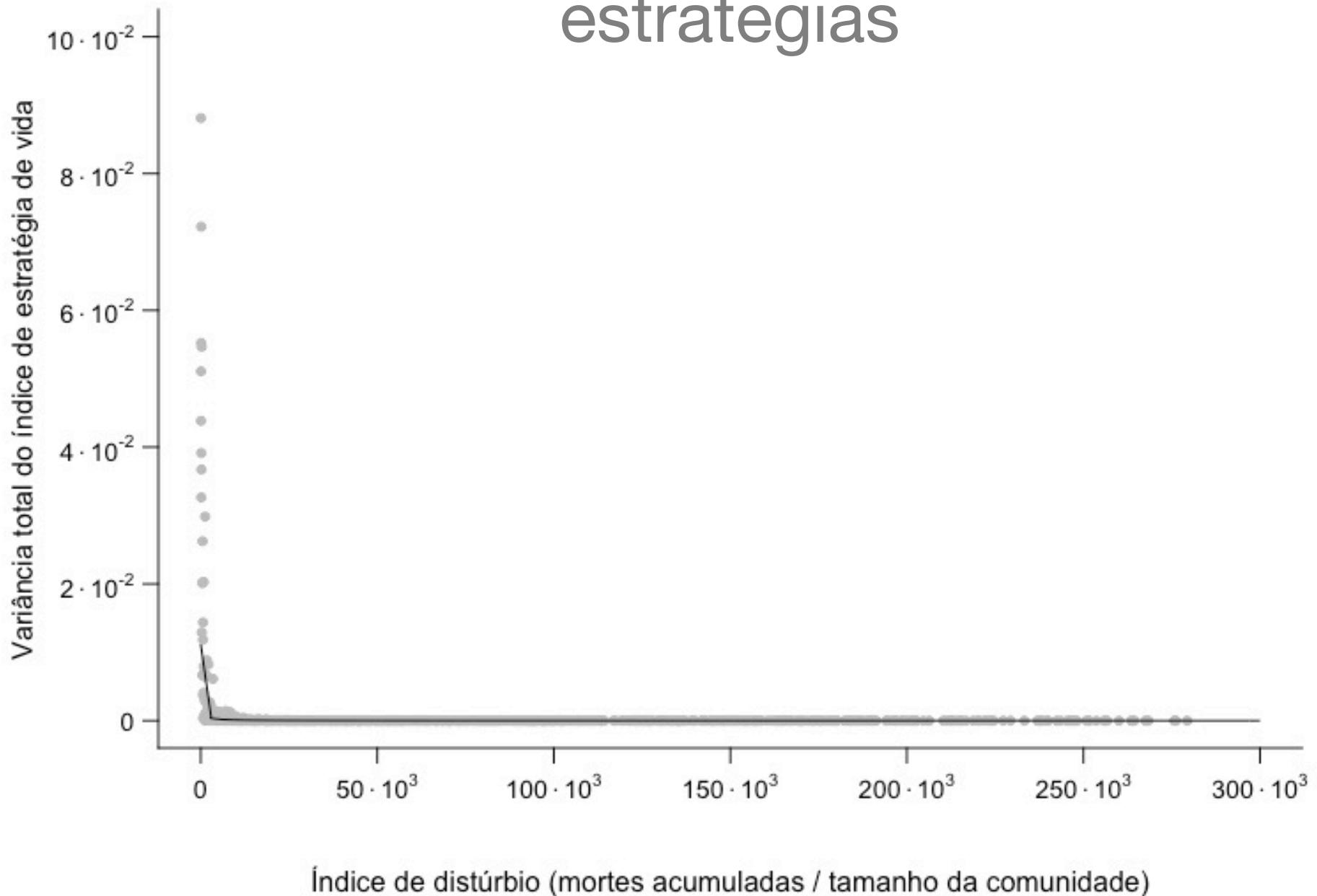
# diversidade de estratégias



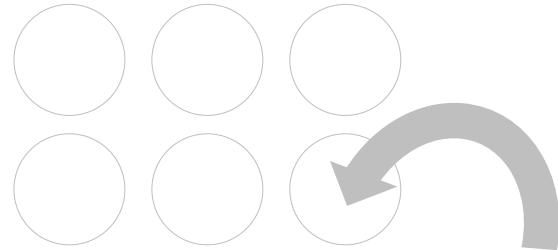
# diversidade de estratégias



# diversidade de estratégias



## evolutivo

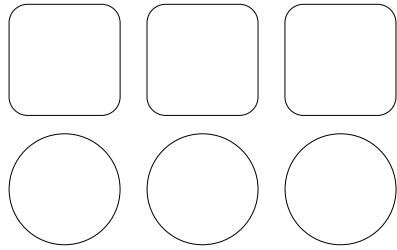


estratégia média

diversidade  
de estratégias

-

## ecológico

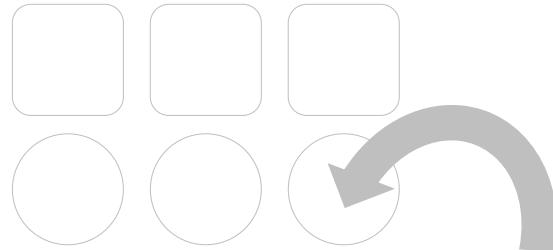


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

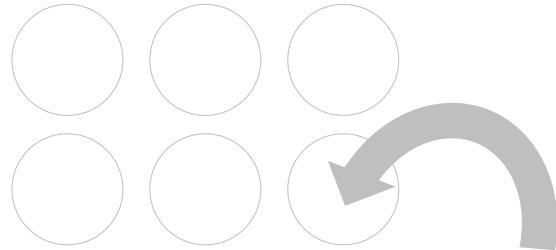


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

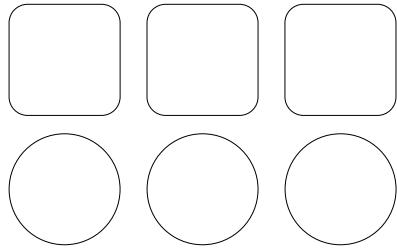


estratégia média

diversidade  
de estratégias

-

## ecológico

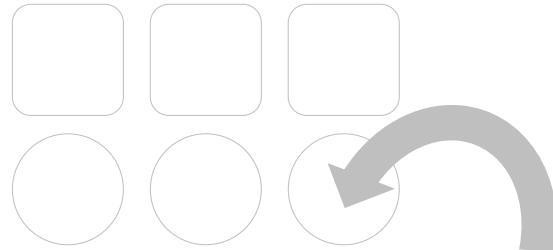


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

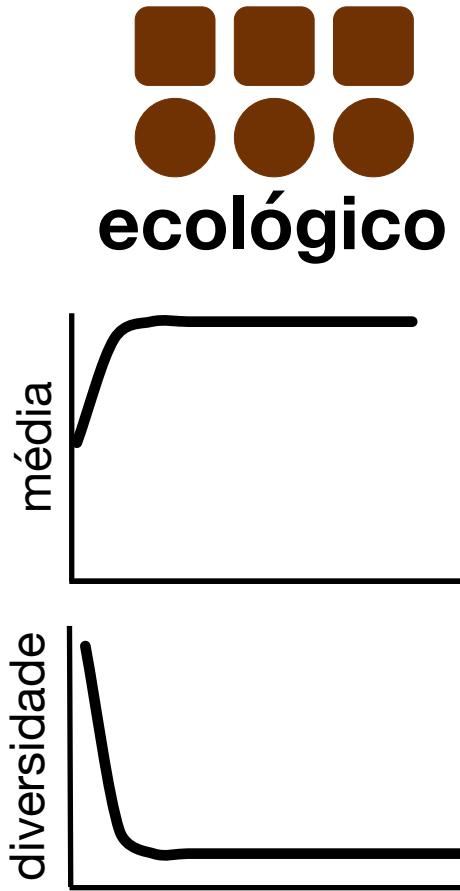
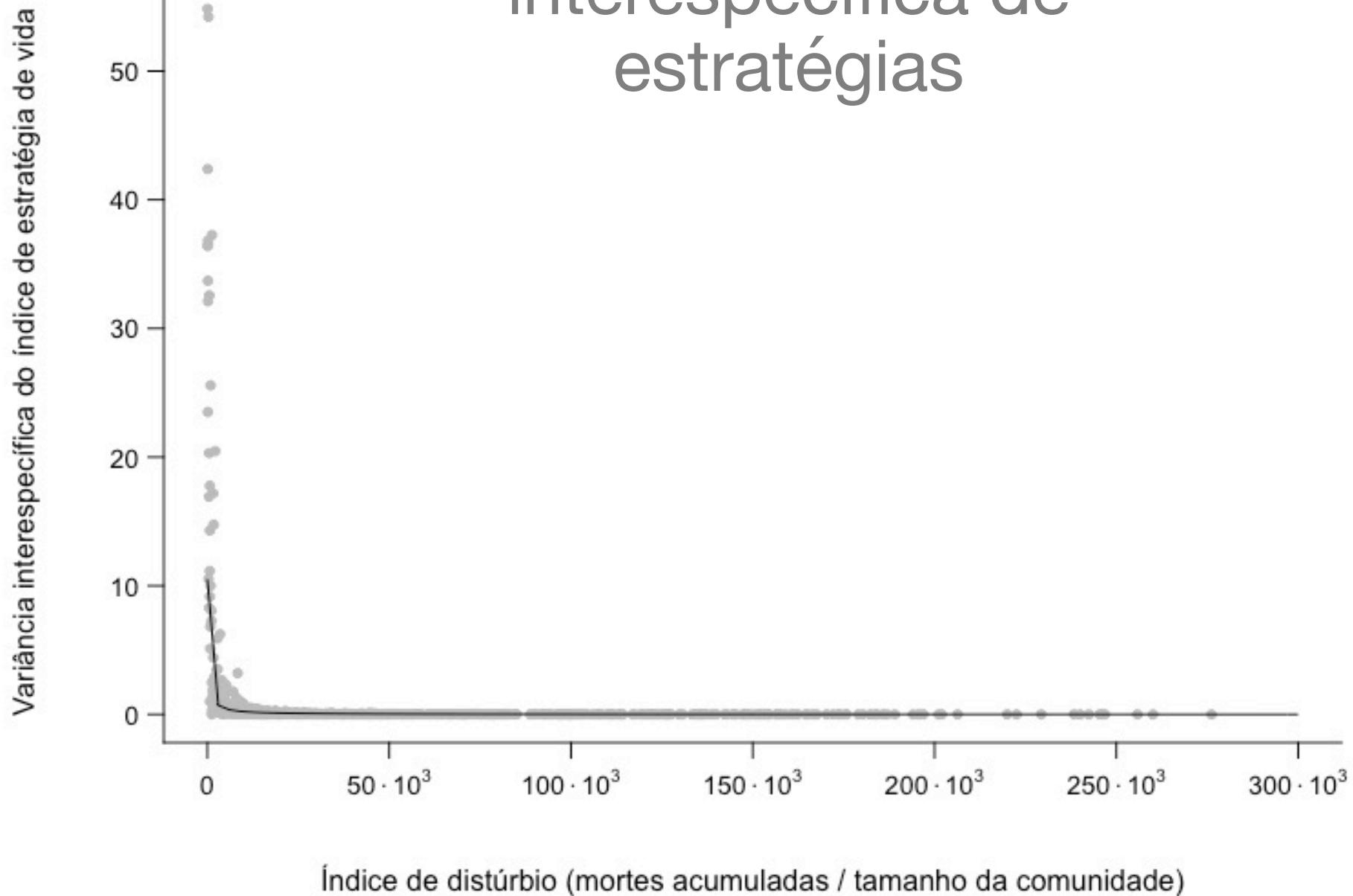


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

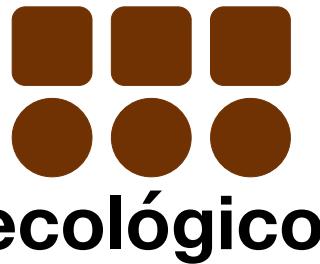
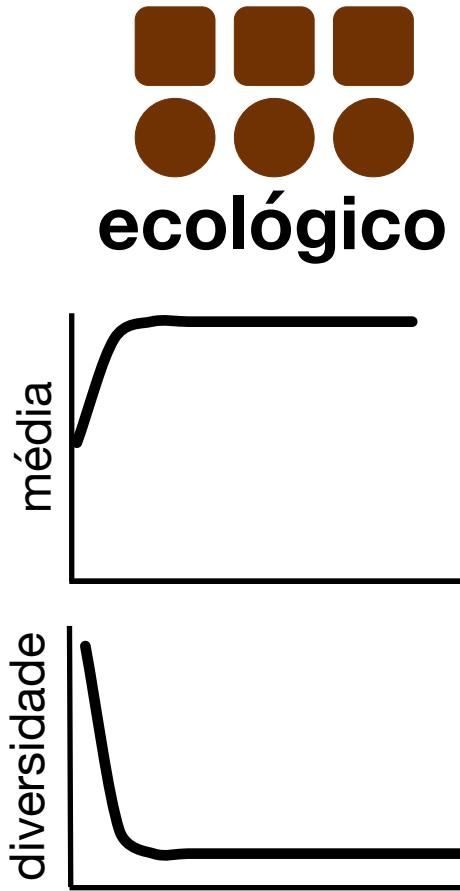
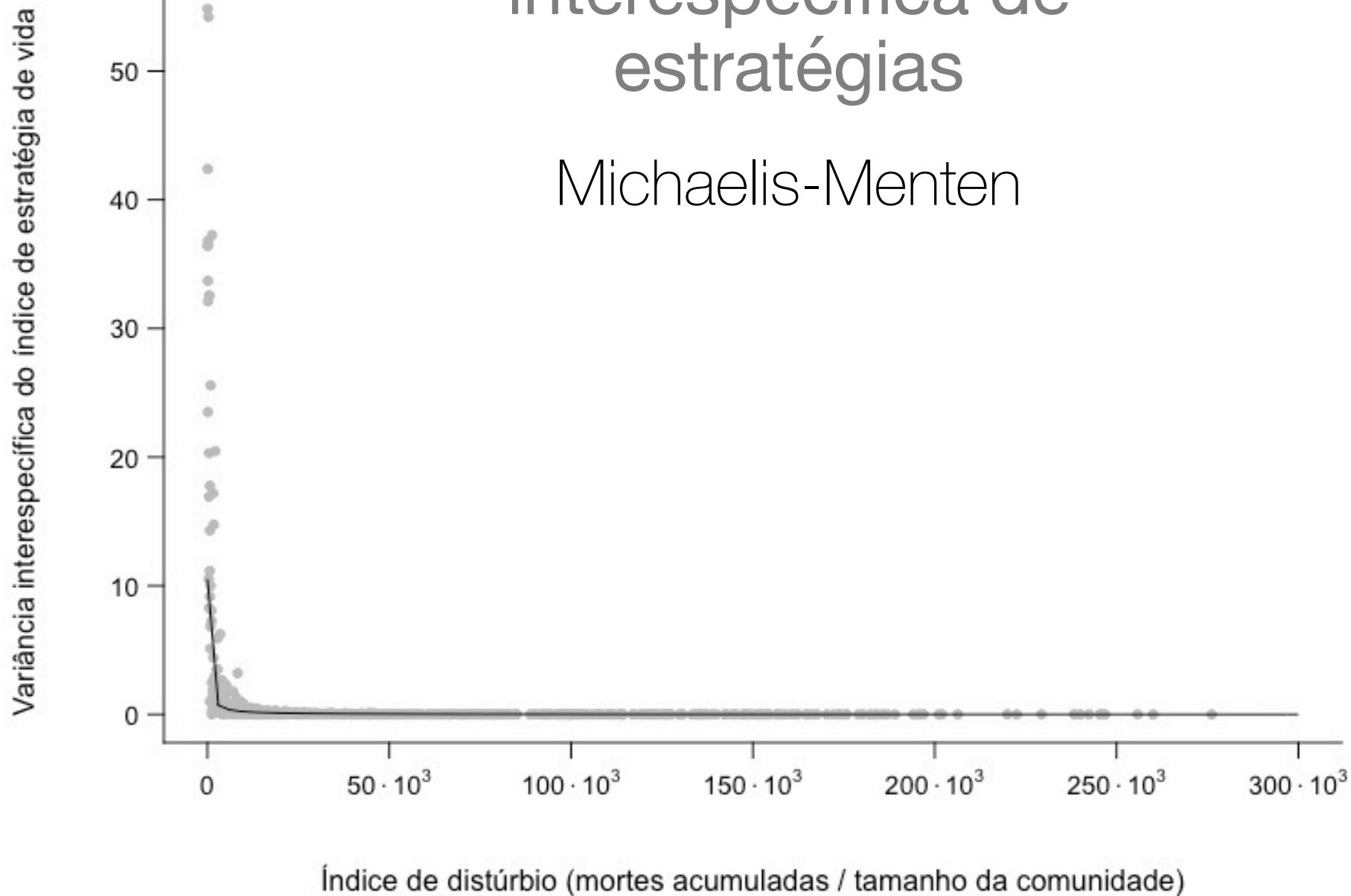
# heterogeneidade interespecífica de estratégias



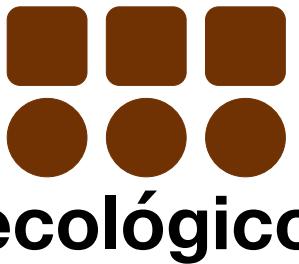
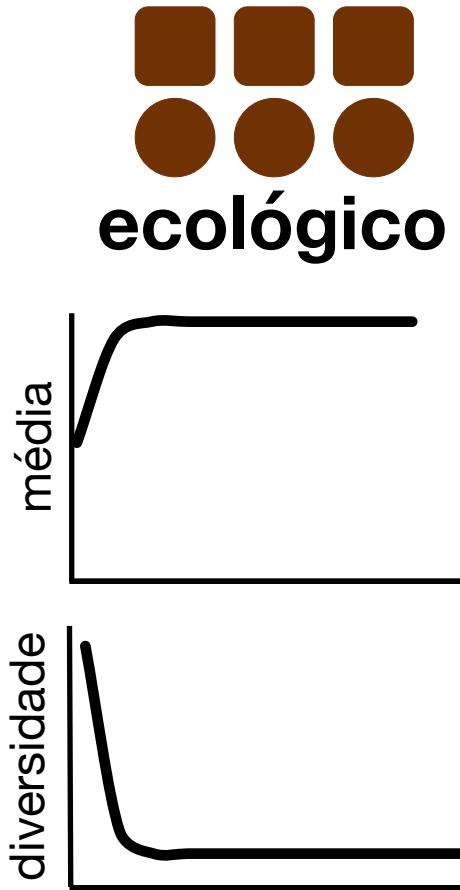
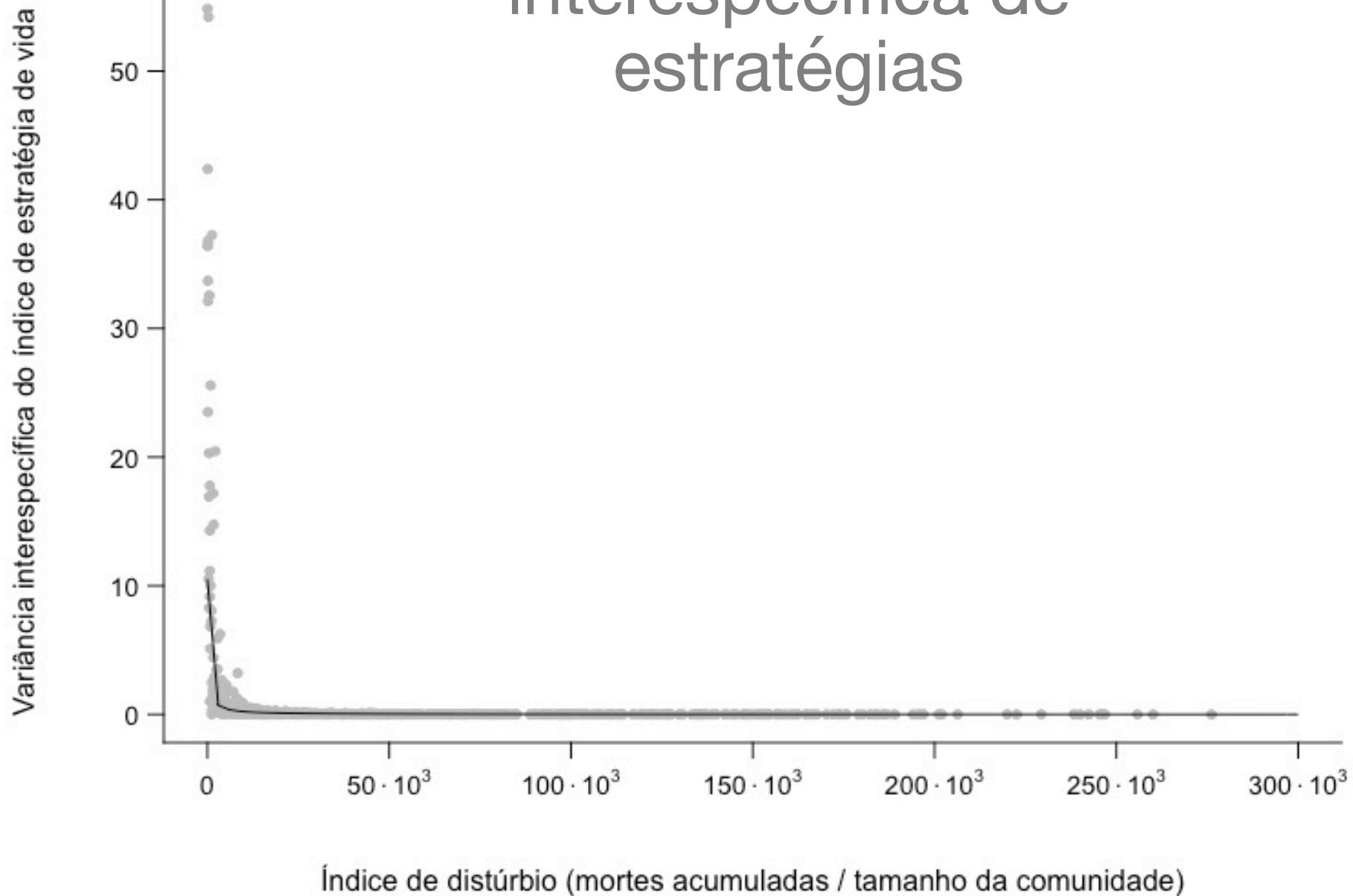
**ecológico**

# heterogeneidade interespecífica de estratégias

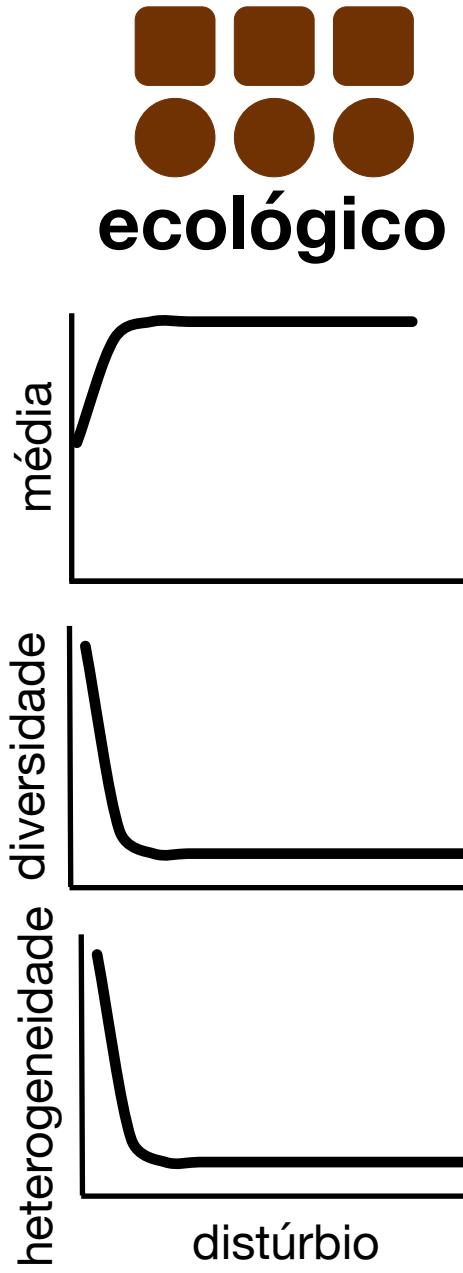
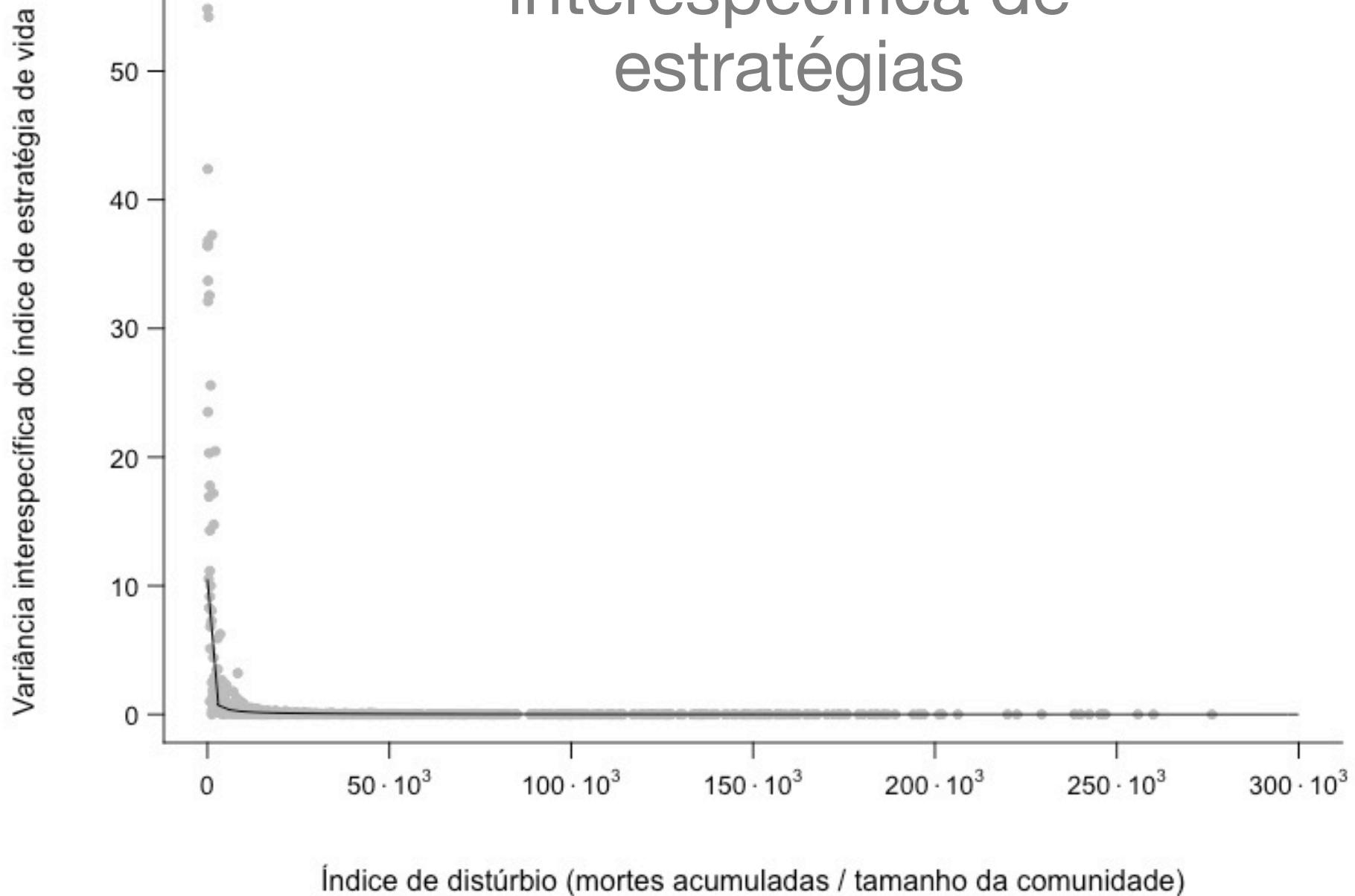
Michaelis-Menten



# heterogeneidade interespecífica de estratégias

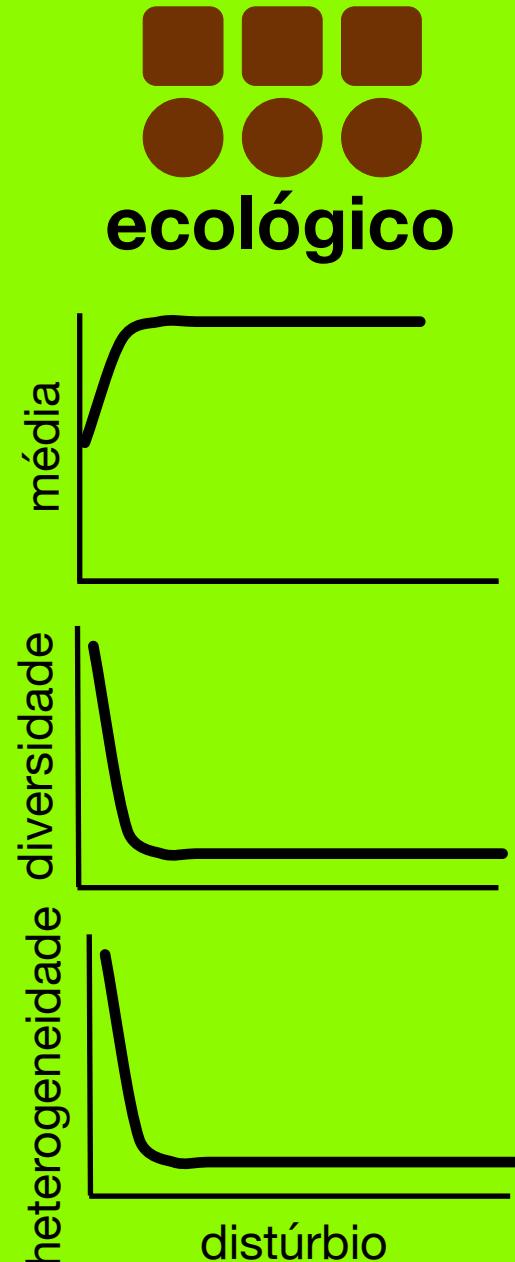


# heterogeneidade interespecífica de estratégias

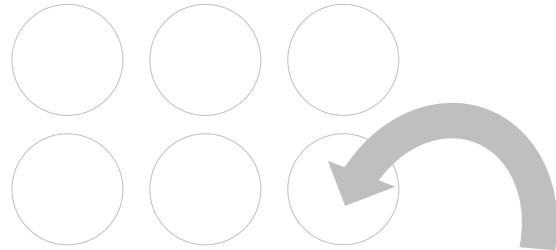


## Queda na diversidade:

- Maiores chances de **morte de populações inteiras** por distúrbio
- Redução nos tamanhos populacionais:
  - **Exclusão competitiva mais rápida**
  - Efeito da **deriva ecológica** no mesmo sentido



## evolutivo

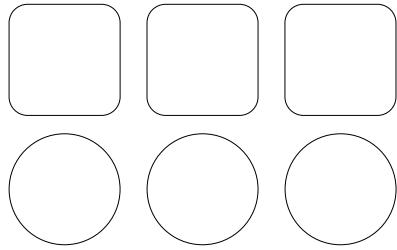


estratégia média

diversidade  
de estratégias

-

## ecológico

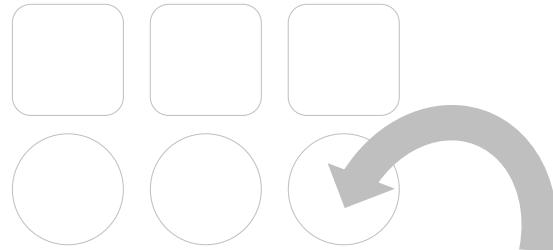


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

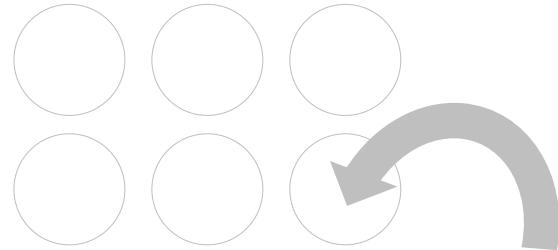


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## evolutivo

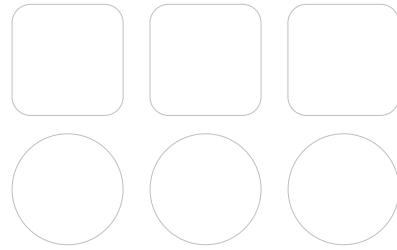


estratégia média

diversidade  
de estratégias

-

## ecológico

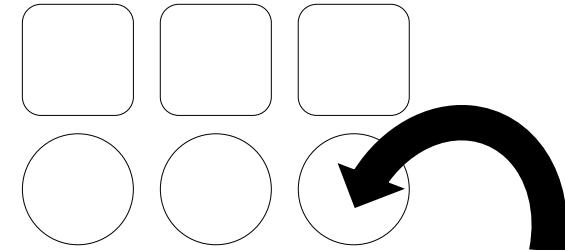


estratégia média

diversidade  
de estratégias

heterogeneidade  
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estratégias

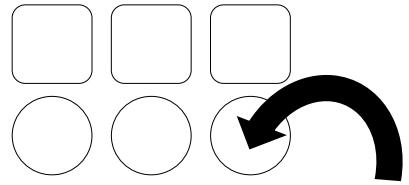
## eco-evolutivo



estratégia média

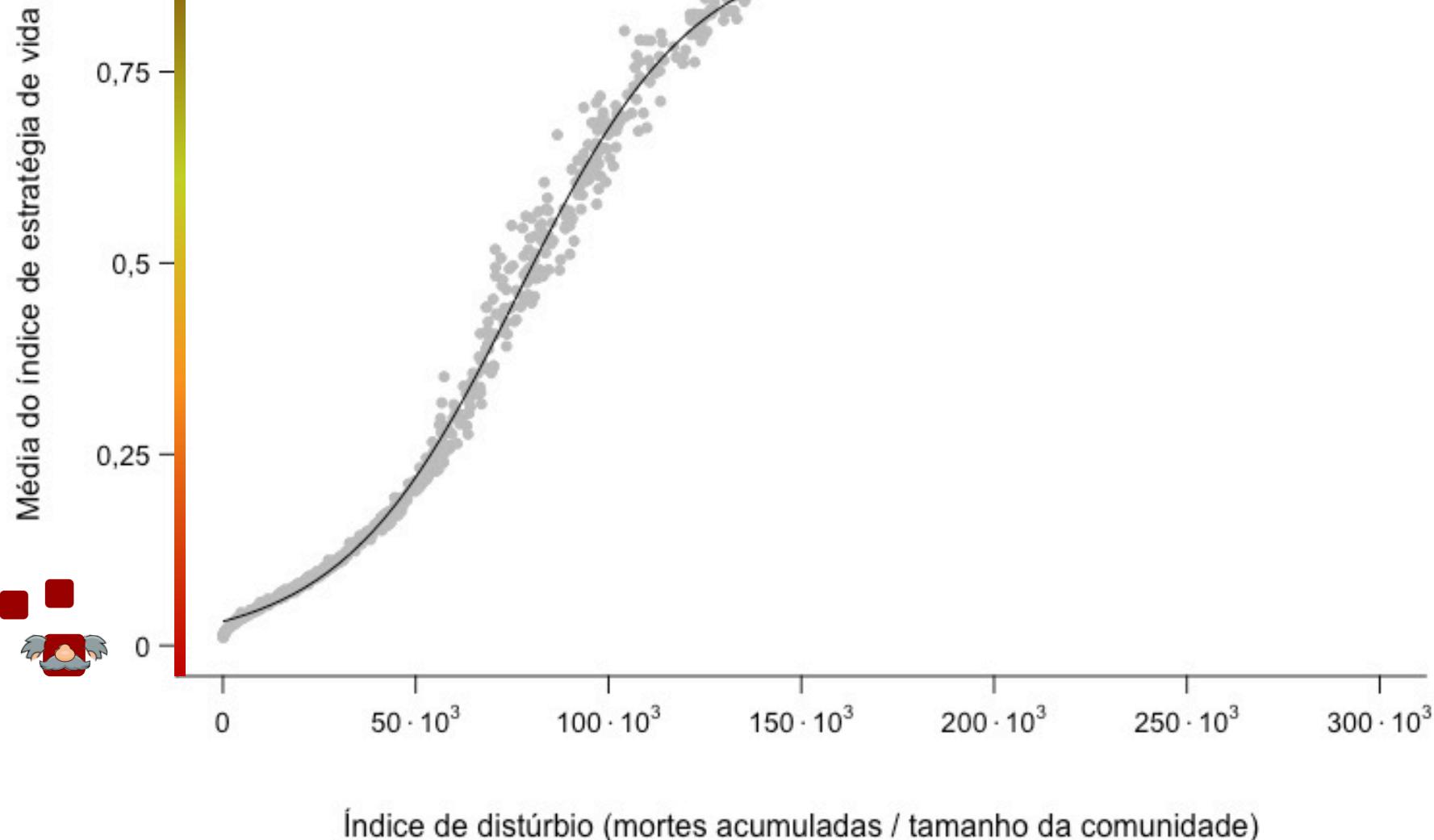
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de estratégias

heterogeneidade  
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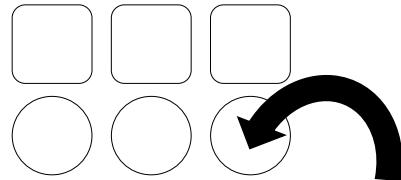


**eco-evolutivo**

# estratégia média



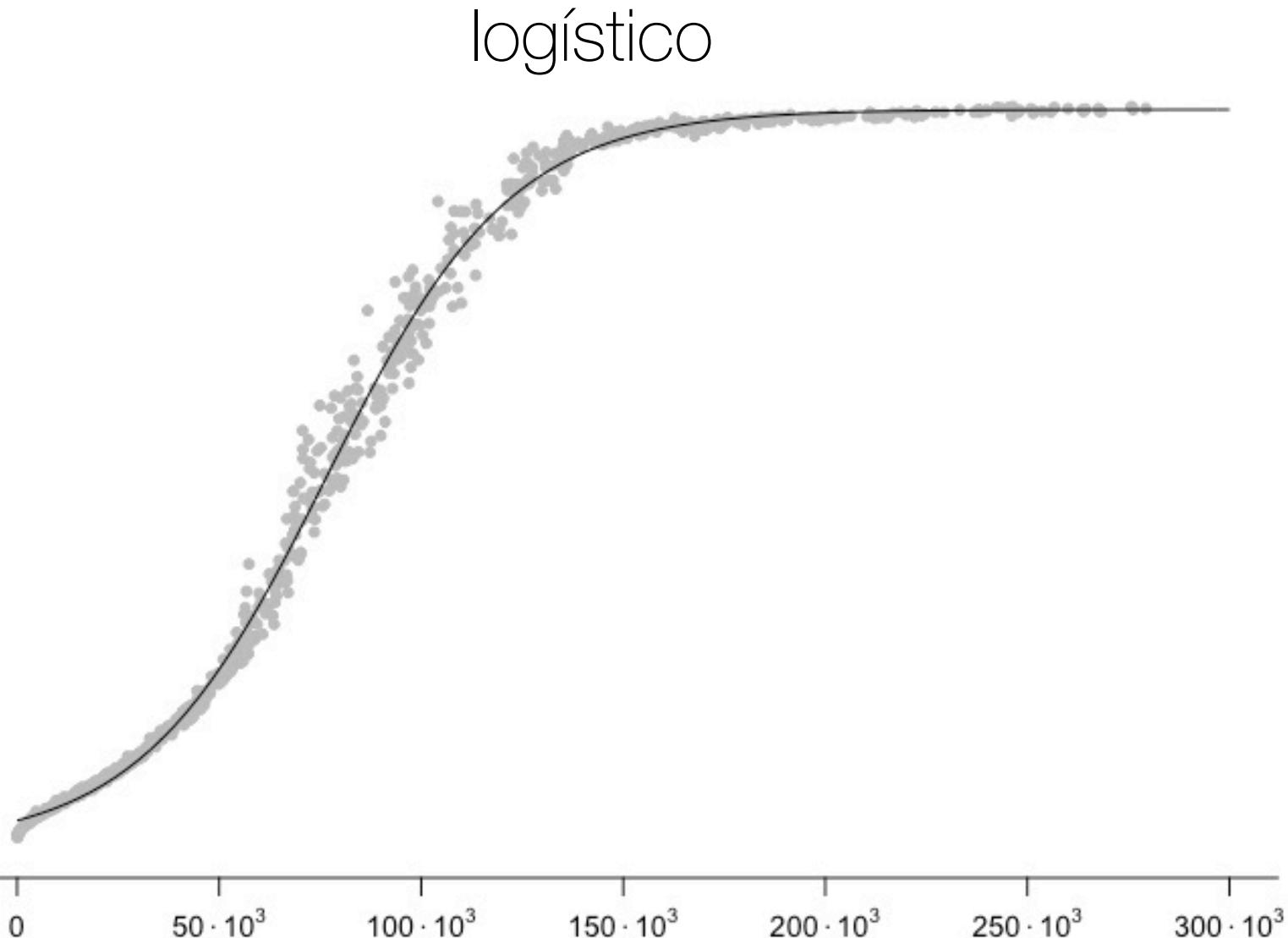
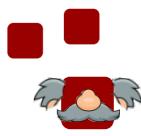
**eco-evolutivo**



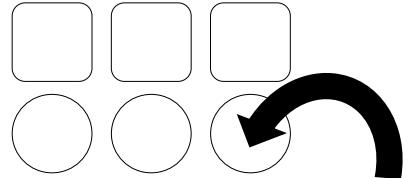
# estratégia média

logístico

Média do índice de estratégia de vida

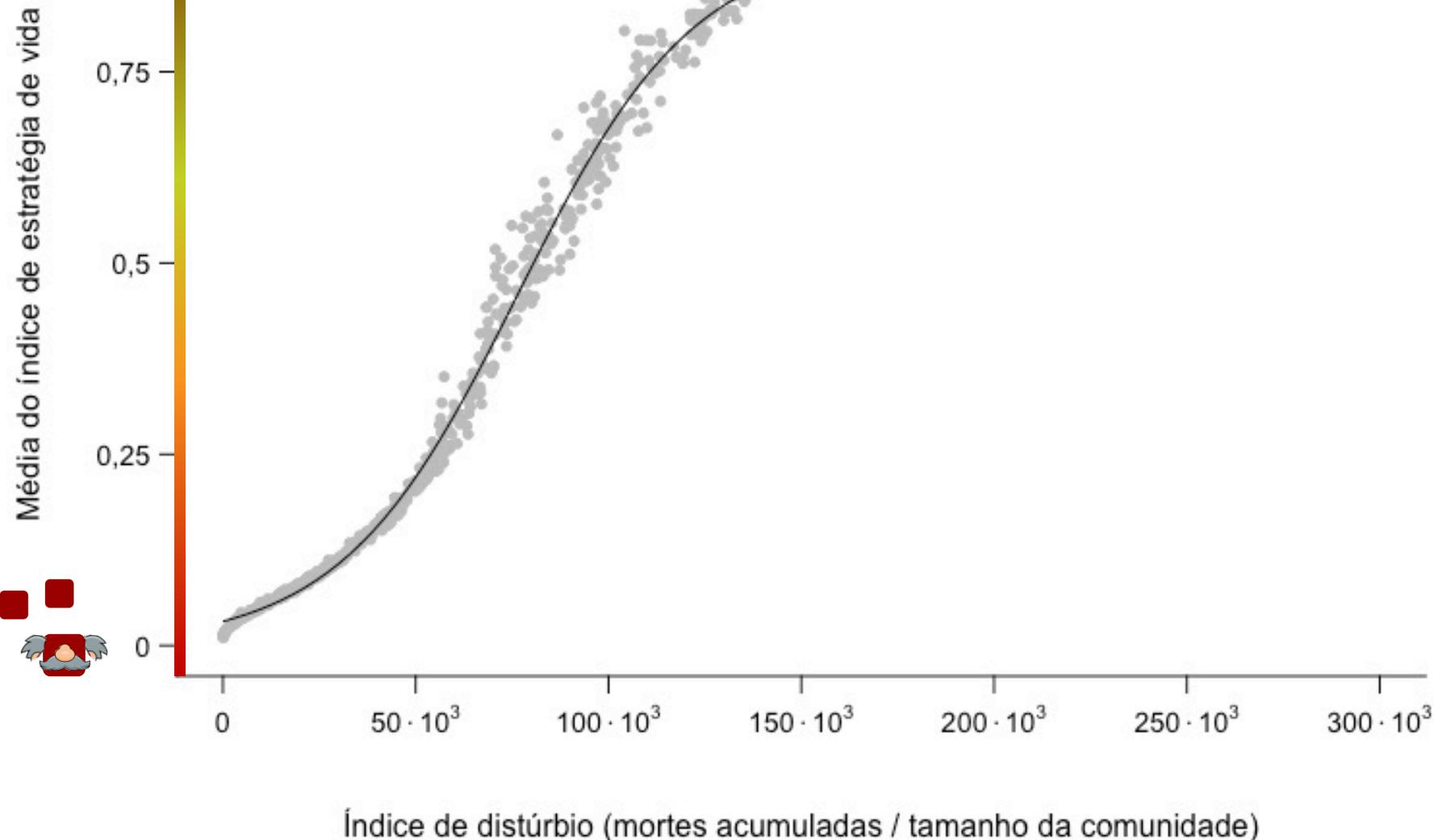


Índice de distúrbio (mortes acumuladas / tamanho da comunidade)

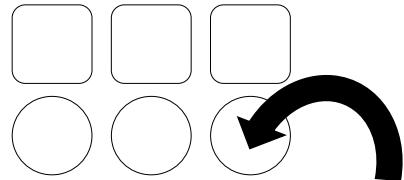


**eco-evolutivo**

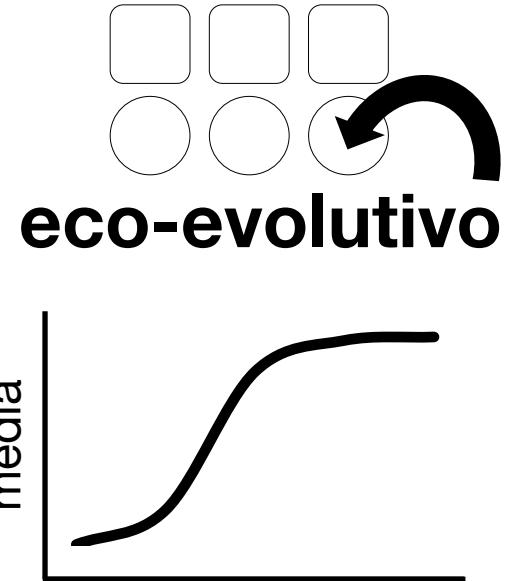
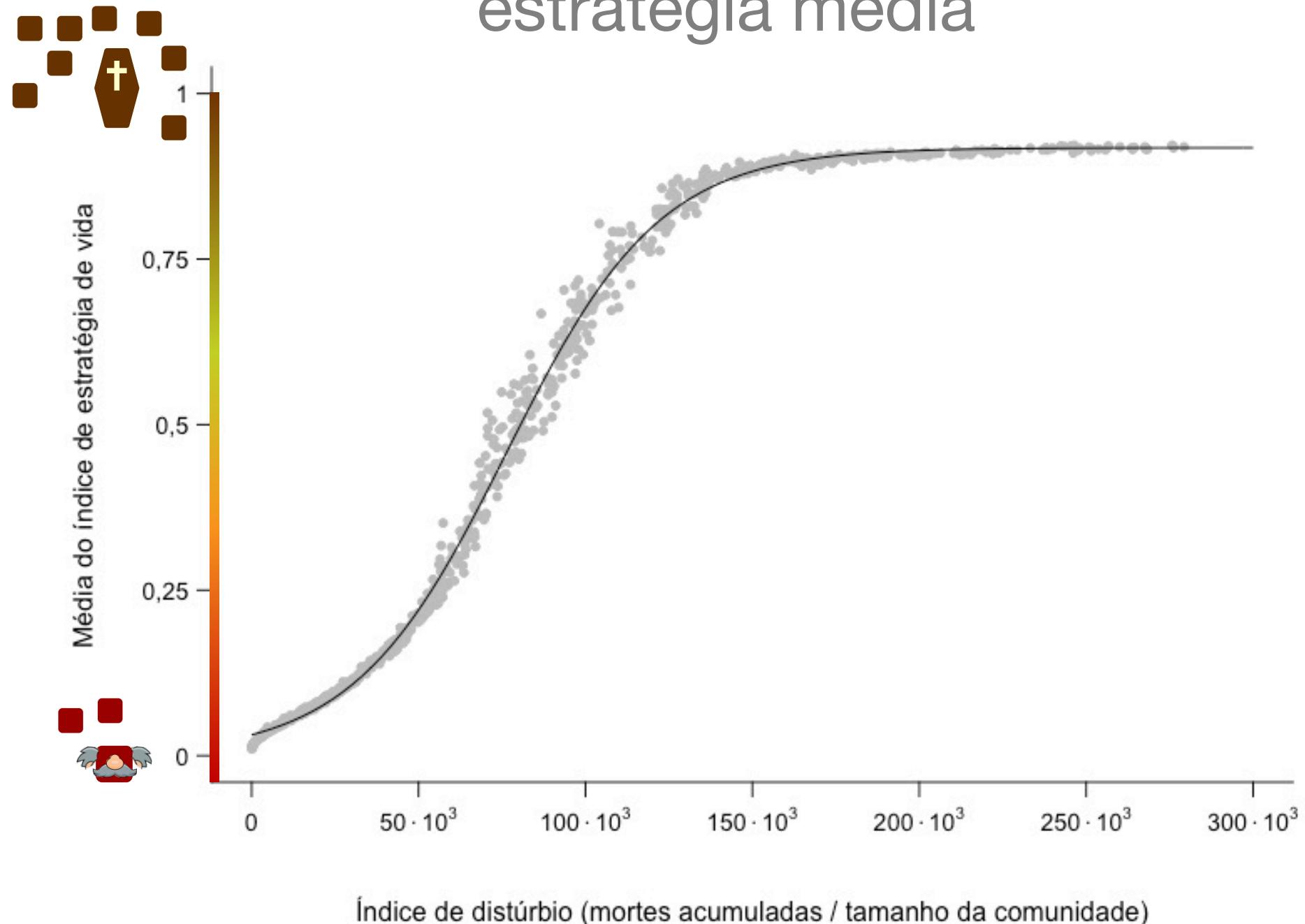
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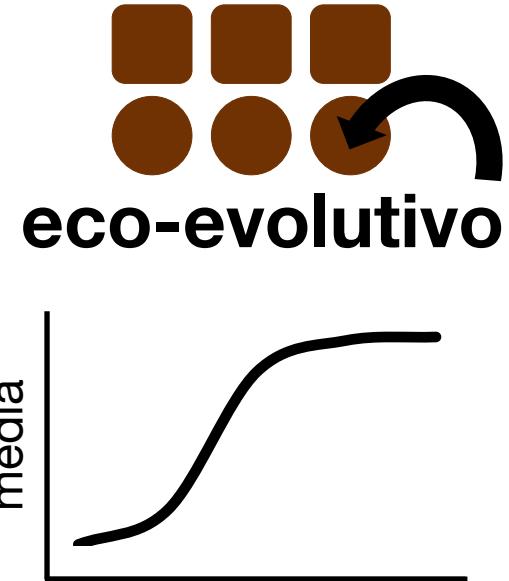
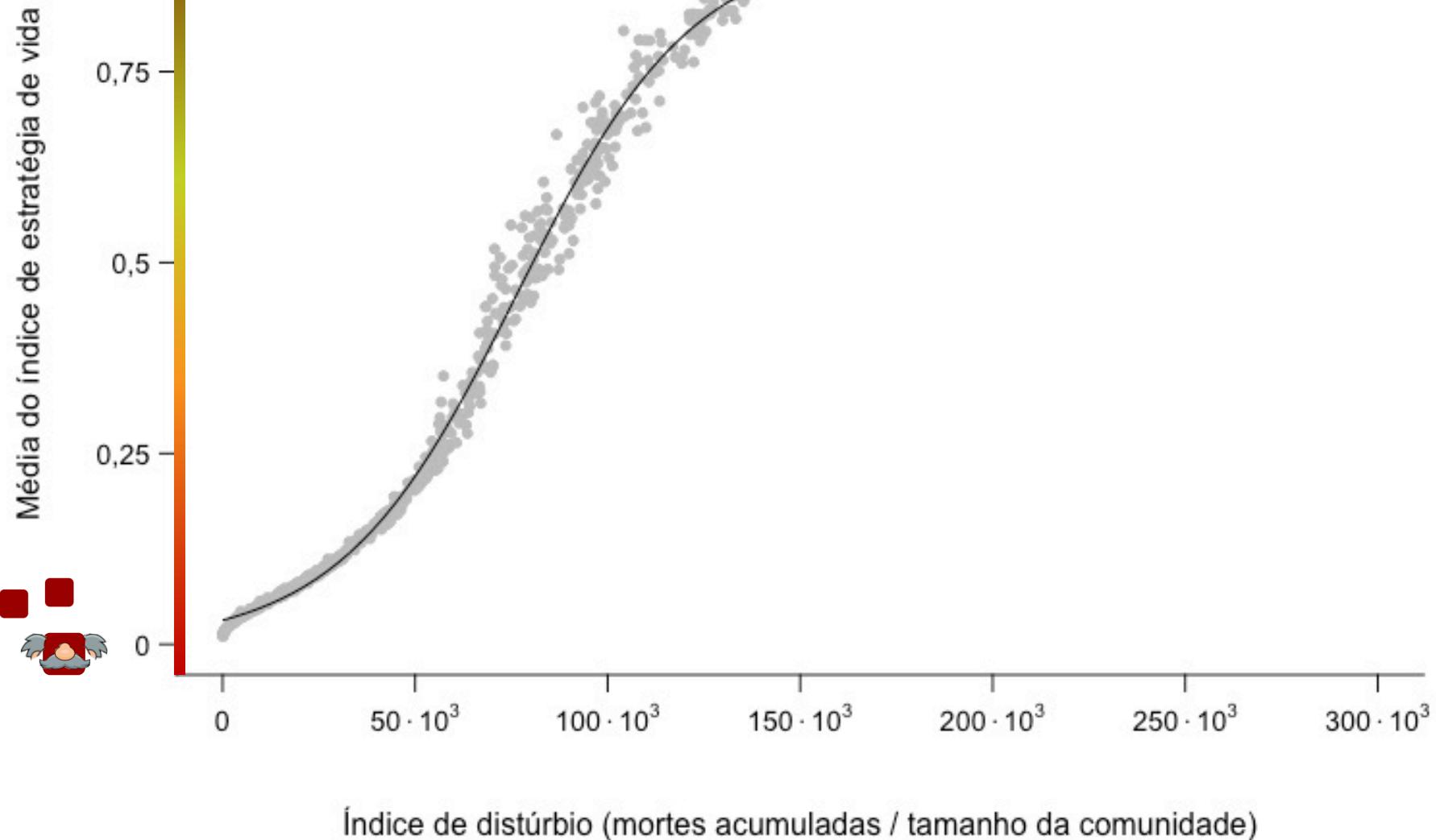
**eco-evolutivo**



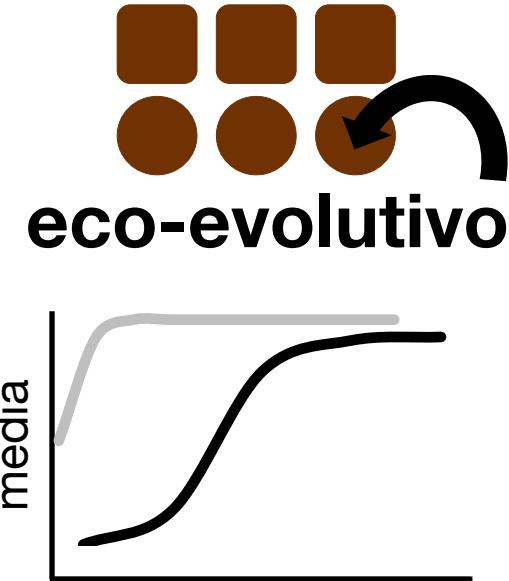
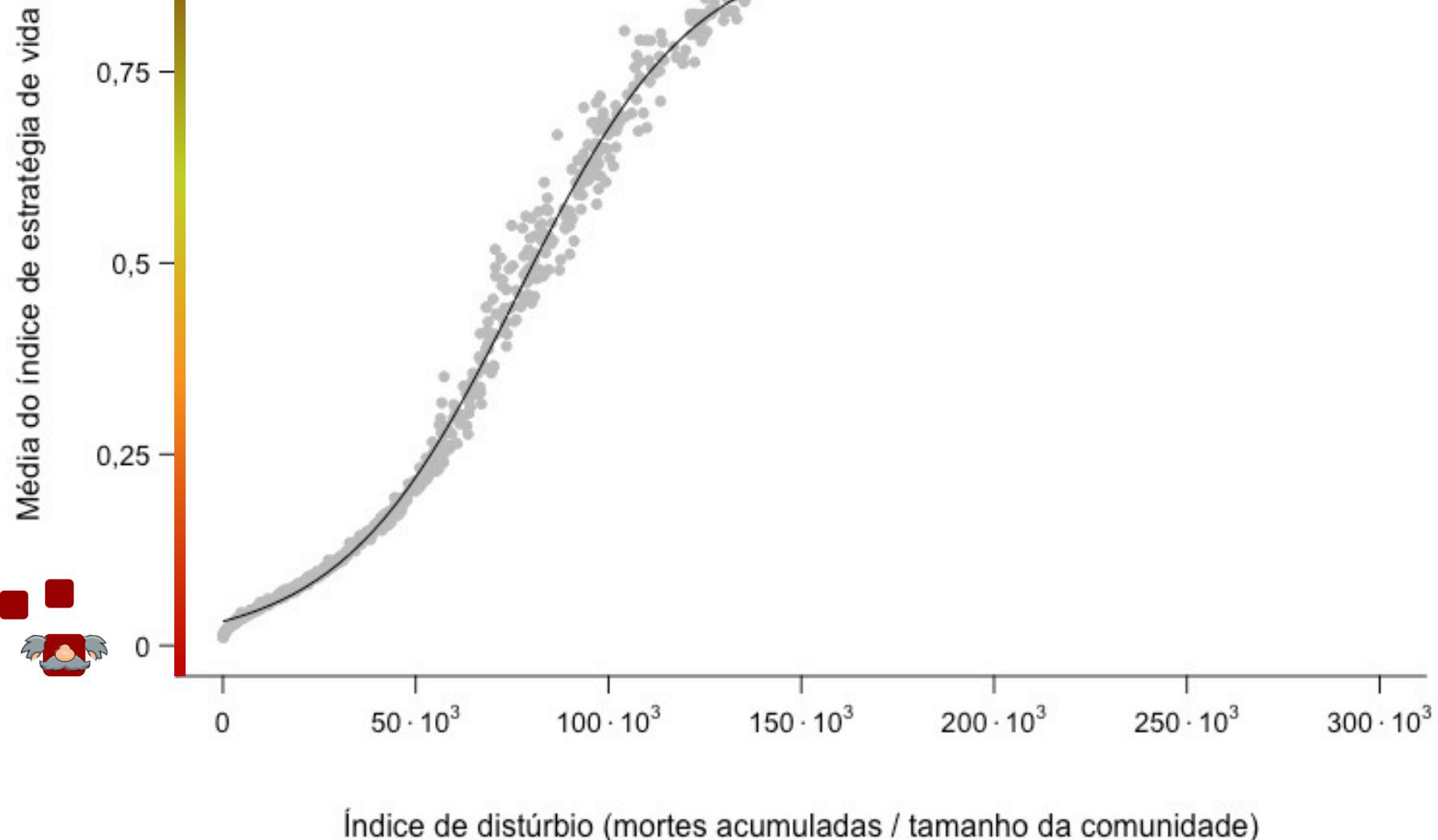
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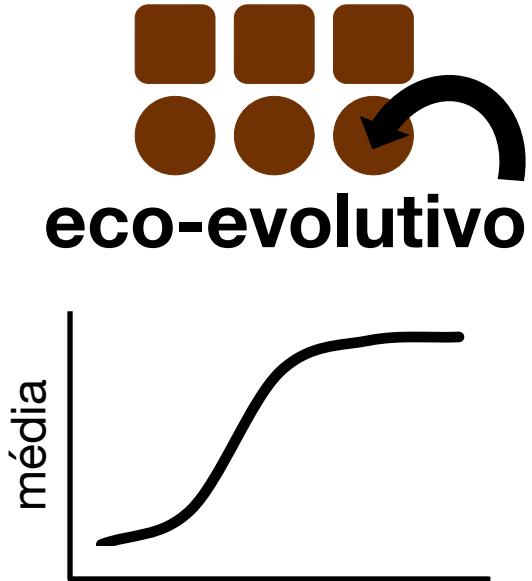
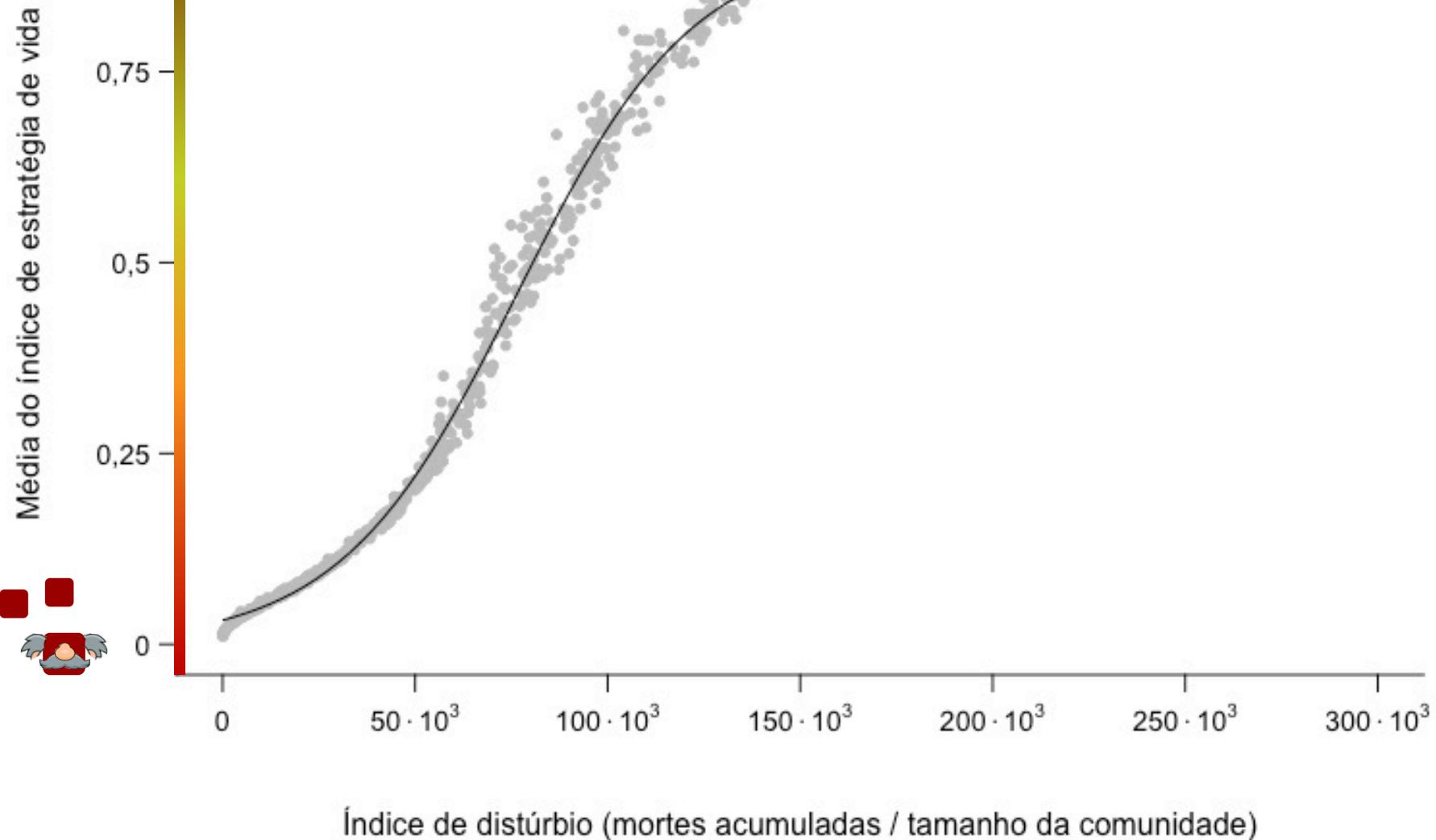
# estratégia média



# estratégia média



# estratégia média



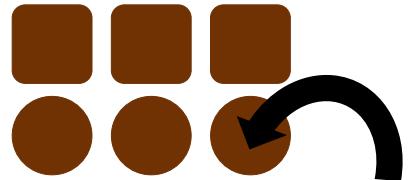
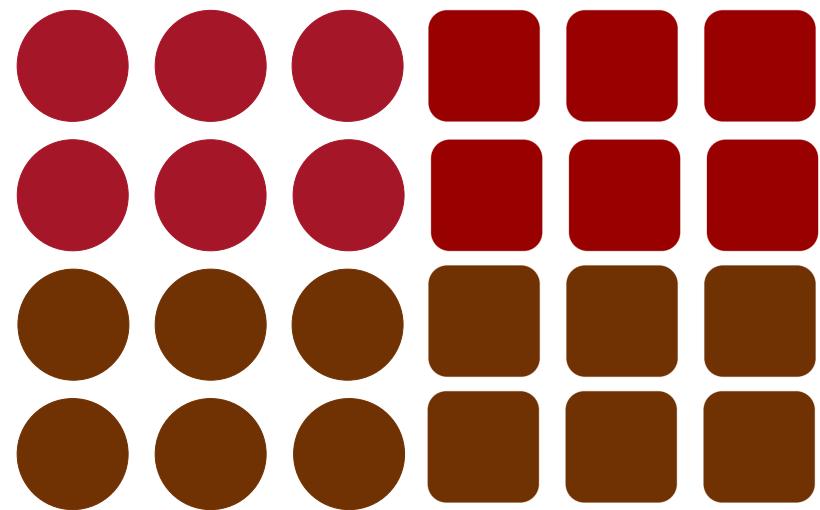
banco

x 48

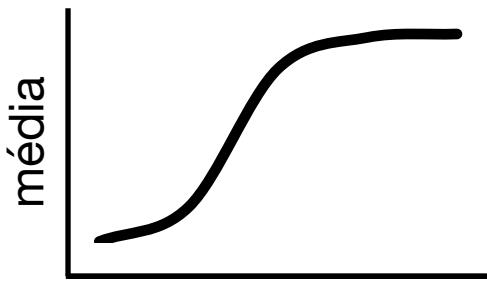
x 12

x 48

x 12



**eco-evolutivo**



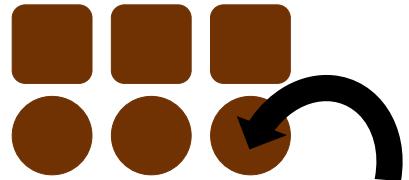
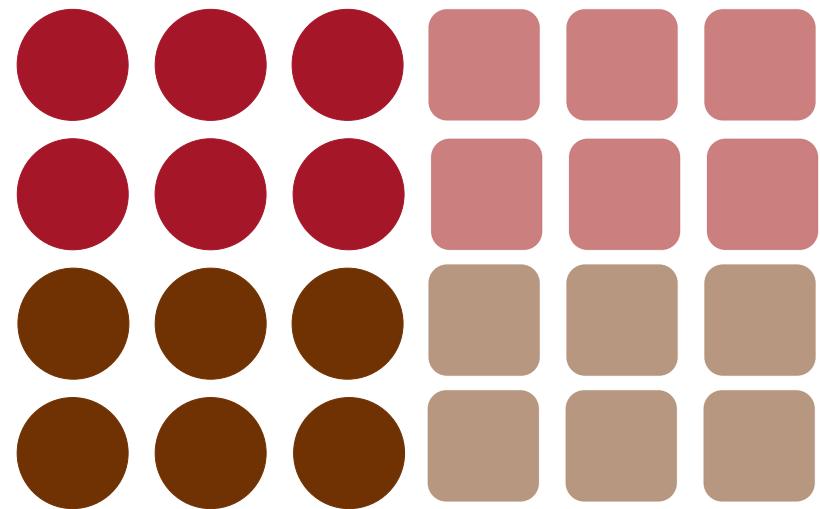
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x 48

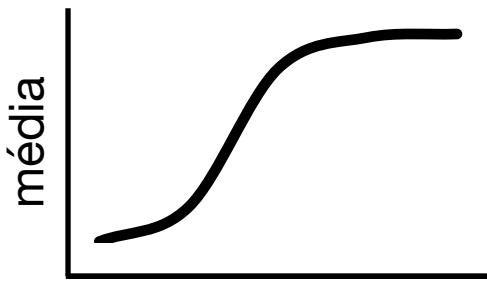
x 12

x 48

x 12



**eco-evolutivo**



# seleção natural

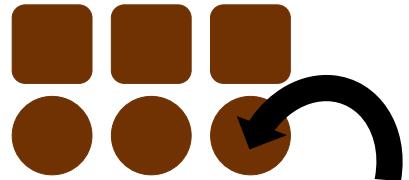
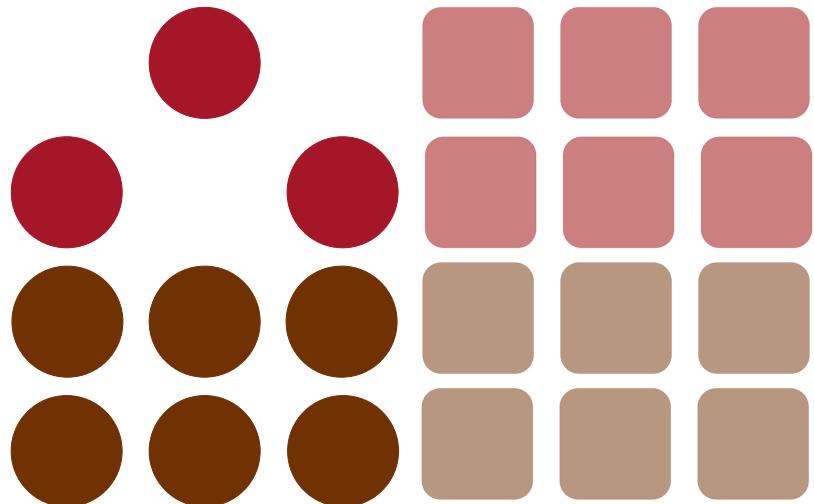
banco

x 48

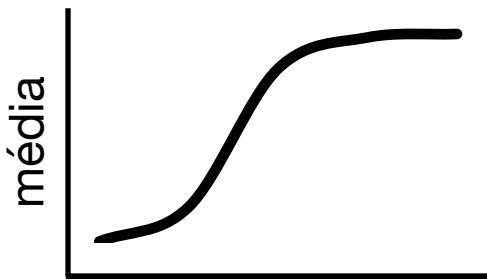
x 12

x 48

x 12



**eco-evolutivo**



# seleção natural

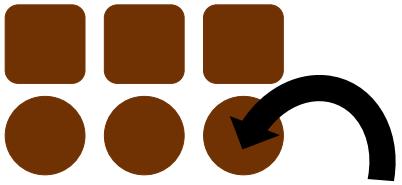
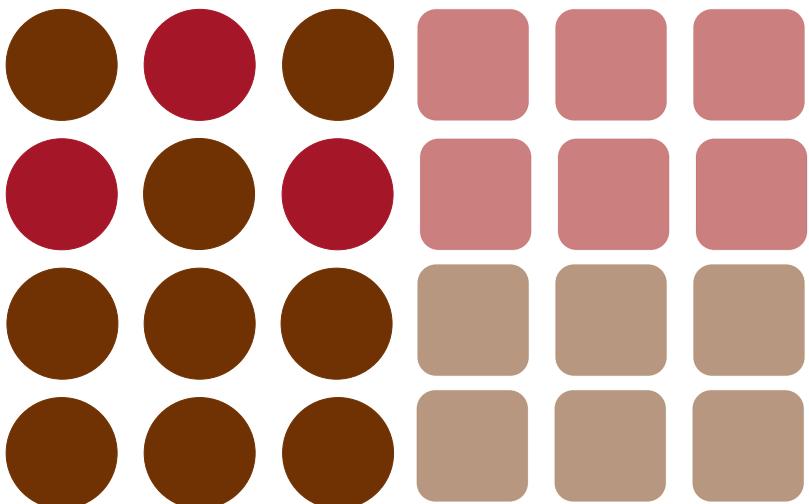
banco

x 72

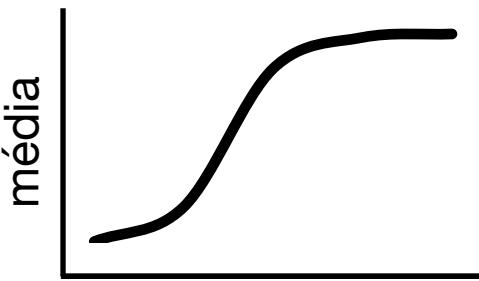
x 6

x 48

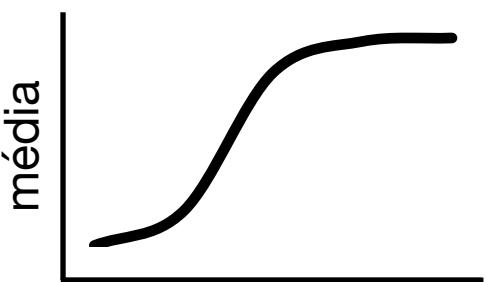
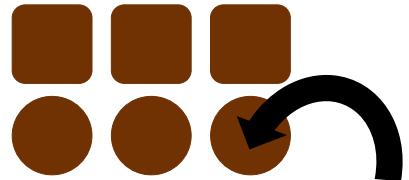
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**eco-evolutivo**



# seleção natural + exclusão competitiva de espécies



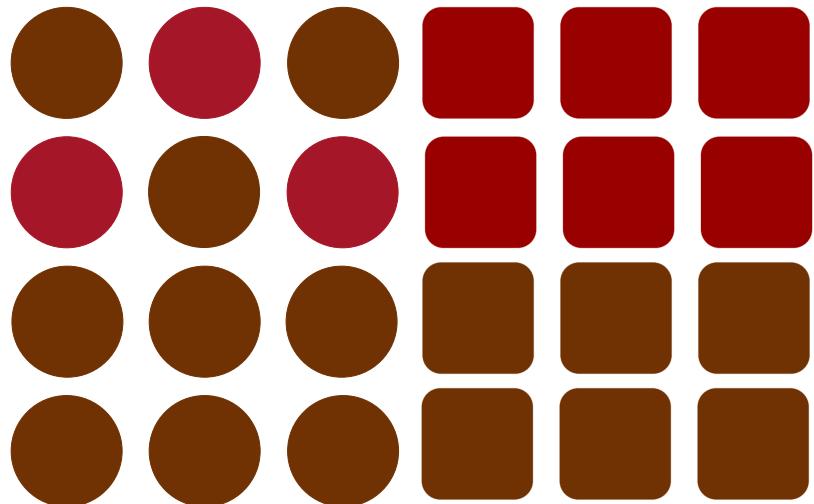
banco

x 72

x 6

x 48

x 12



# seleção natural + exclusão competitiva de espécies

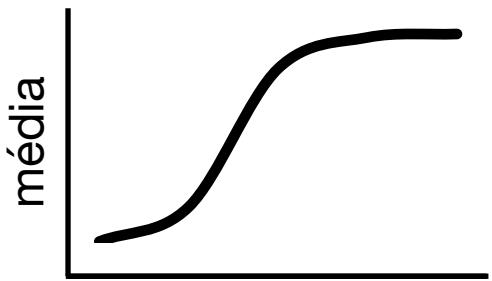
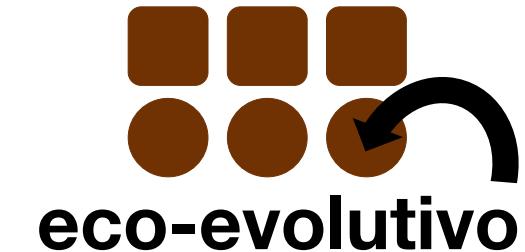
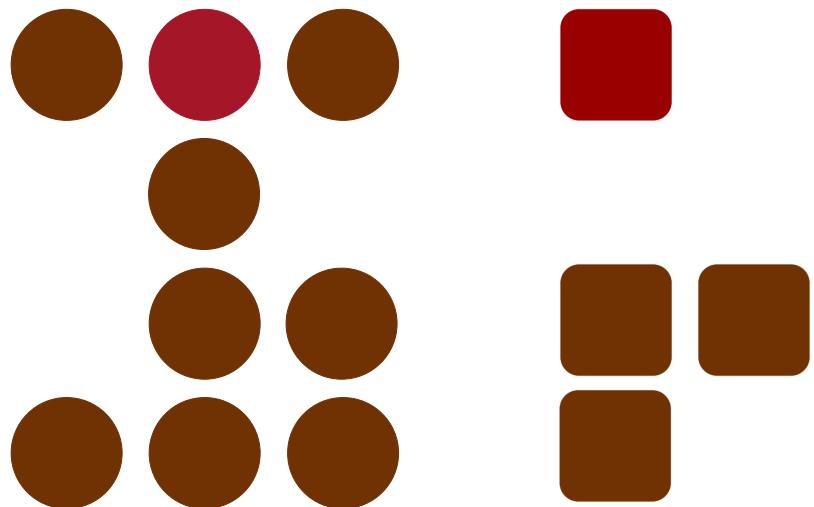
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● x 72

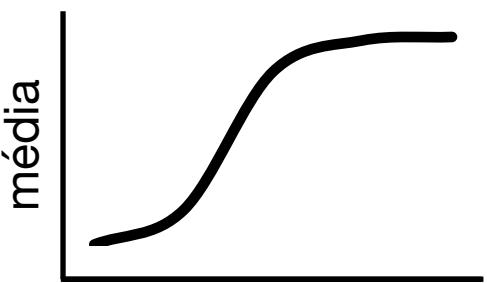
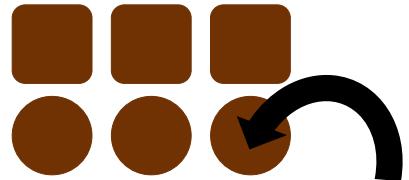
● x 6

■ x 48

■ x 12



# seleção natural + exclusão competitiva de espécies



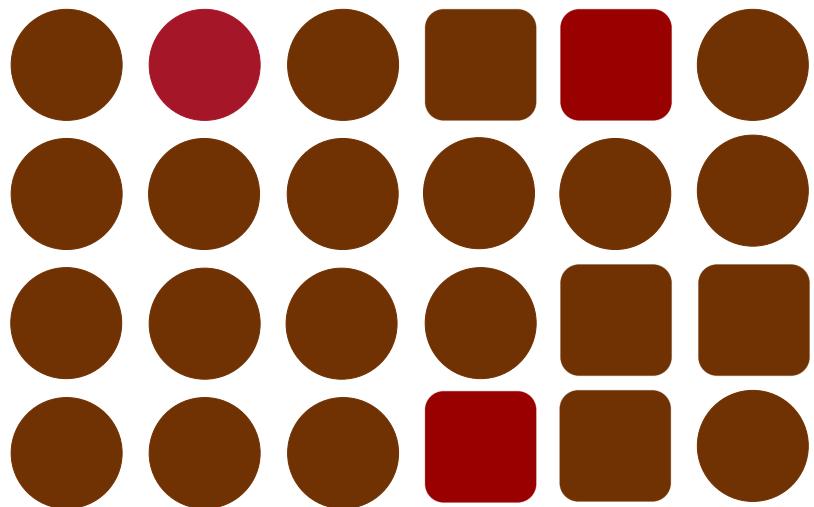
banco

● x 136

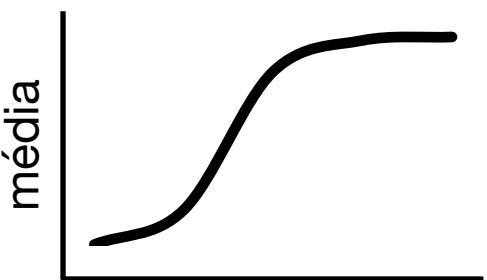
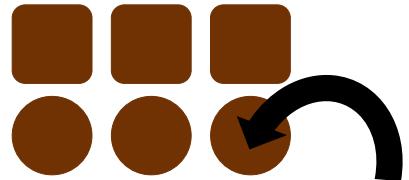
● x 2

■ x 32

■ x 4



# seleção natural + exclusão competitiva de espécies



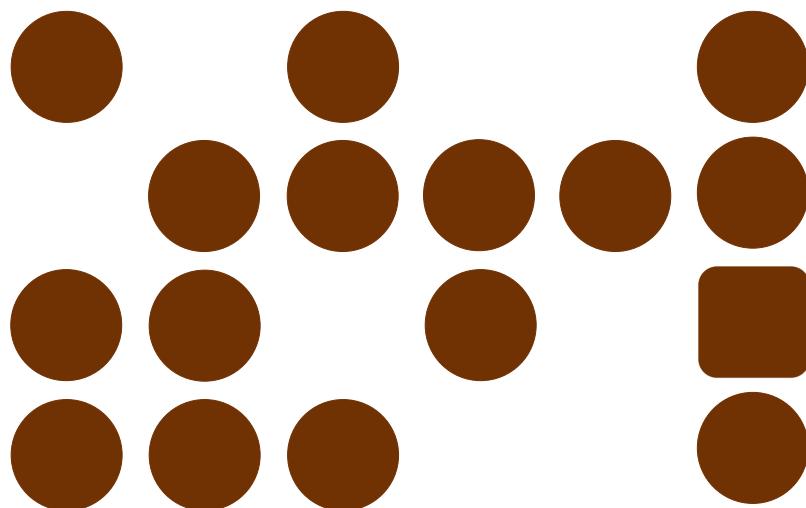
banco

x 136

x 2

x 32

x 4

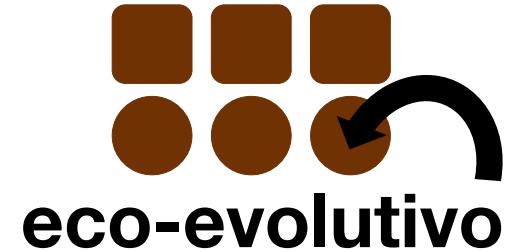
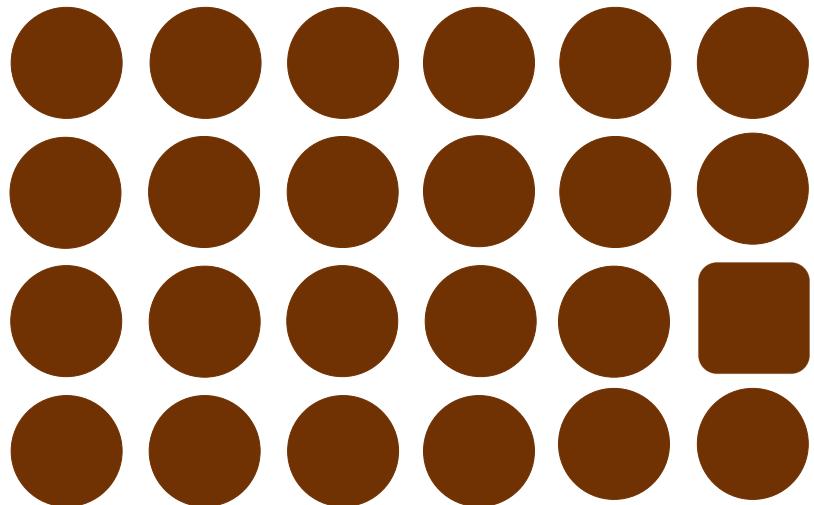


# seleção natural + exclusão competitiva de espécies

banco

x 184

x 8

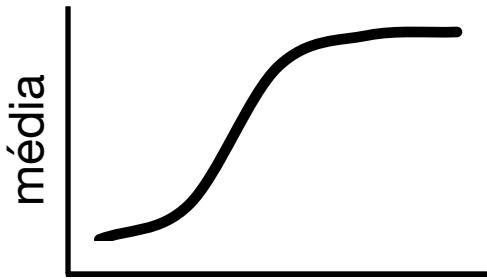
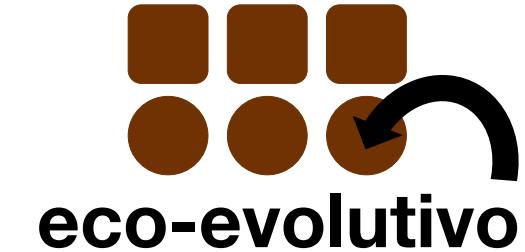
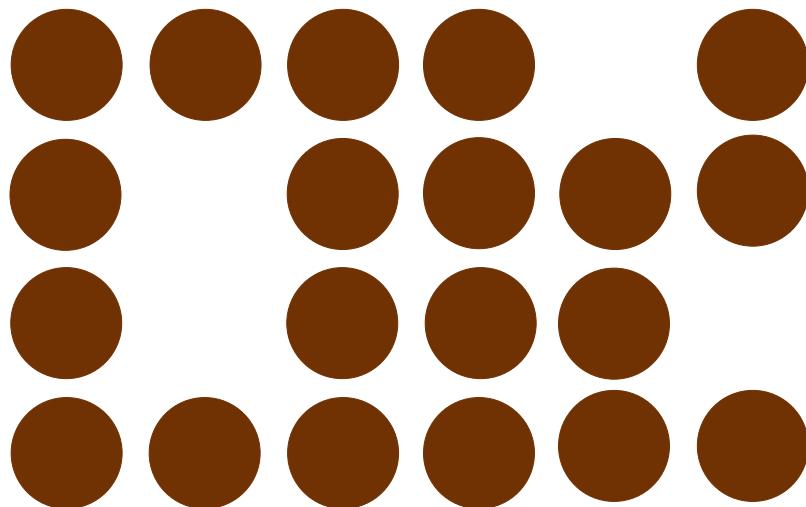


# seleção natural + exclusão competitiva de espécies

banco

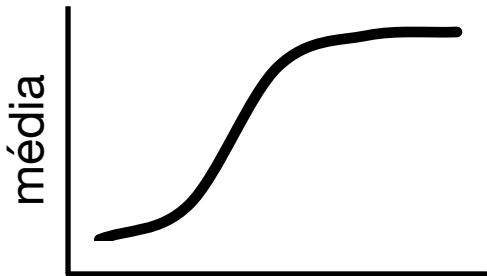
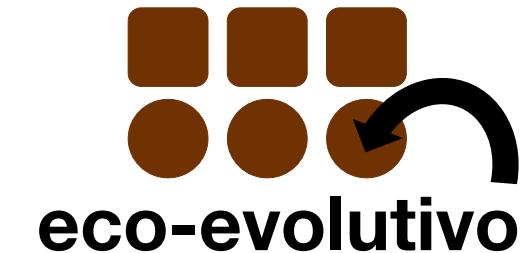
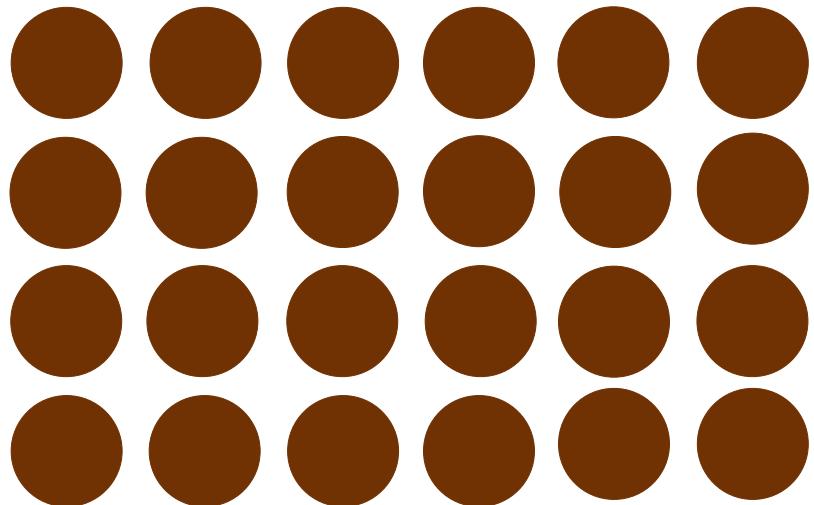
● x 184

■ x 8

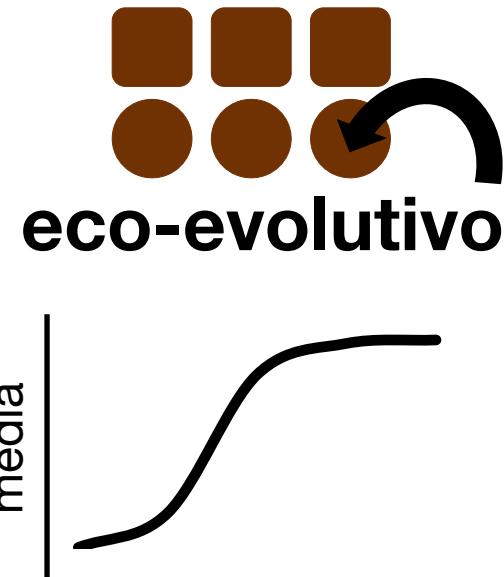
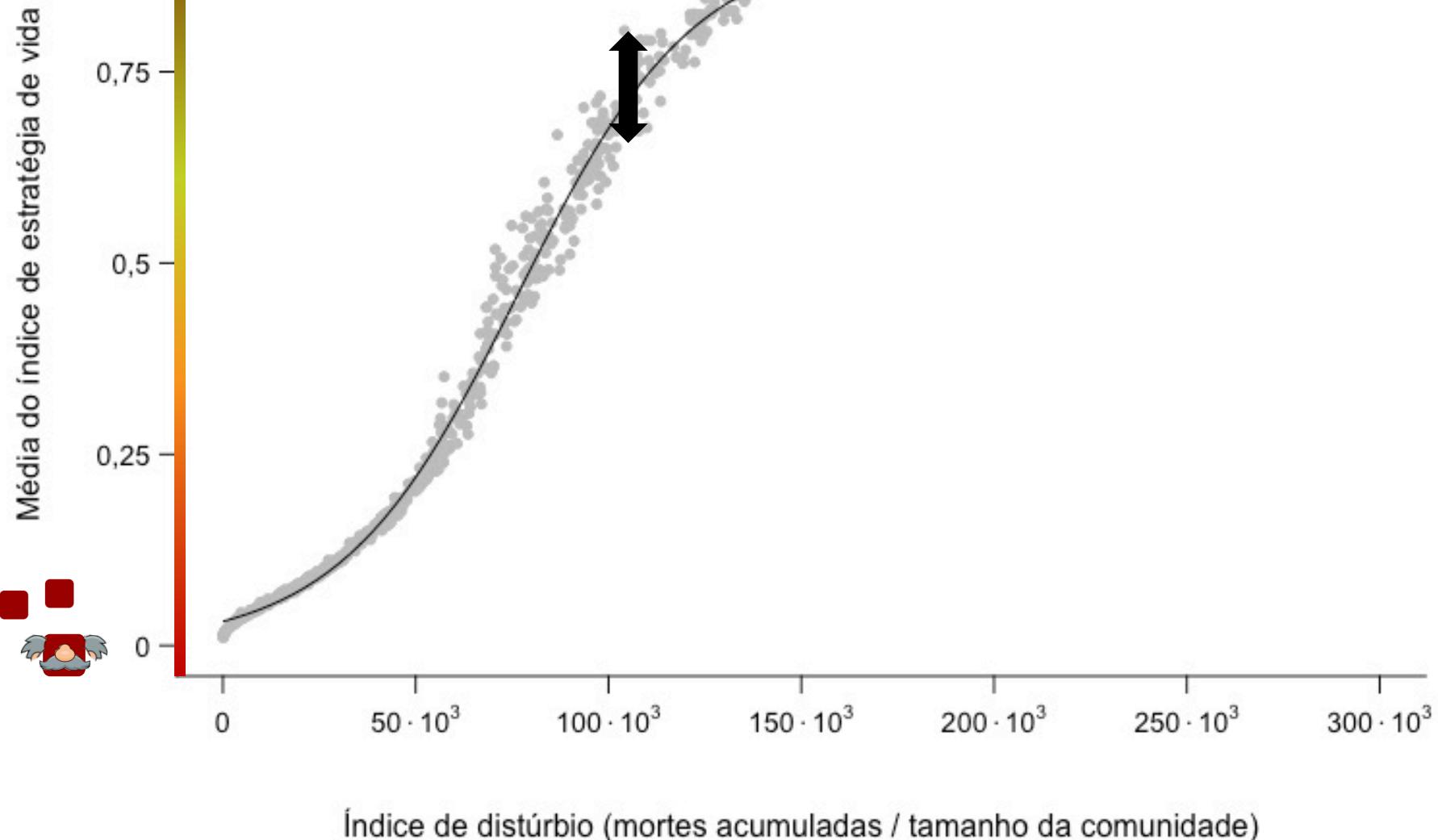


# seleção natural + exclusão competitiva de espécies

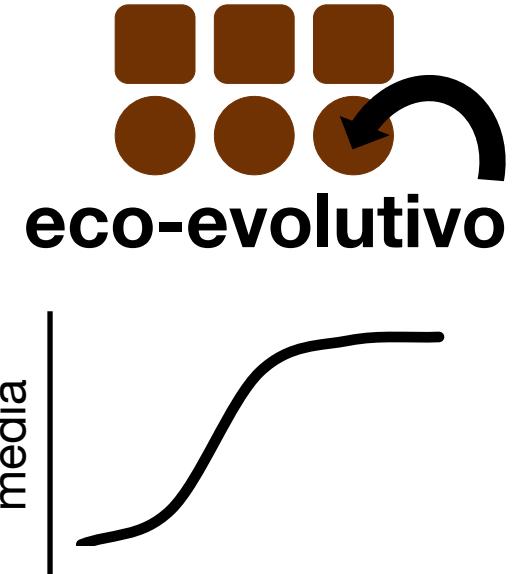
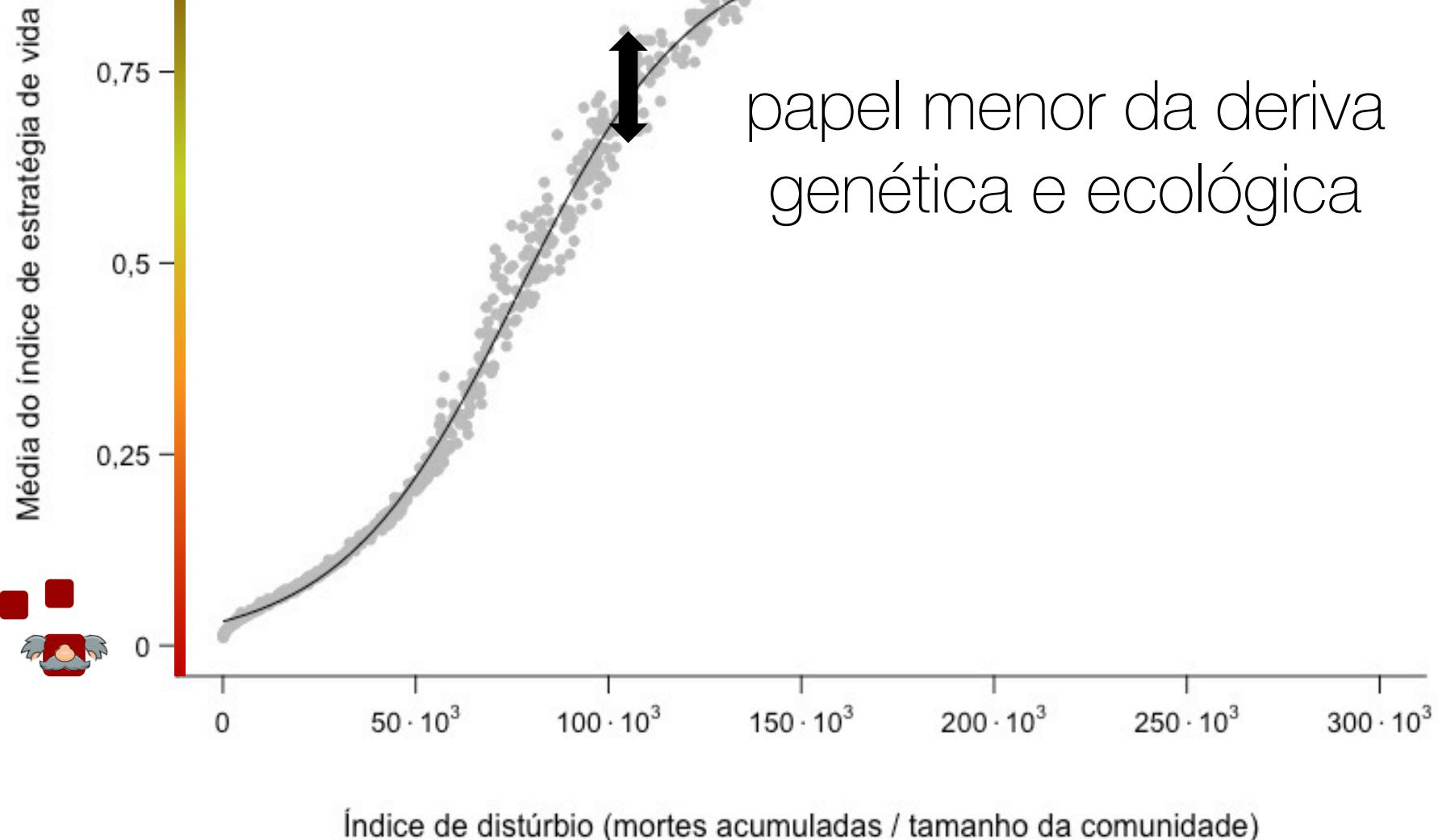
banco  
 x 192



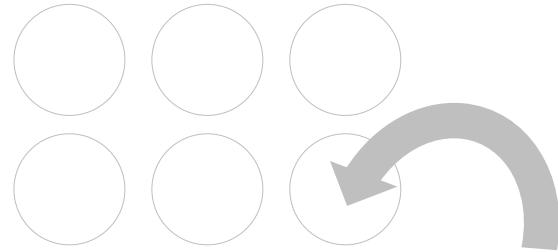
# estratégia média



# estratégia média



## evolutivo

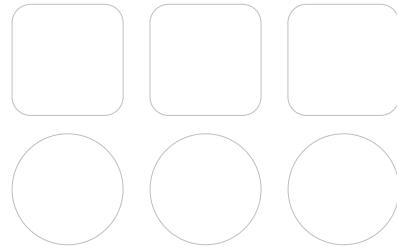


estratégia média

diversidade  
de estratégias

-

## ecológico

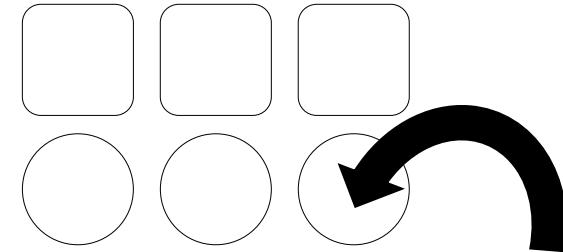


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

## eco-evolutivo

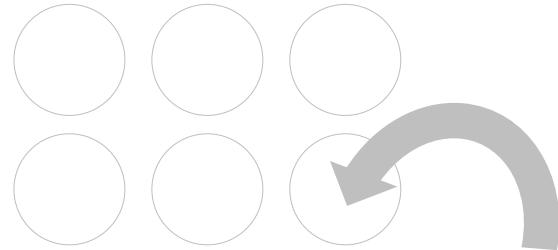


estratégia média

diversidade  
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heterogeneidade  
interespecífica de  
estratégias

## evolutivo

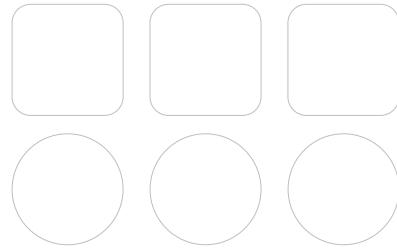


estratégia média

diversidade  
de estratégias

-

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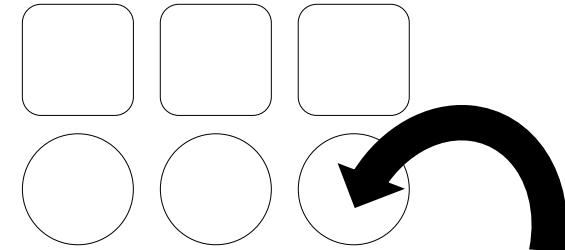


estratégia média

diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

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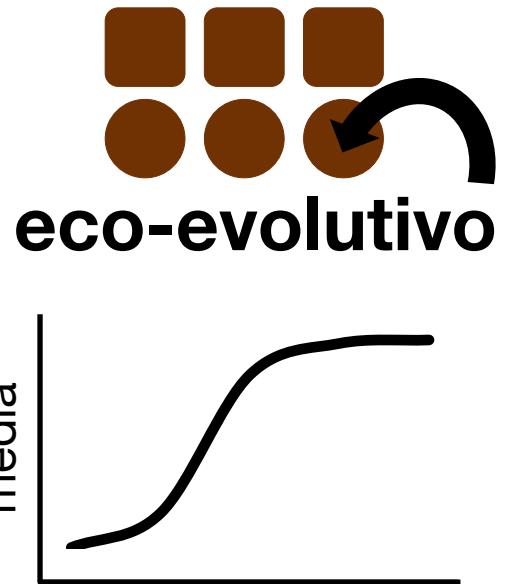
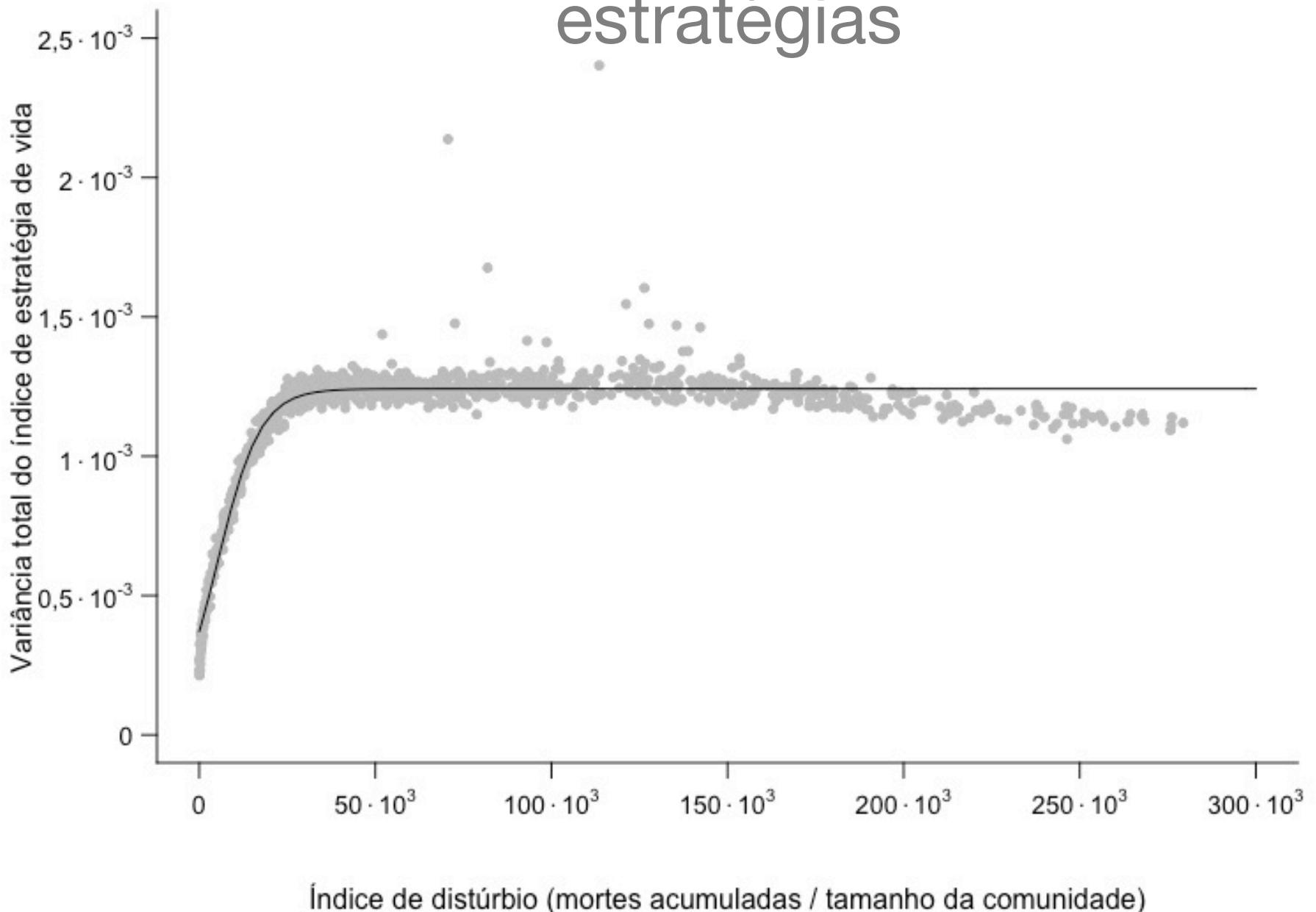


estratégia média

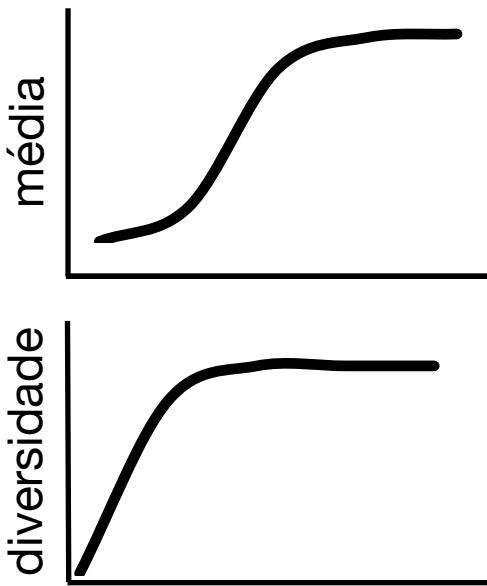
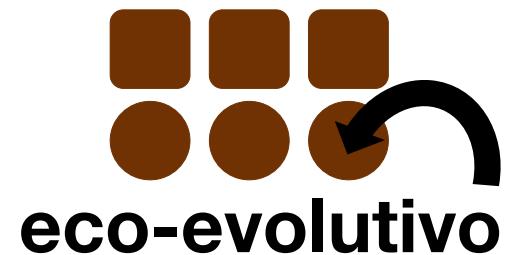
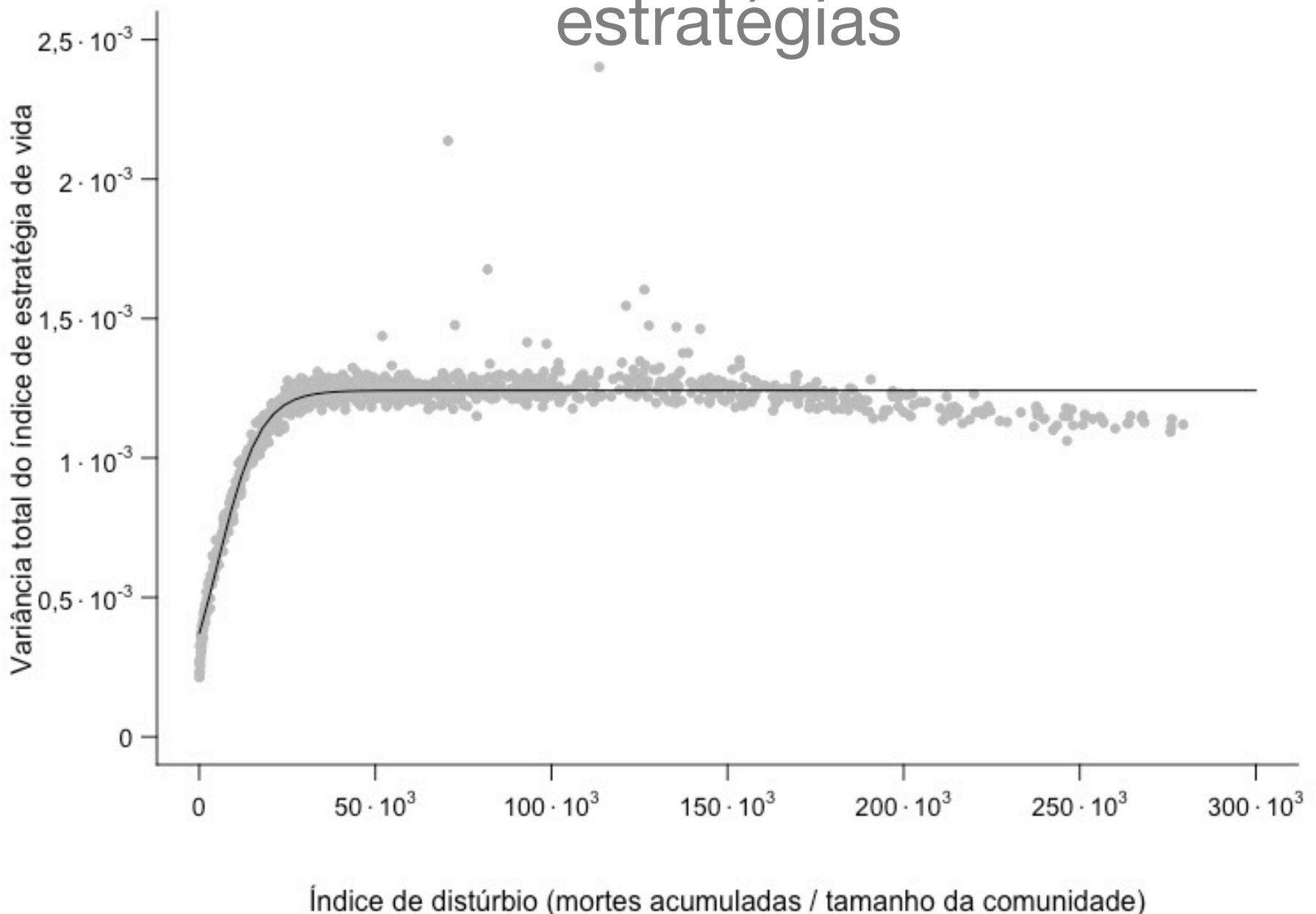
diversidade  
de estratégias

heterogeneidade  
interespecífica de  
estratégias

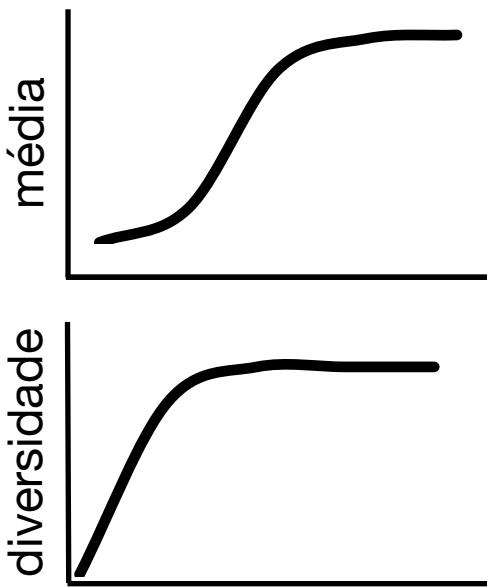
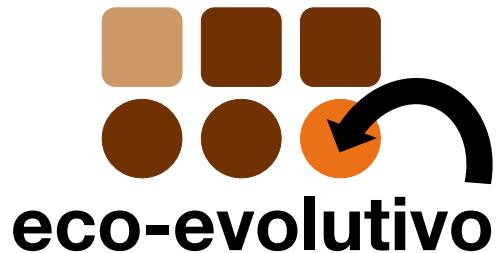
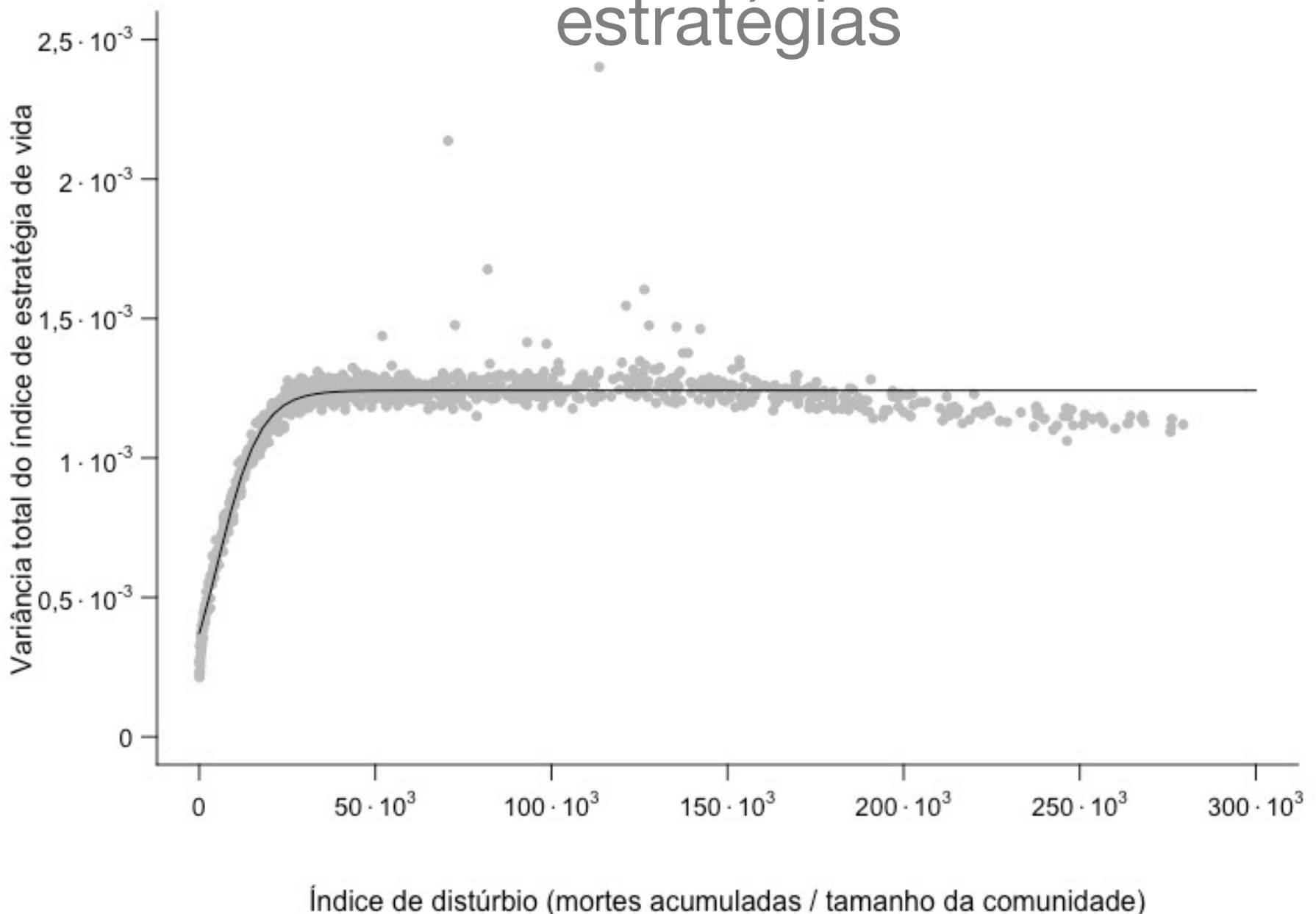
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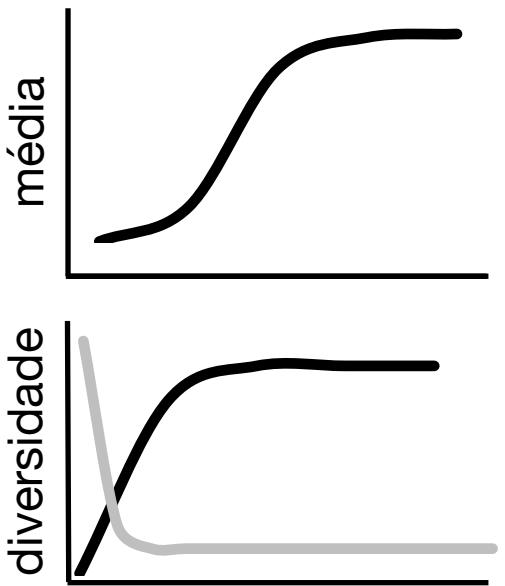
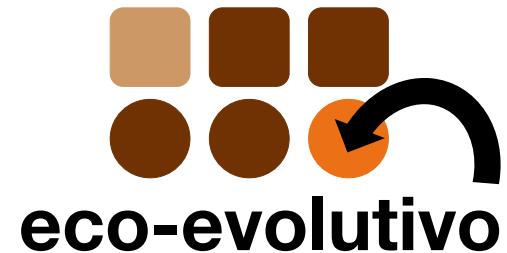
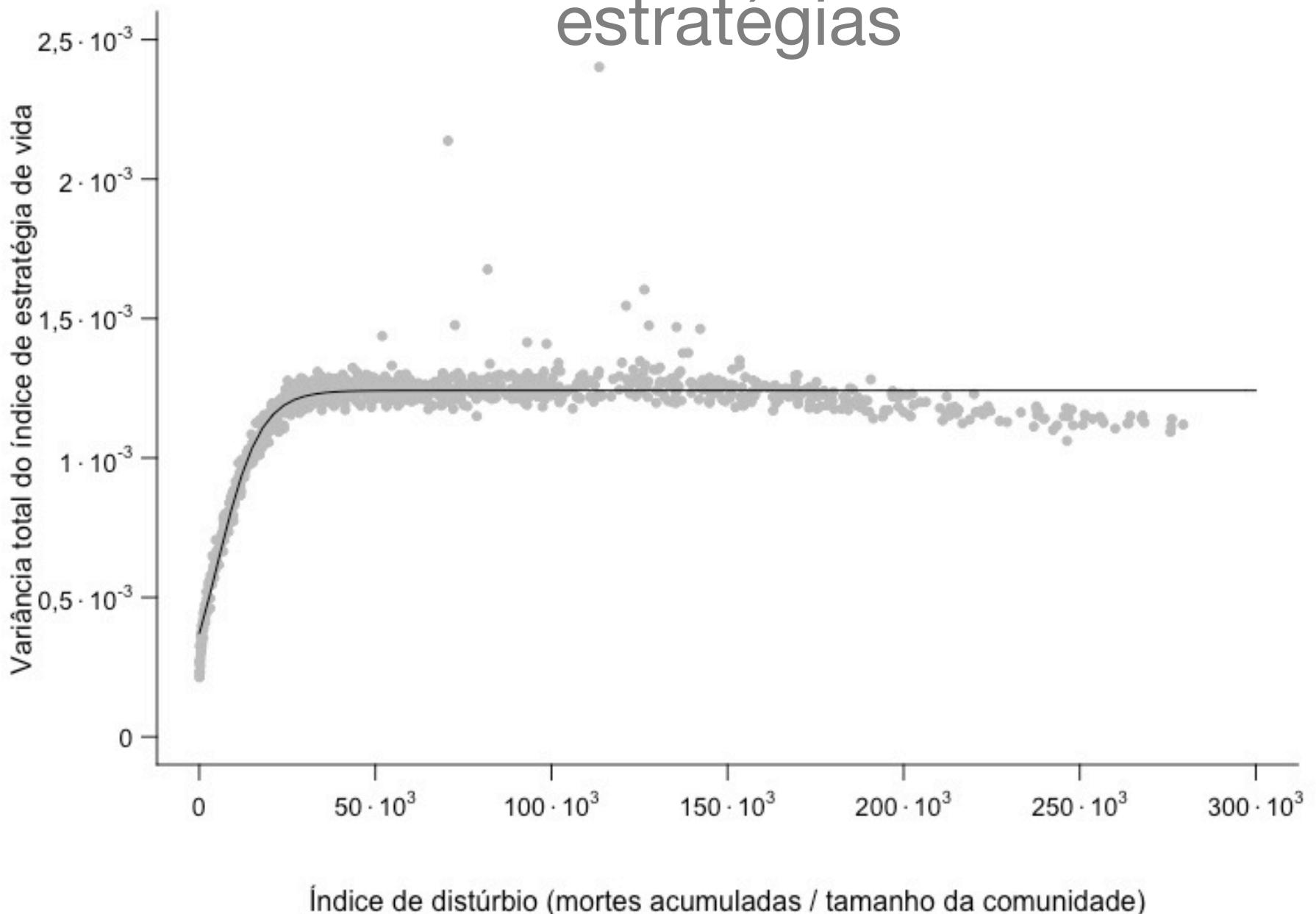
# diversidade de estratégias



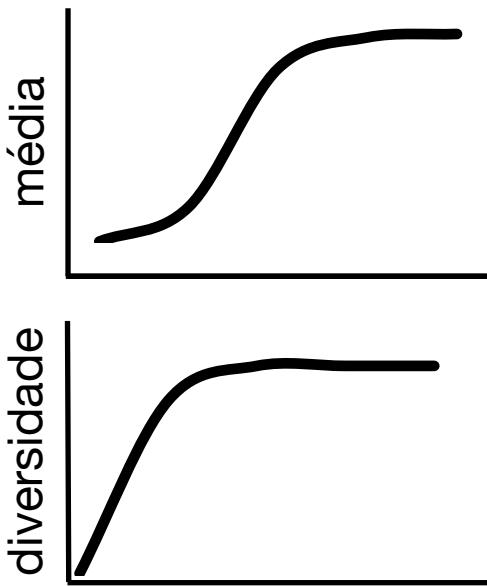
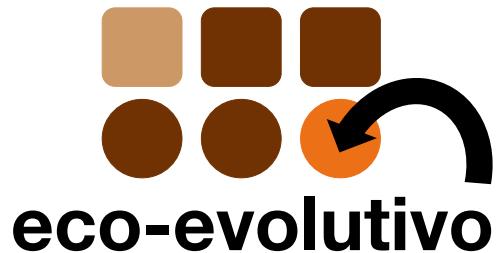
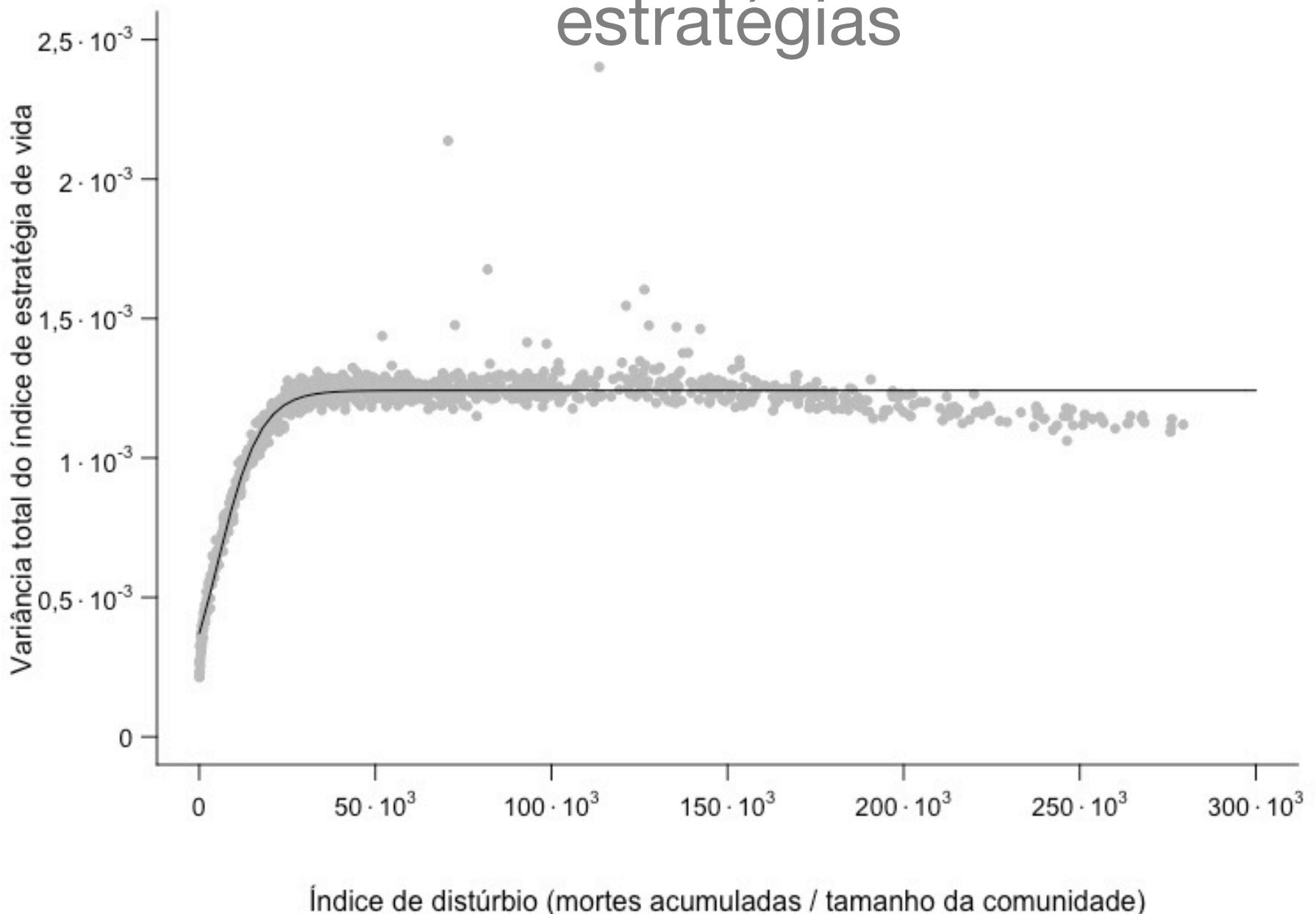
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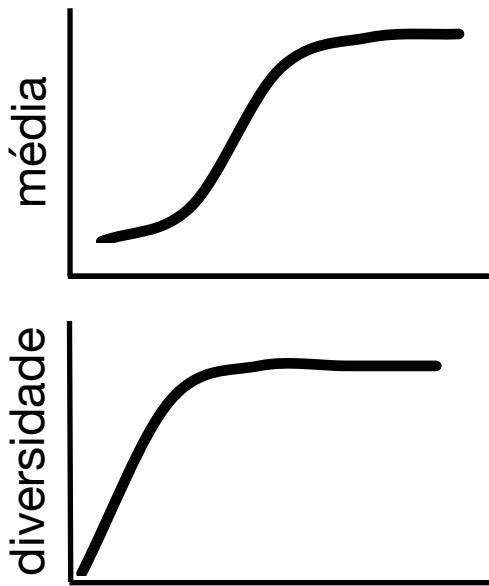
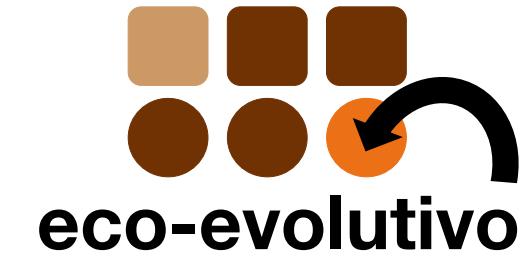
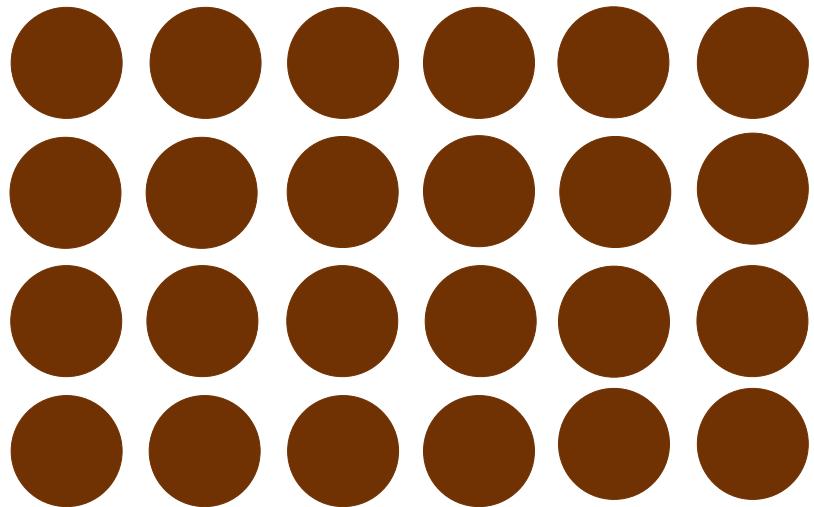
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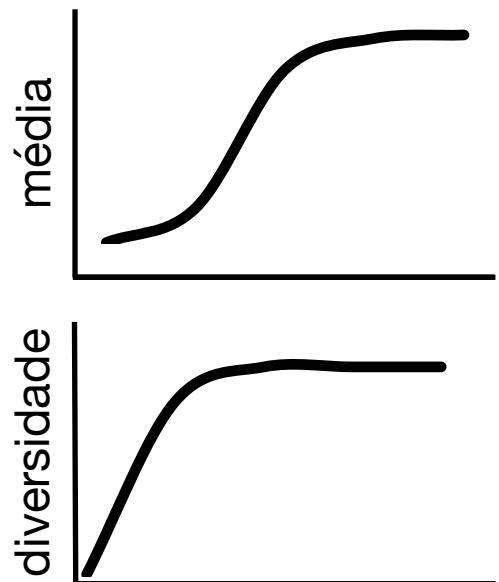
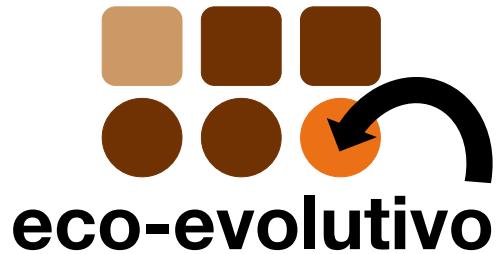
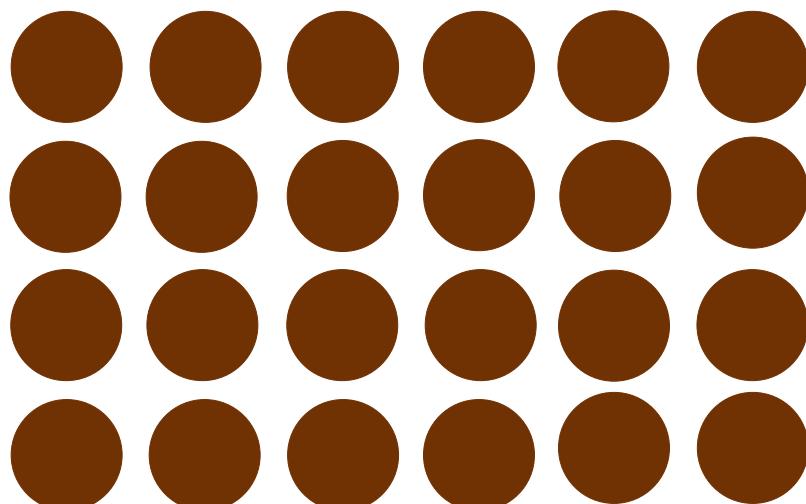
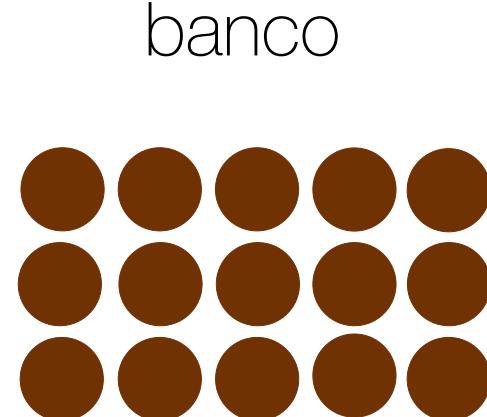


# diversidade de estratégias



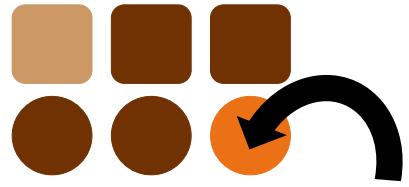
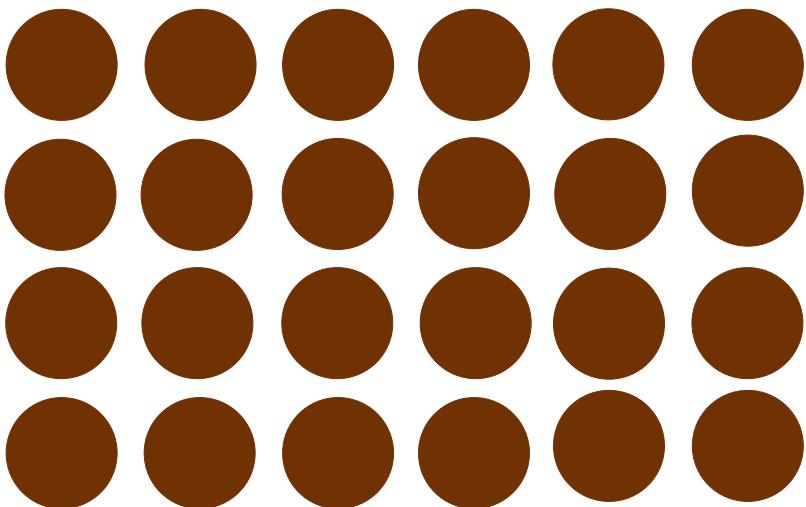
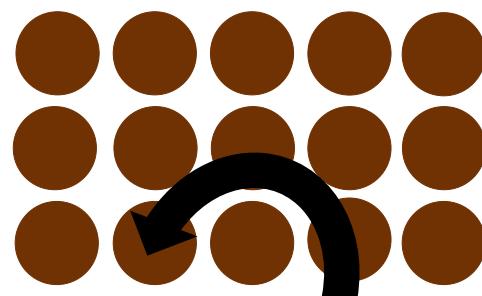
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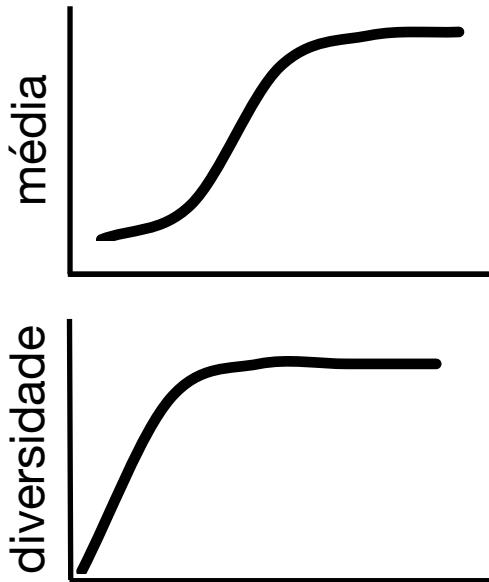


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banco

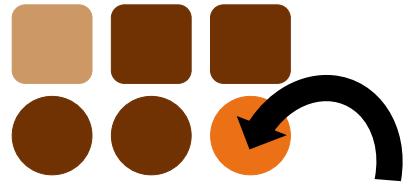
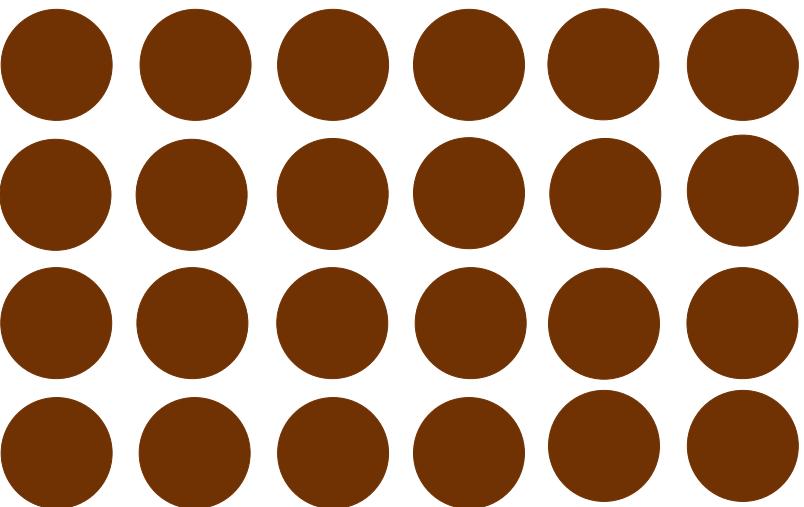
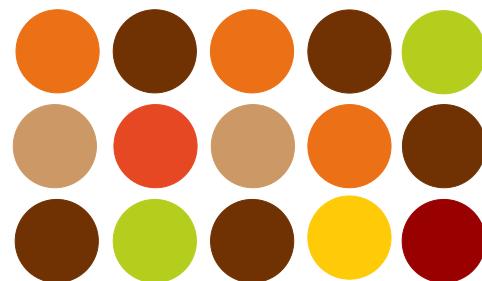


**eco-evolutivo**

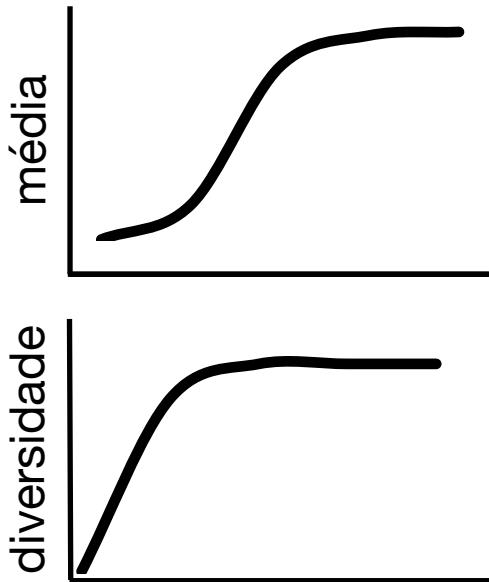


# mutação

banco

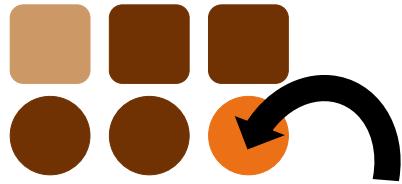
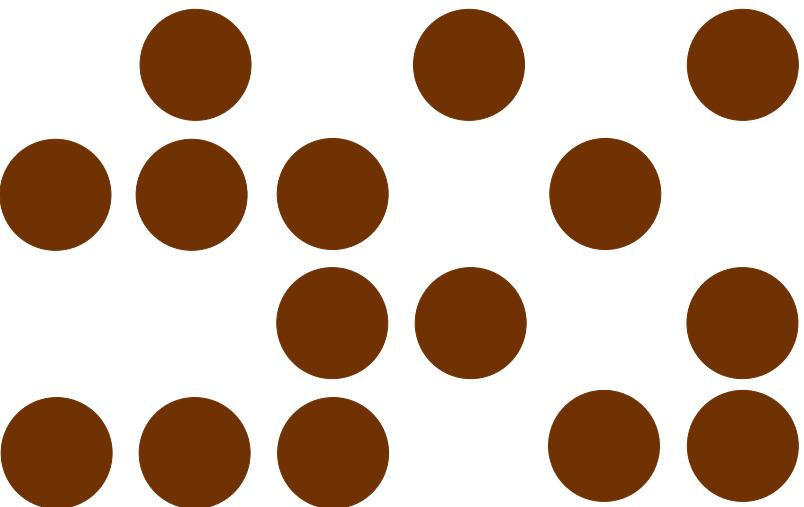
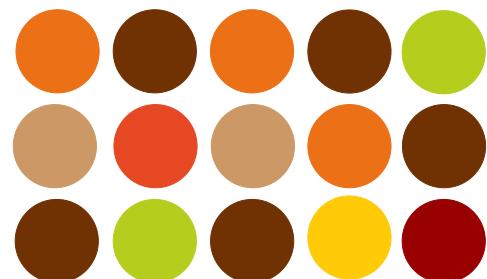


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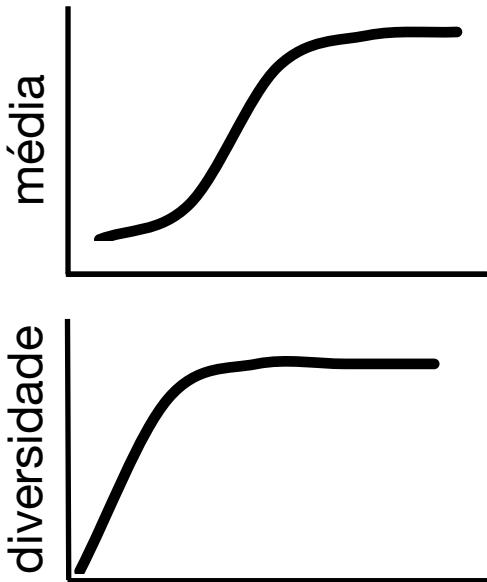


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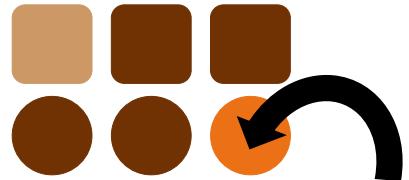
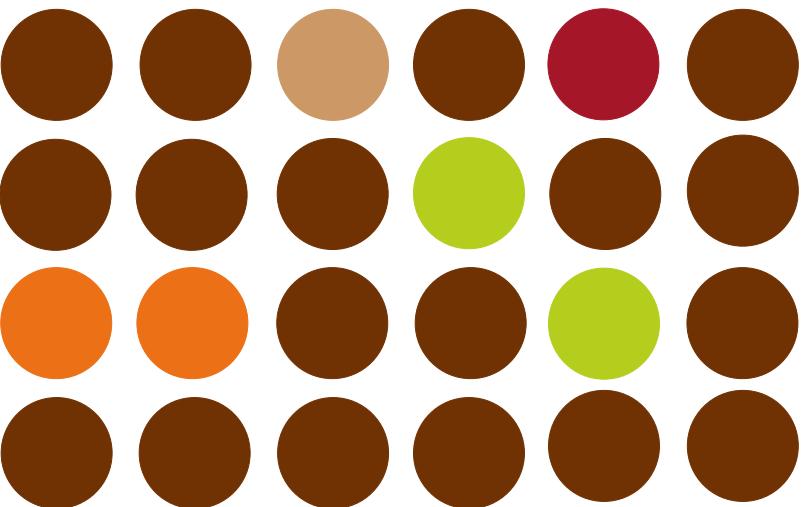
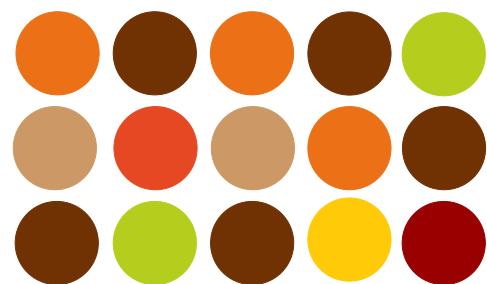


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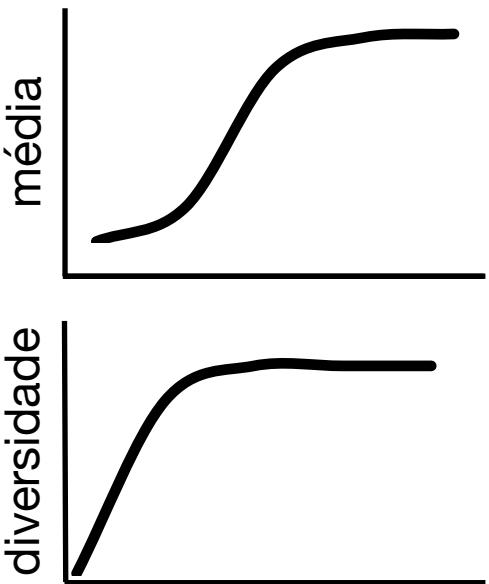


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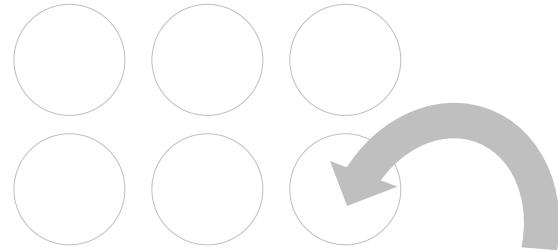
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**eco-evolutivo**



## evolutivo

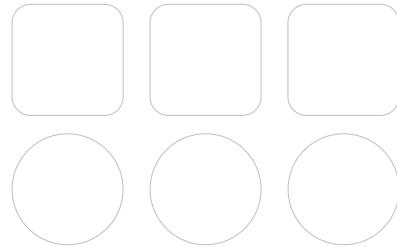


estratégia média

diversidade  
de estratégias

-

## ecológico

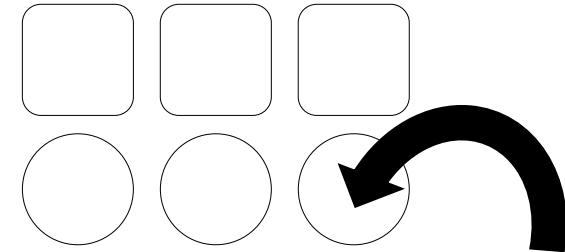


estratégia média

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de estratégias

heterogeneidade  
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estratégias

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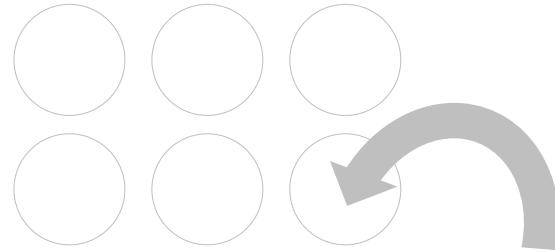


estratégia média

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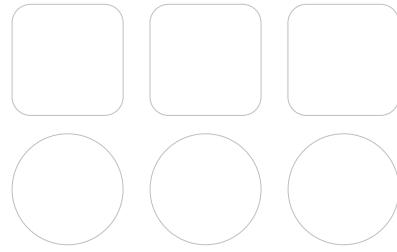


estratégia média

diversidade  
de estratégias

-

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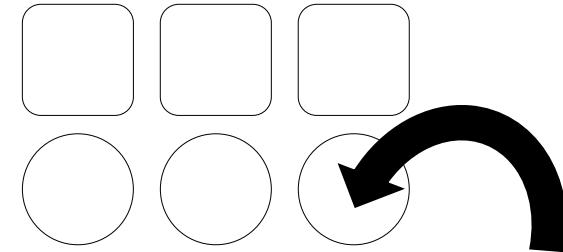


estratégia média

diversidade  
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## eco-evolutivo

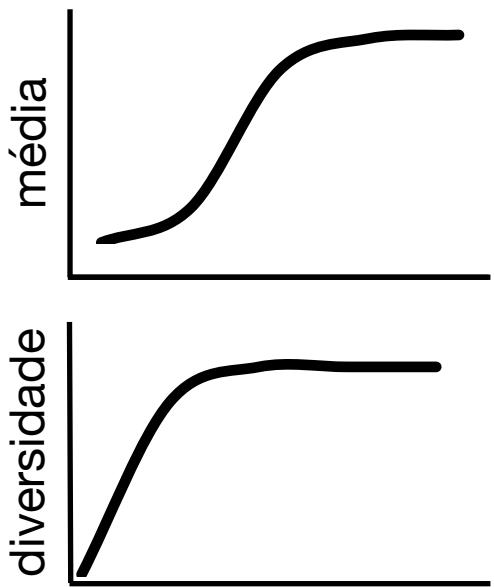
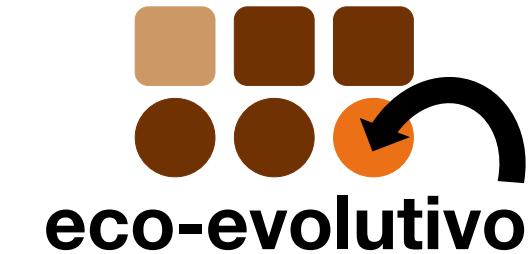
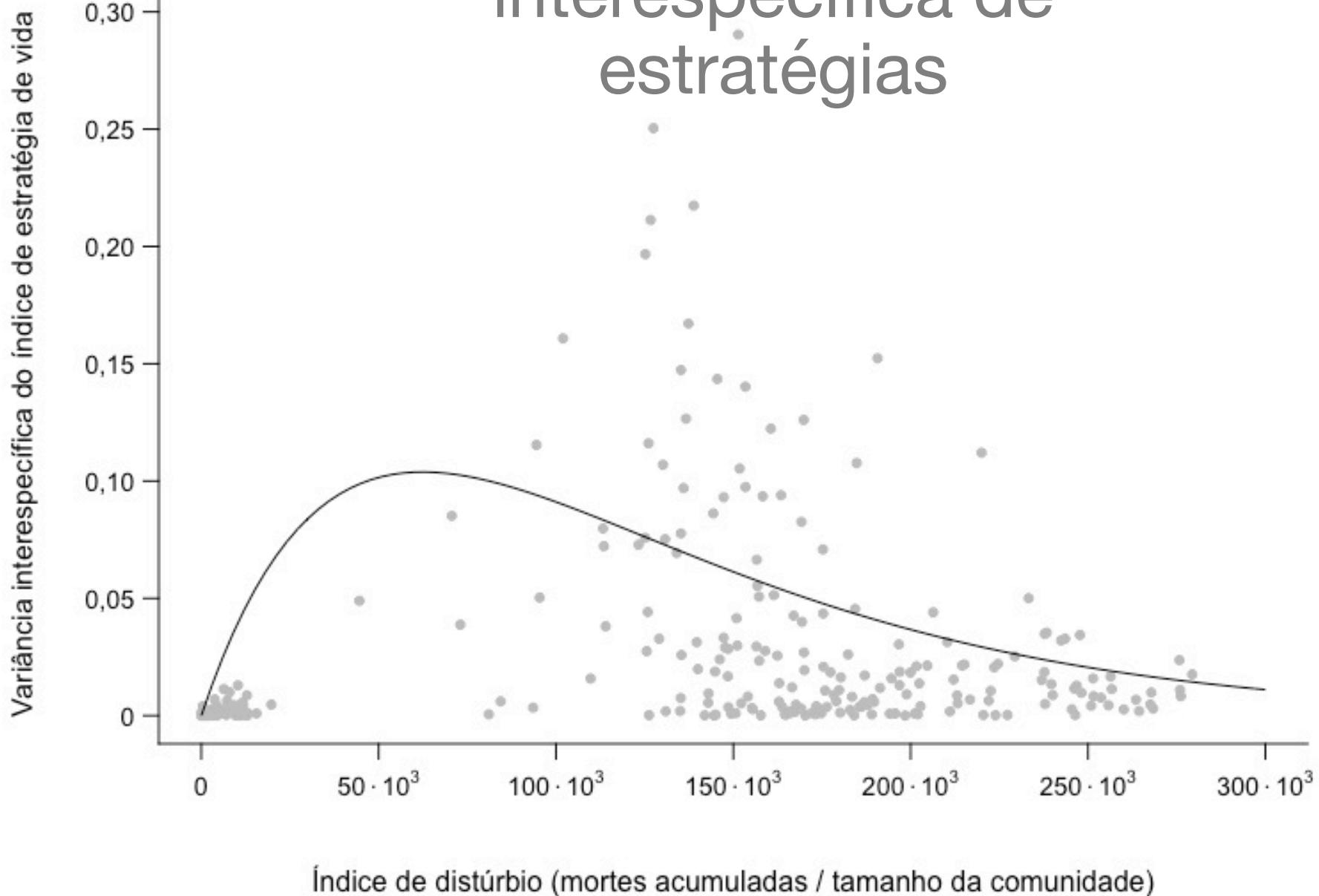


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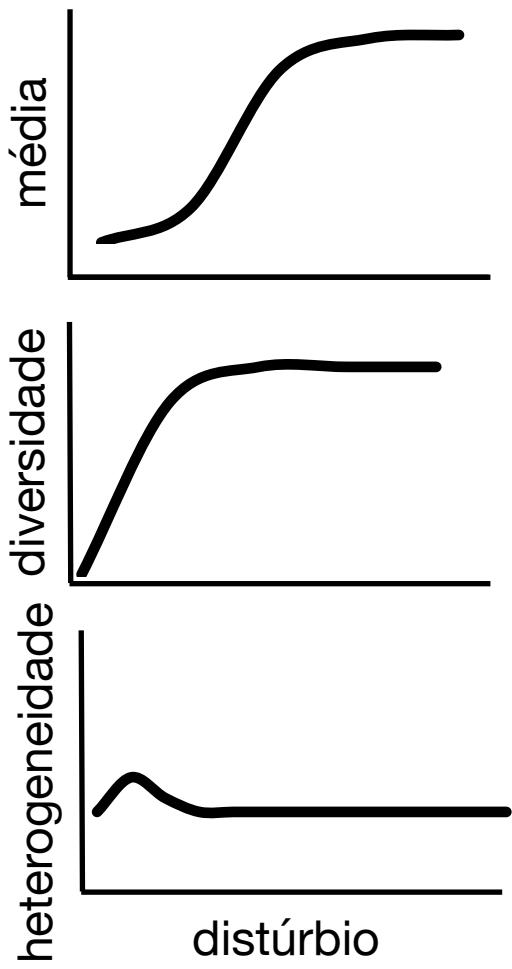
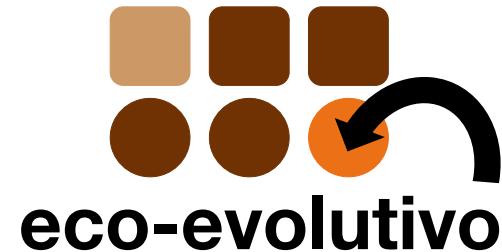
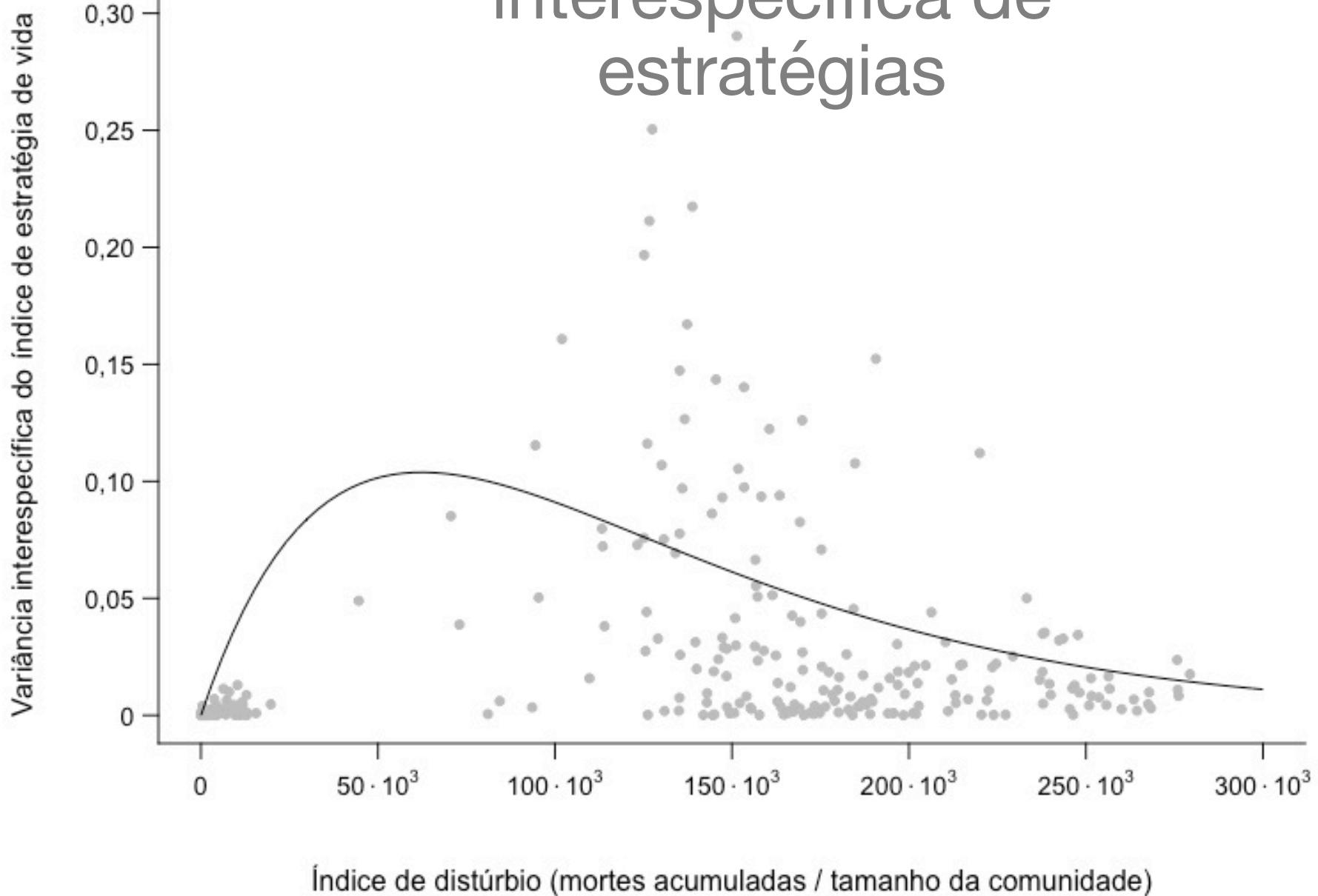
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de estratégias

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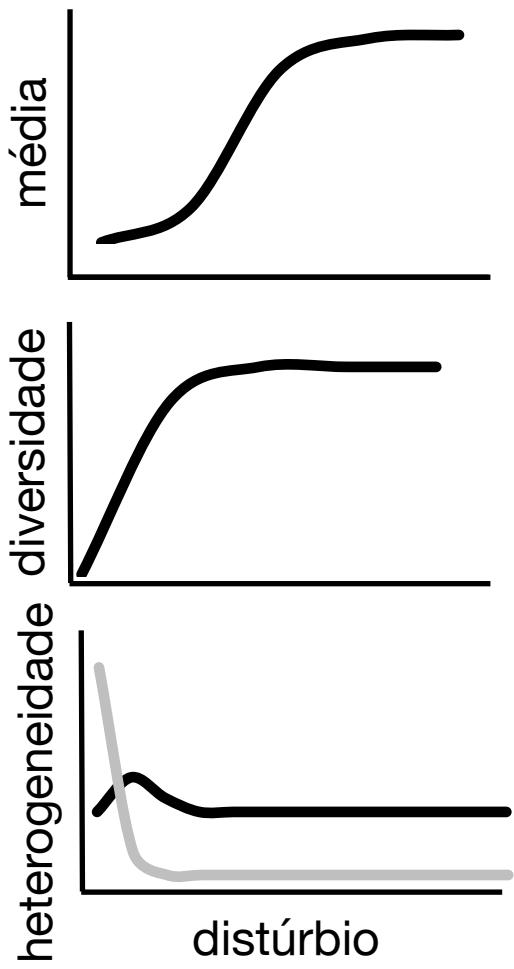
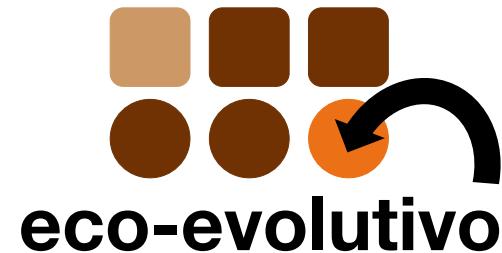
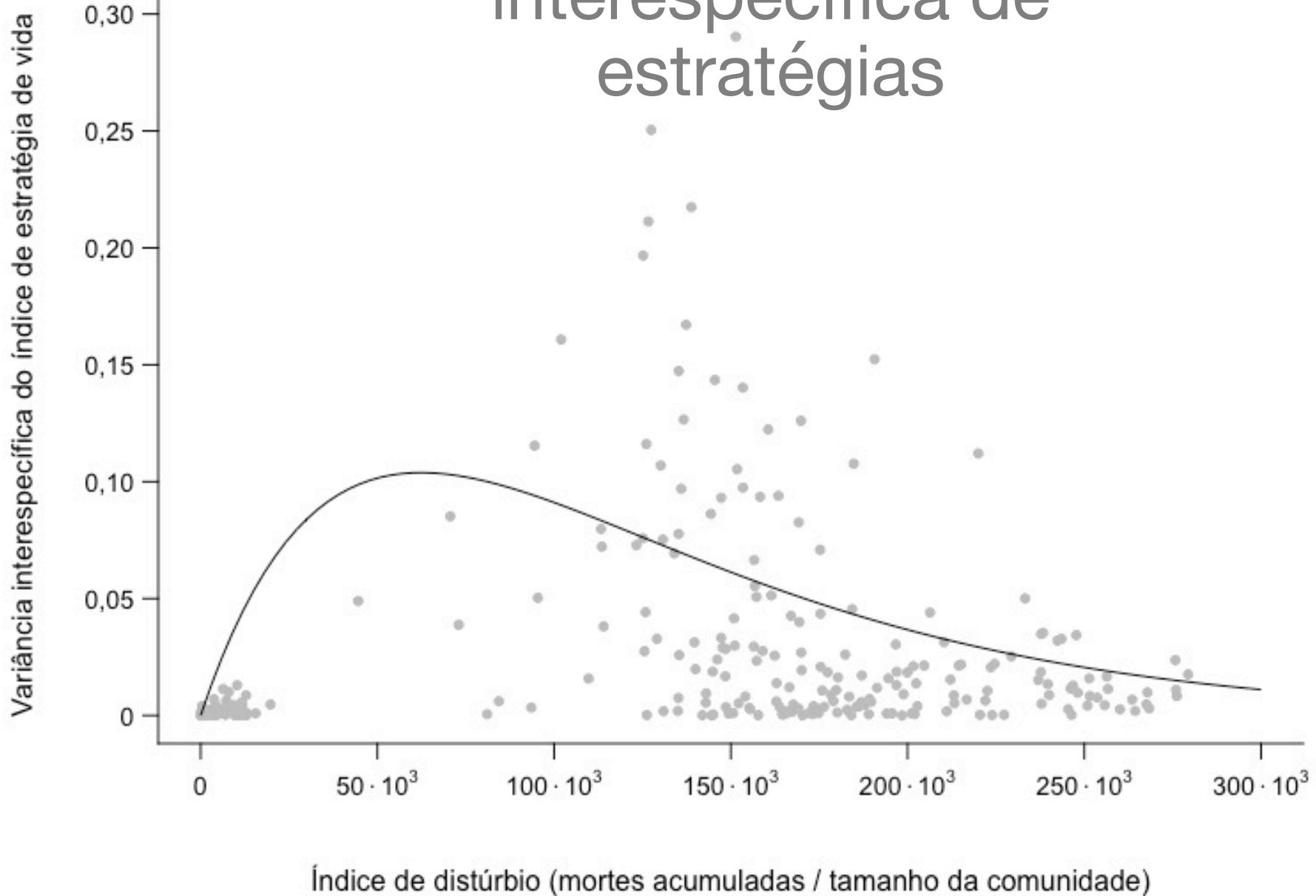
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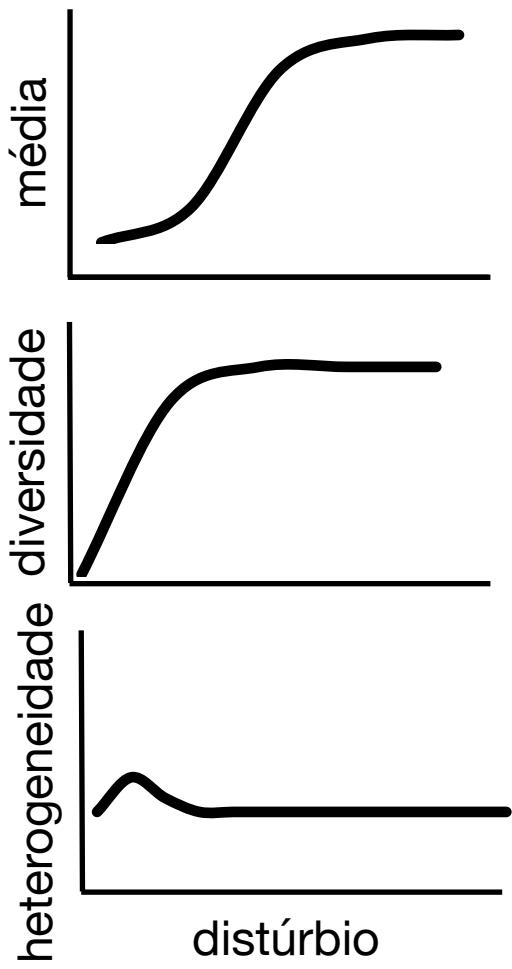
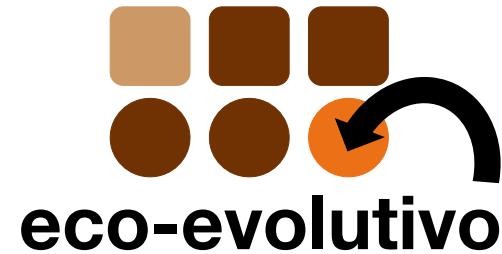
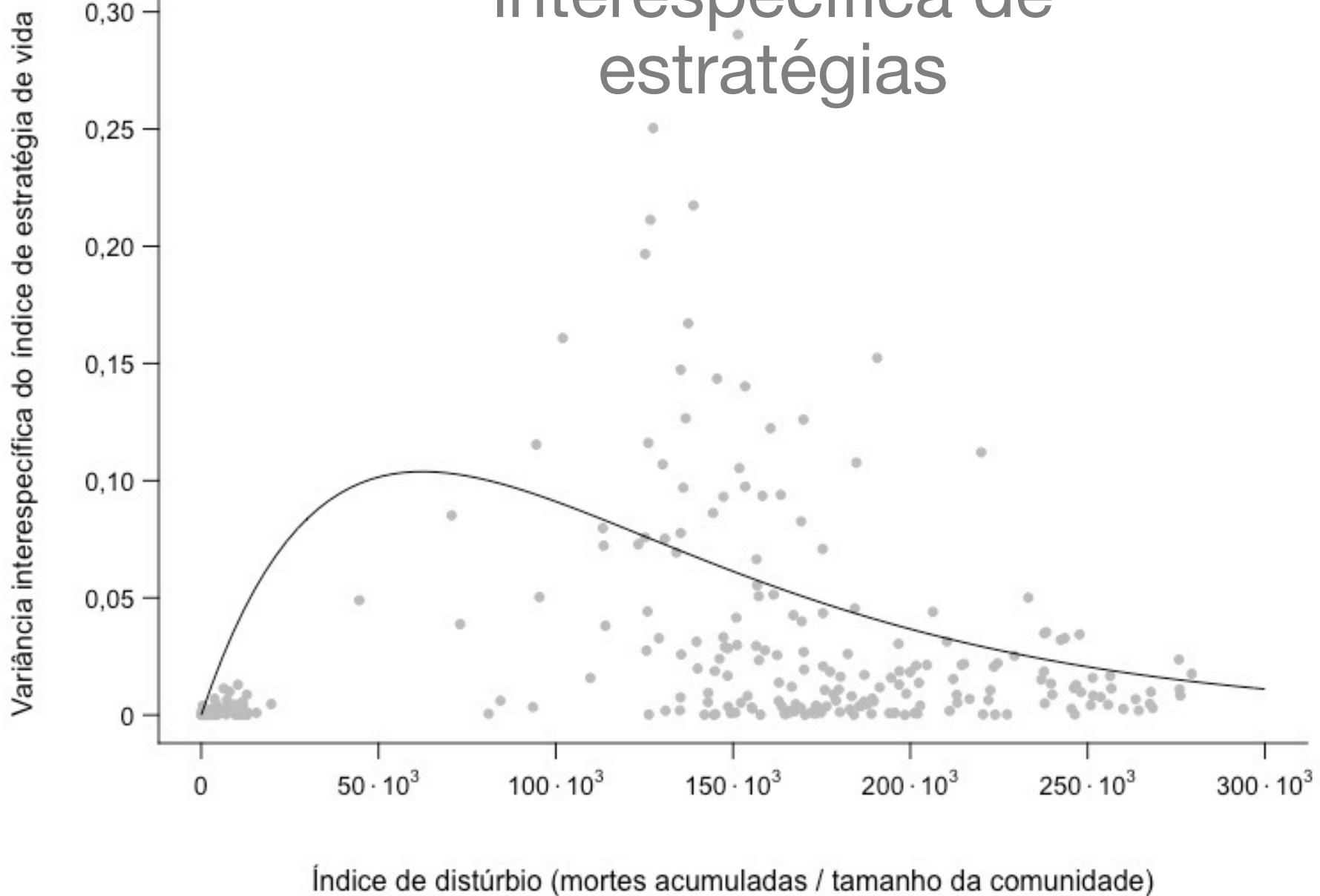
# heterogeneidade interespecífica de estratégias



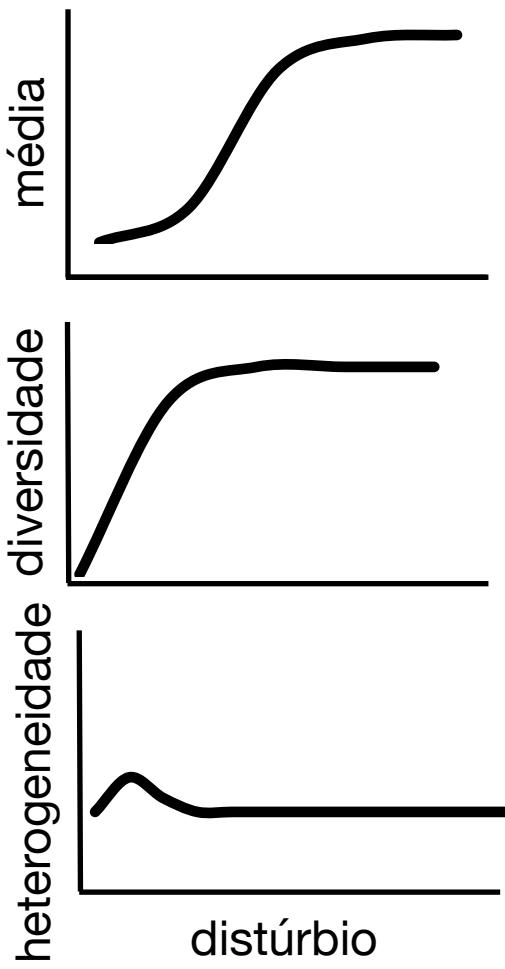
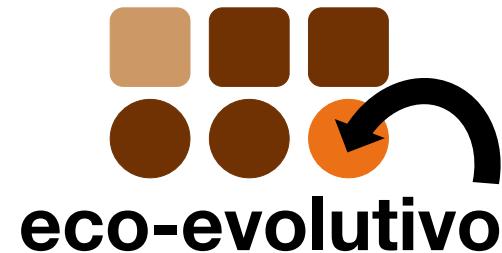
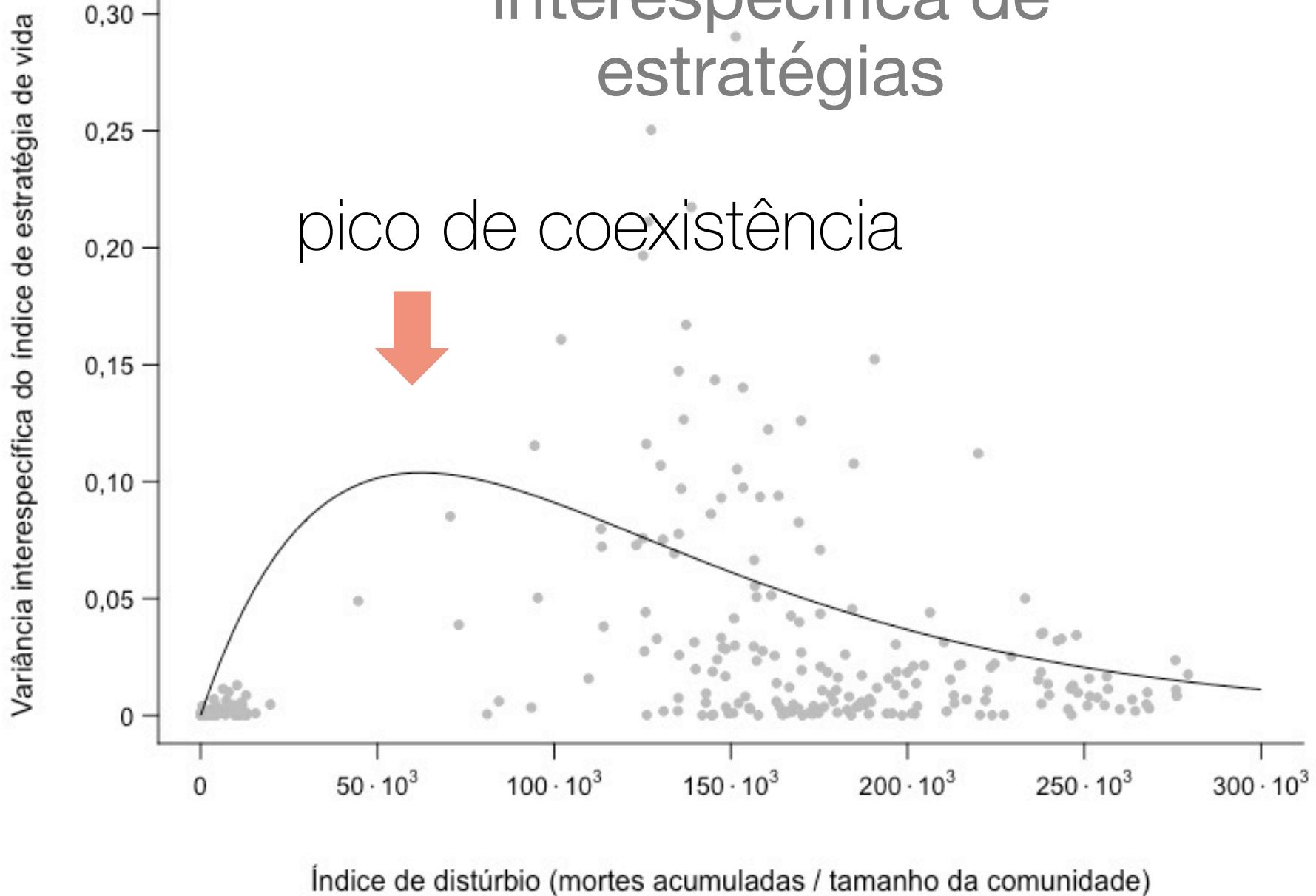
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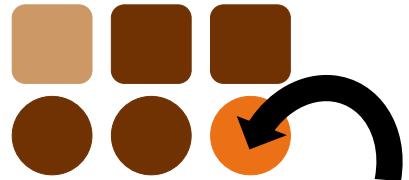
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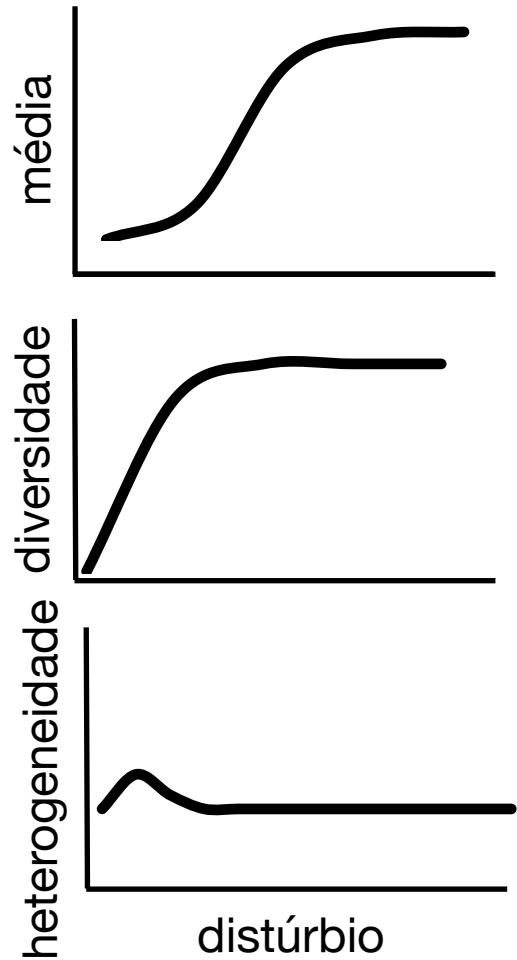
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# coexistência de estratégias mediada pelo distúrbio

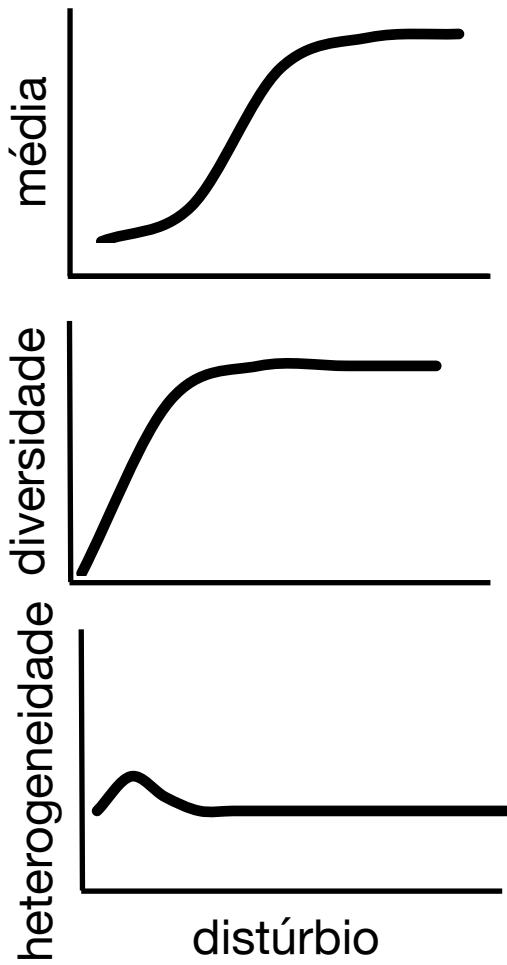
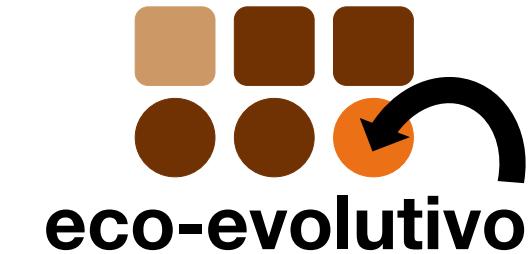
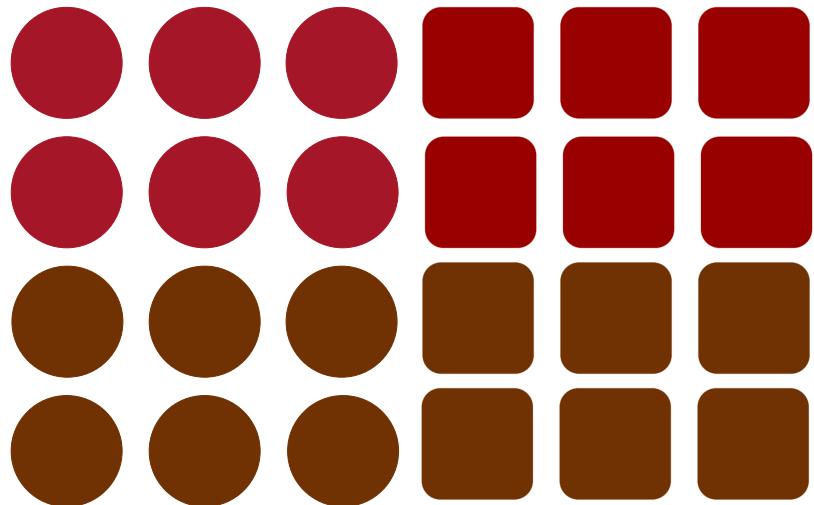


**eco-evolutivo**



# coexistência de estratégias mediada pelo distúrbio

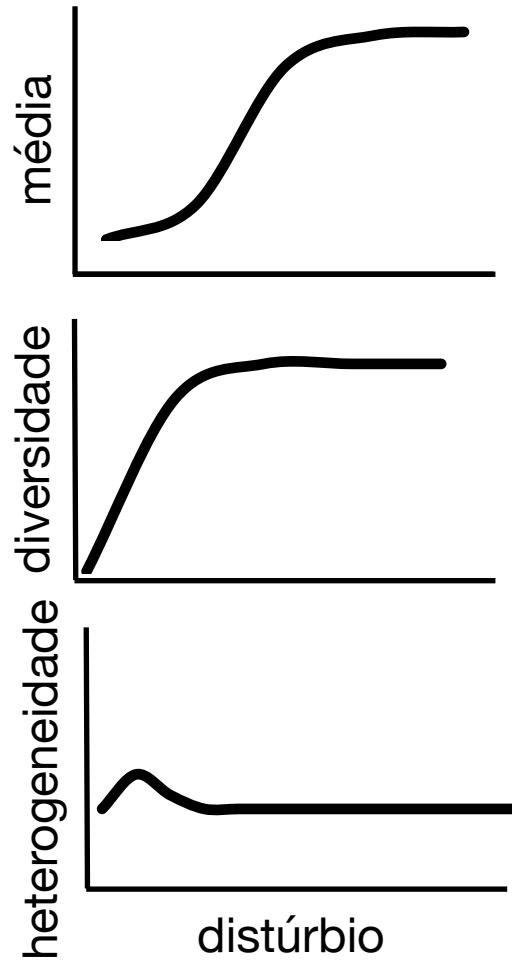
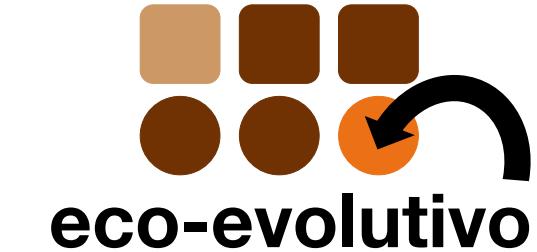
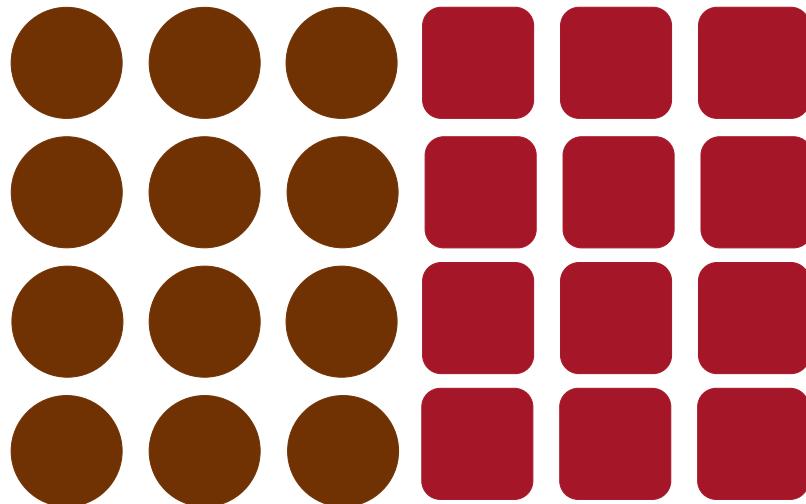
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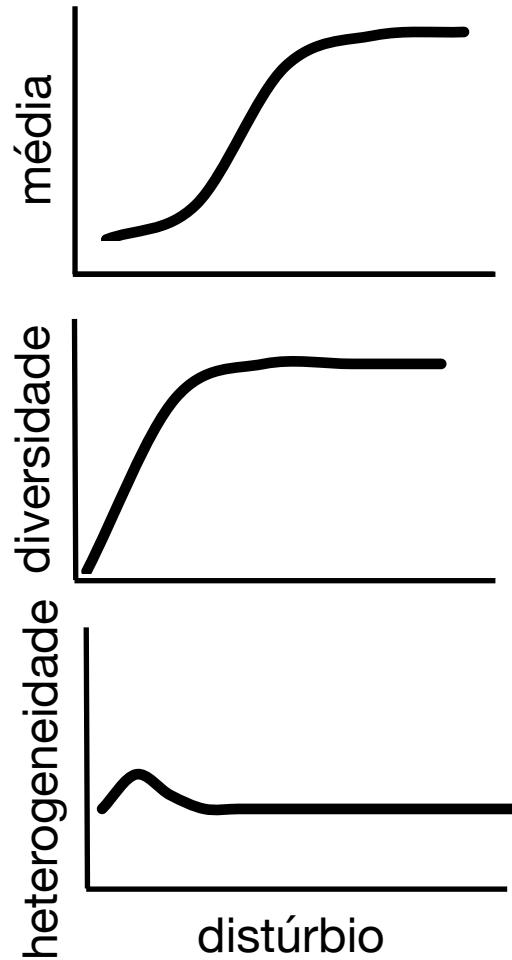
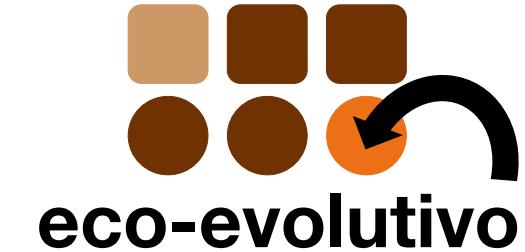
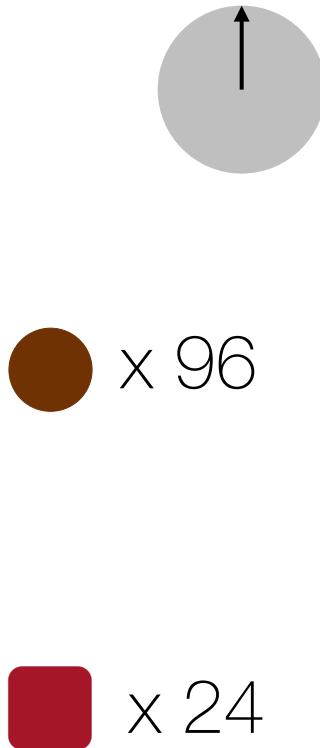
# coexistência de estratégias mediada pelo distúrbio

x 96

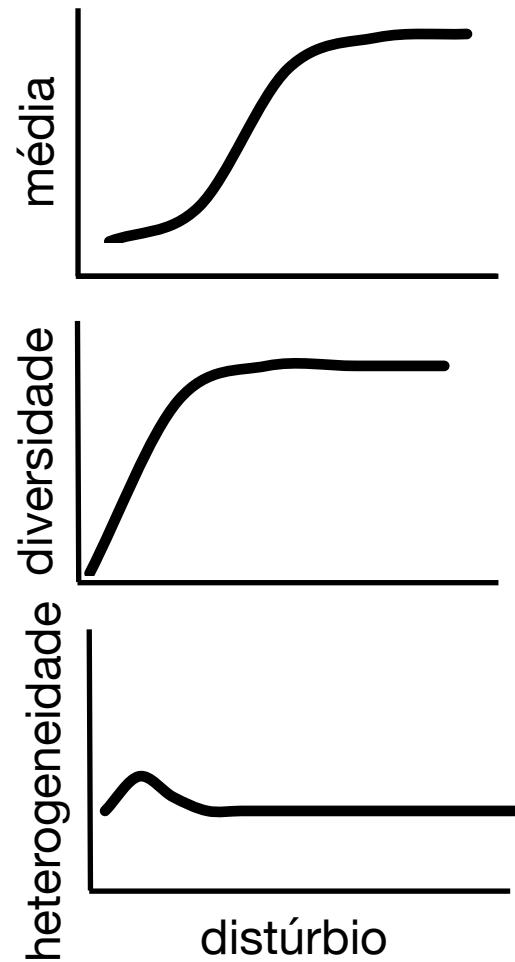
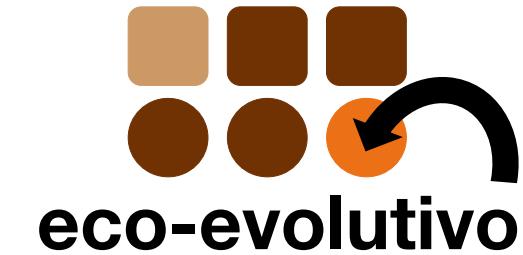
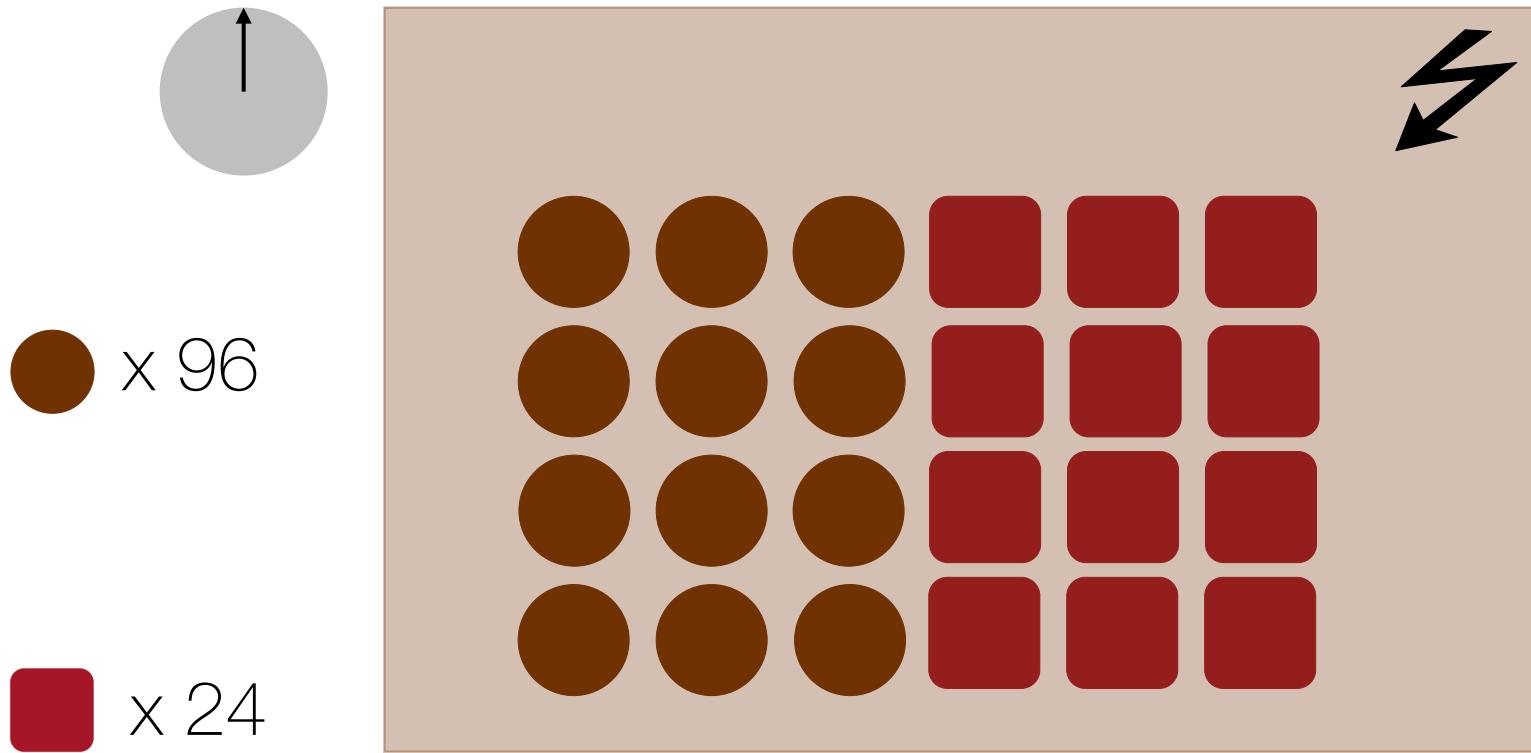
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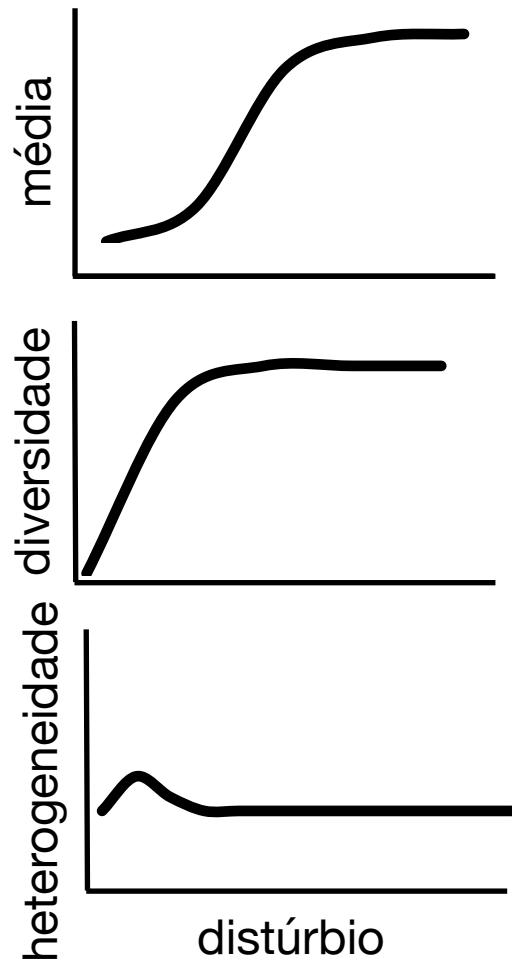
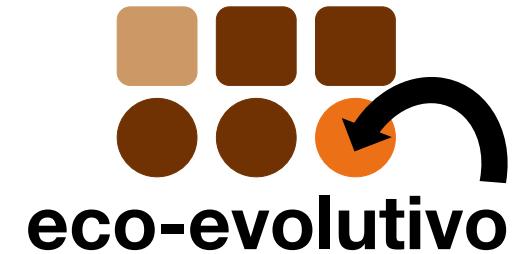
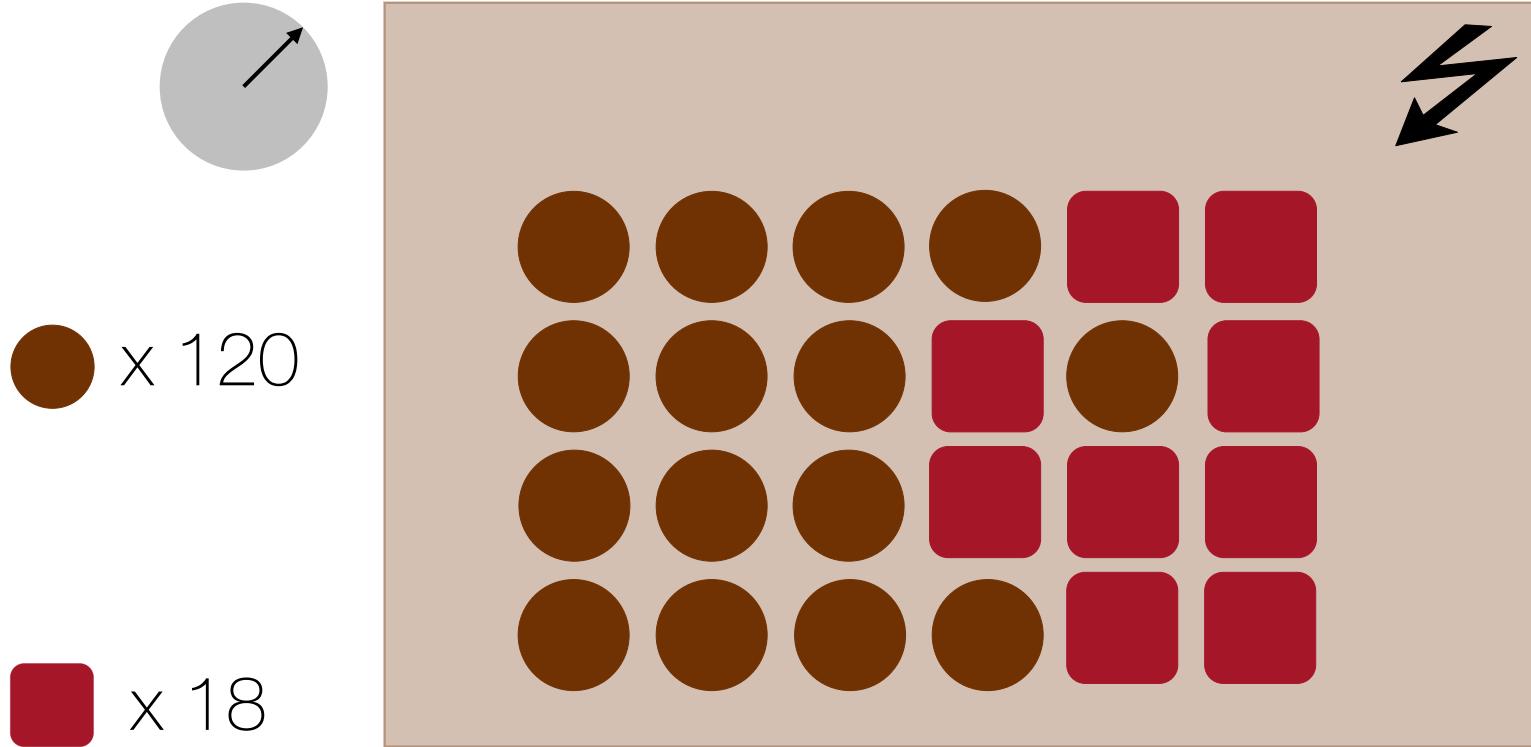
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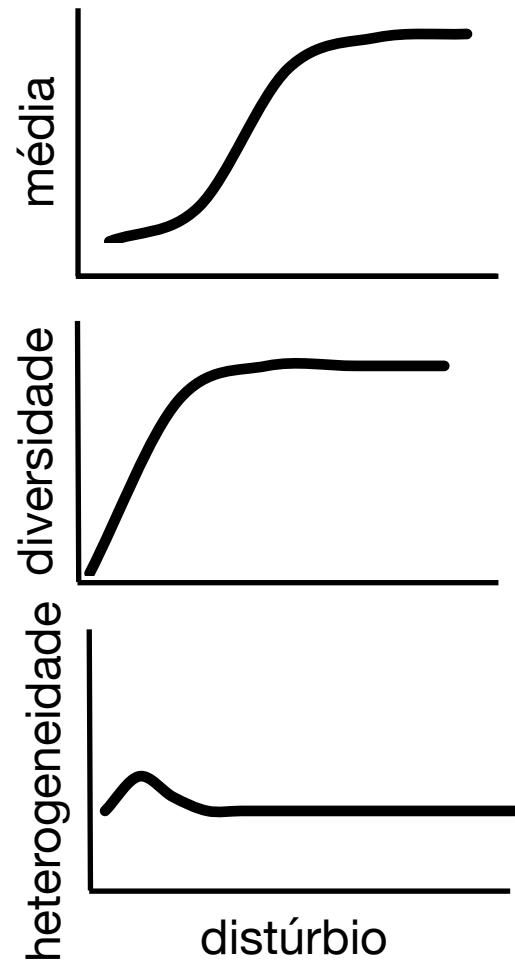
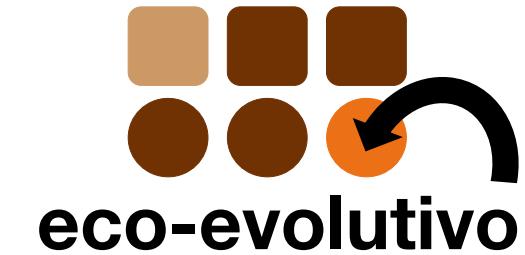
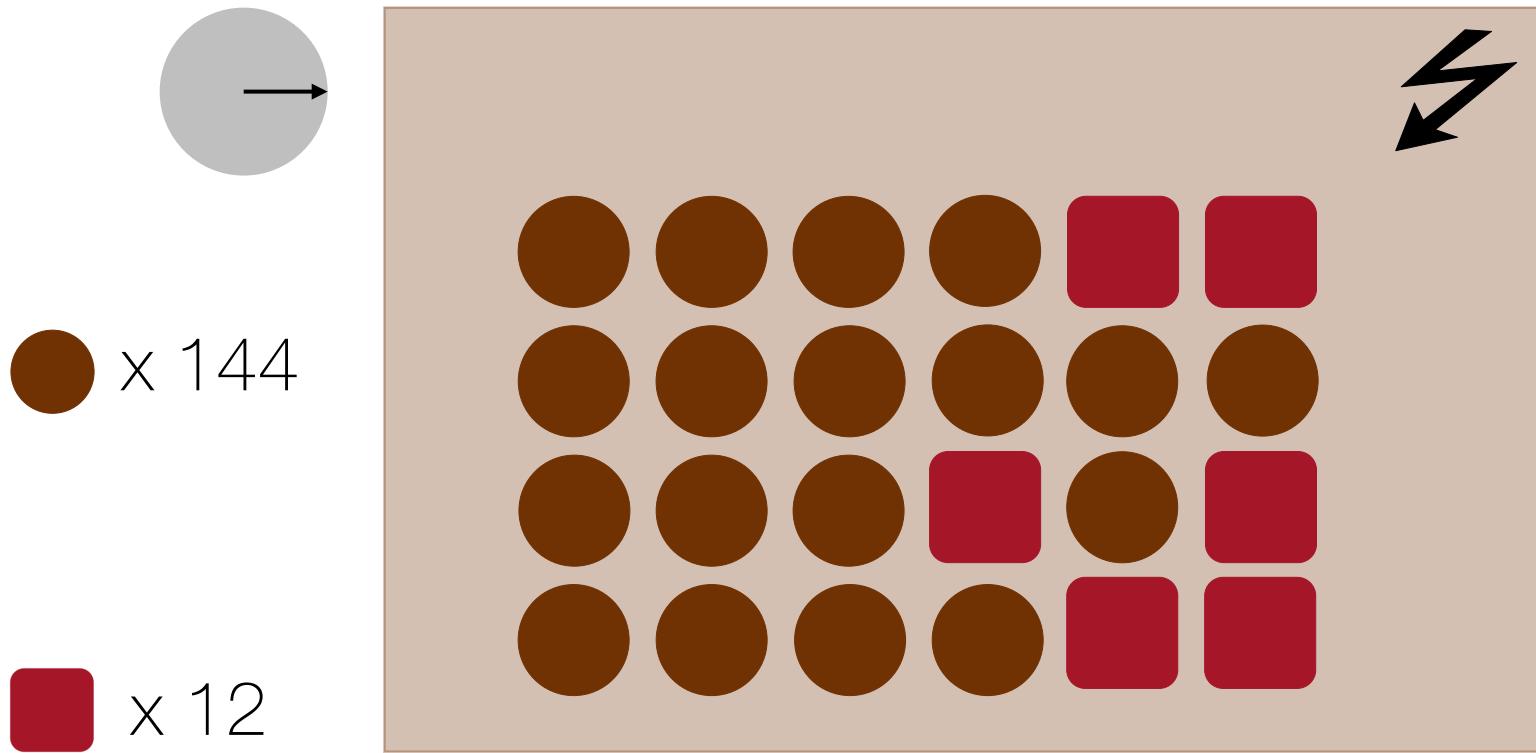
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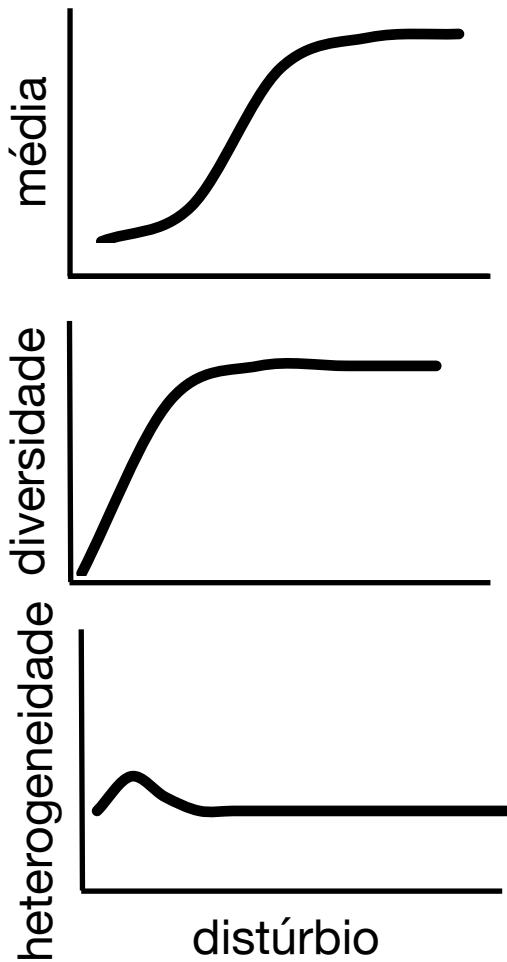
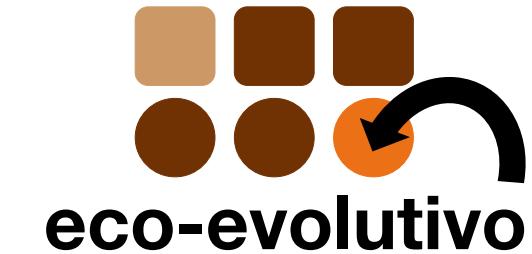
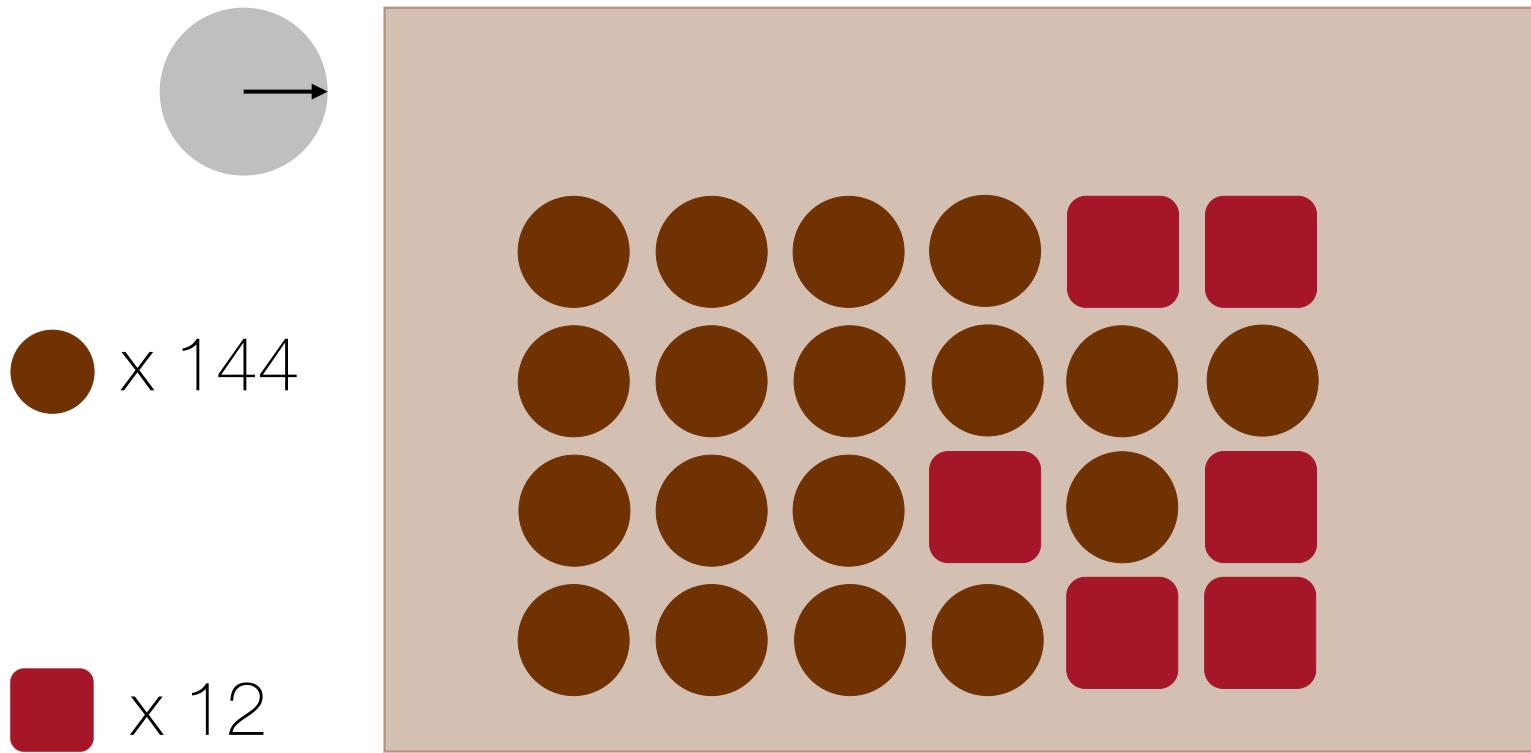
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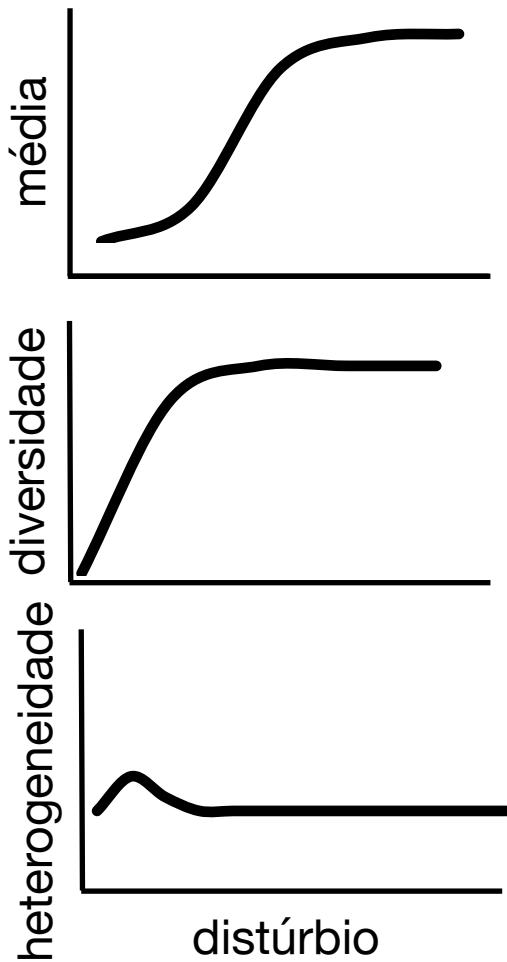
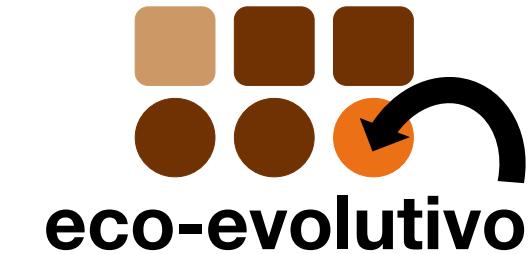
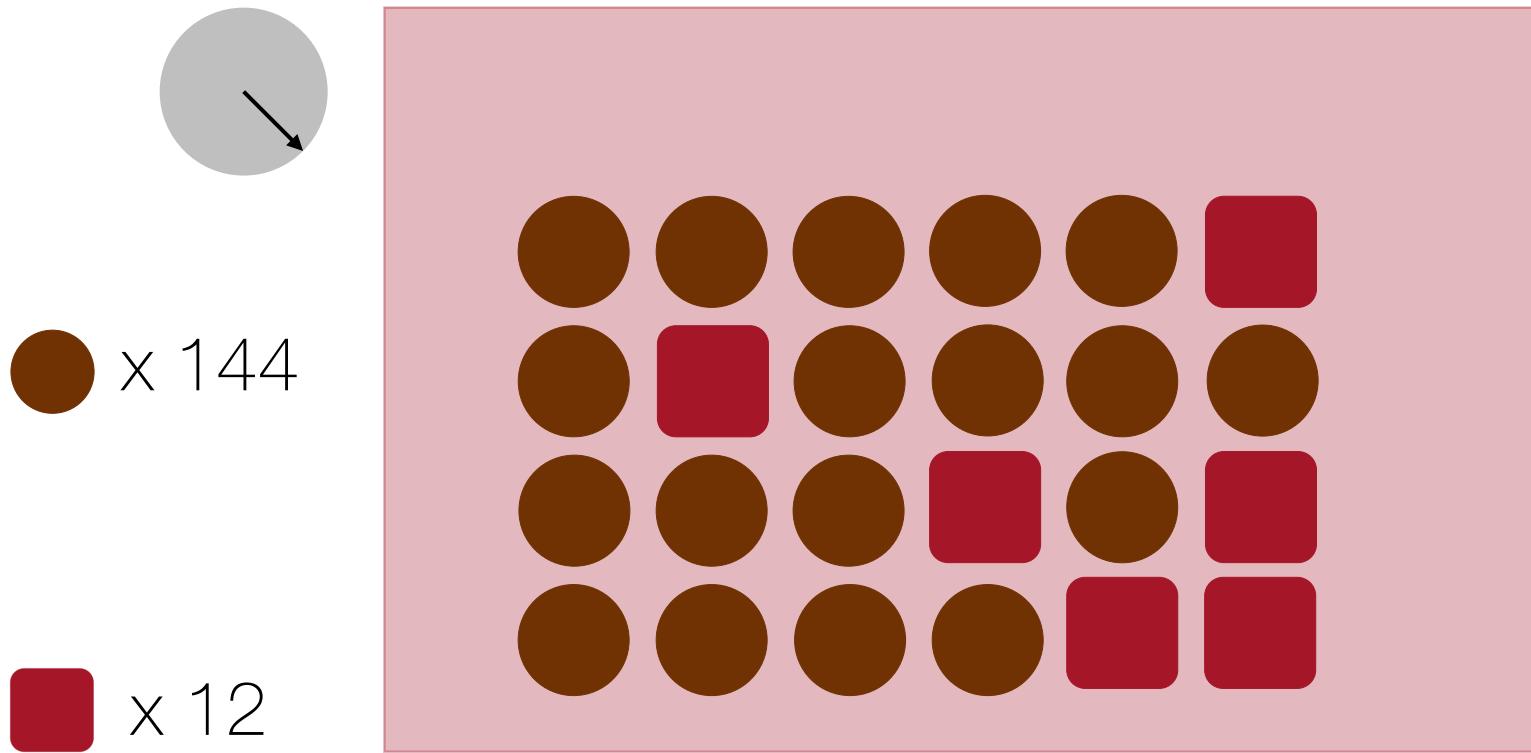
# coexistência de estratégias mediada pelo distúrbio



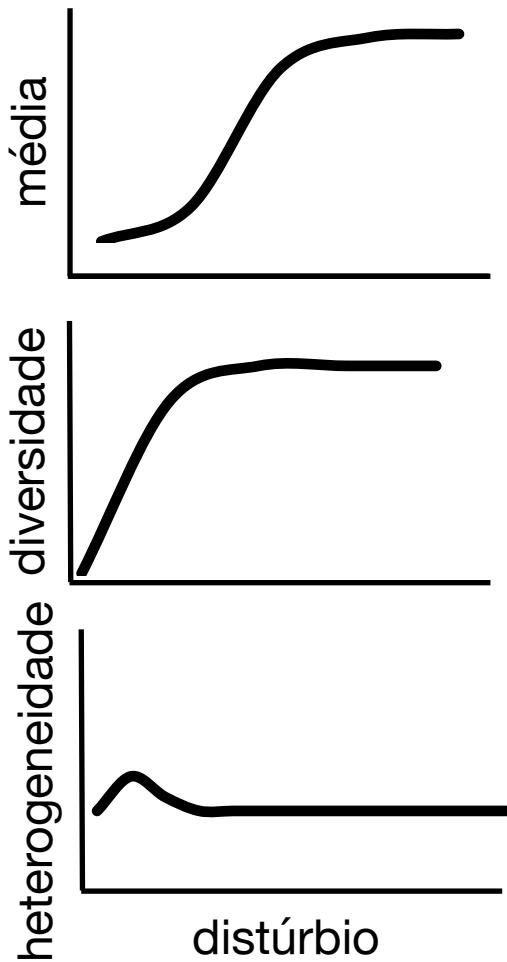
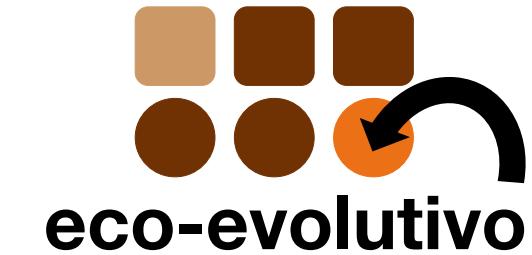
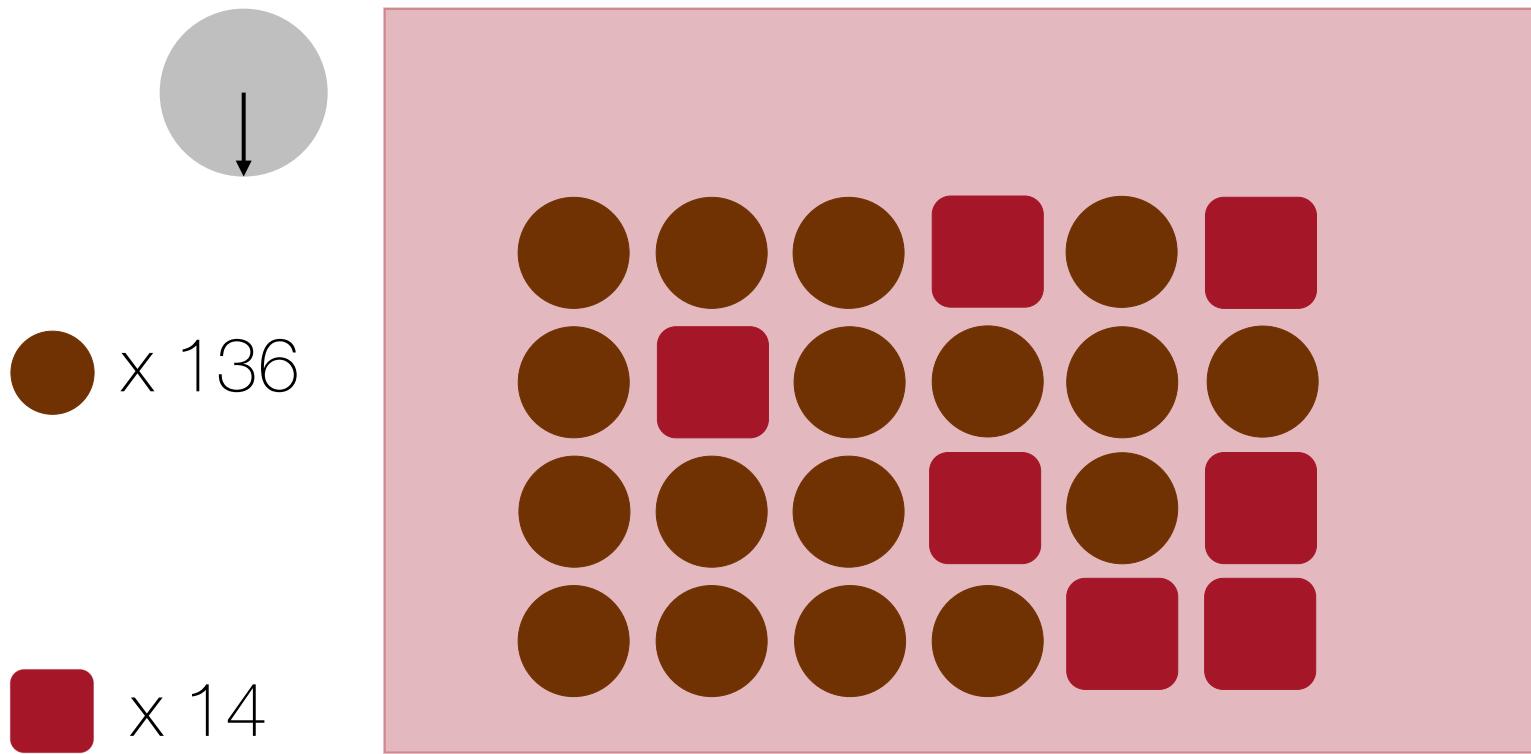
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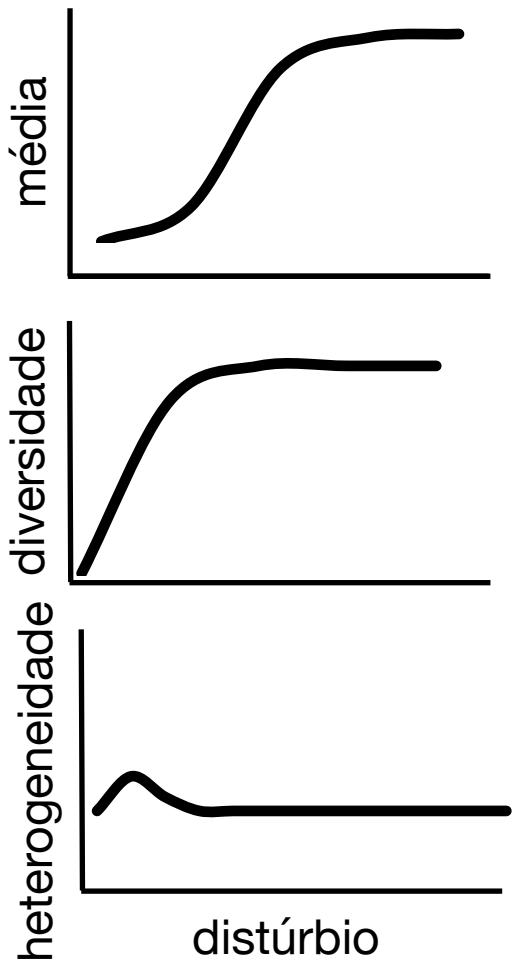
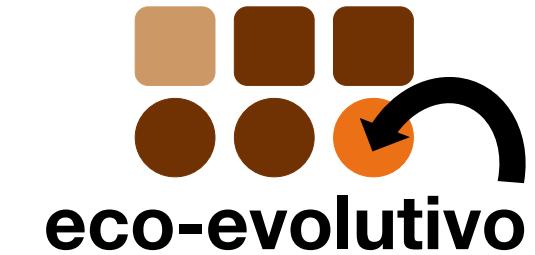
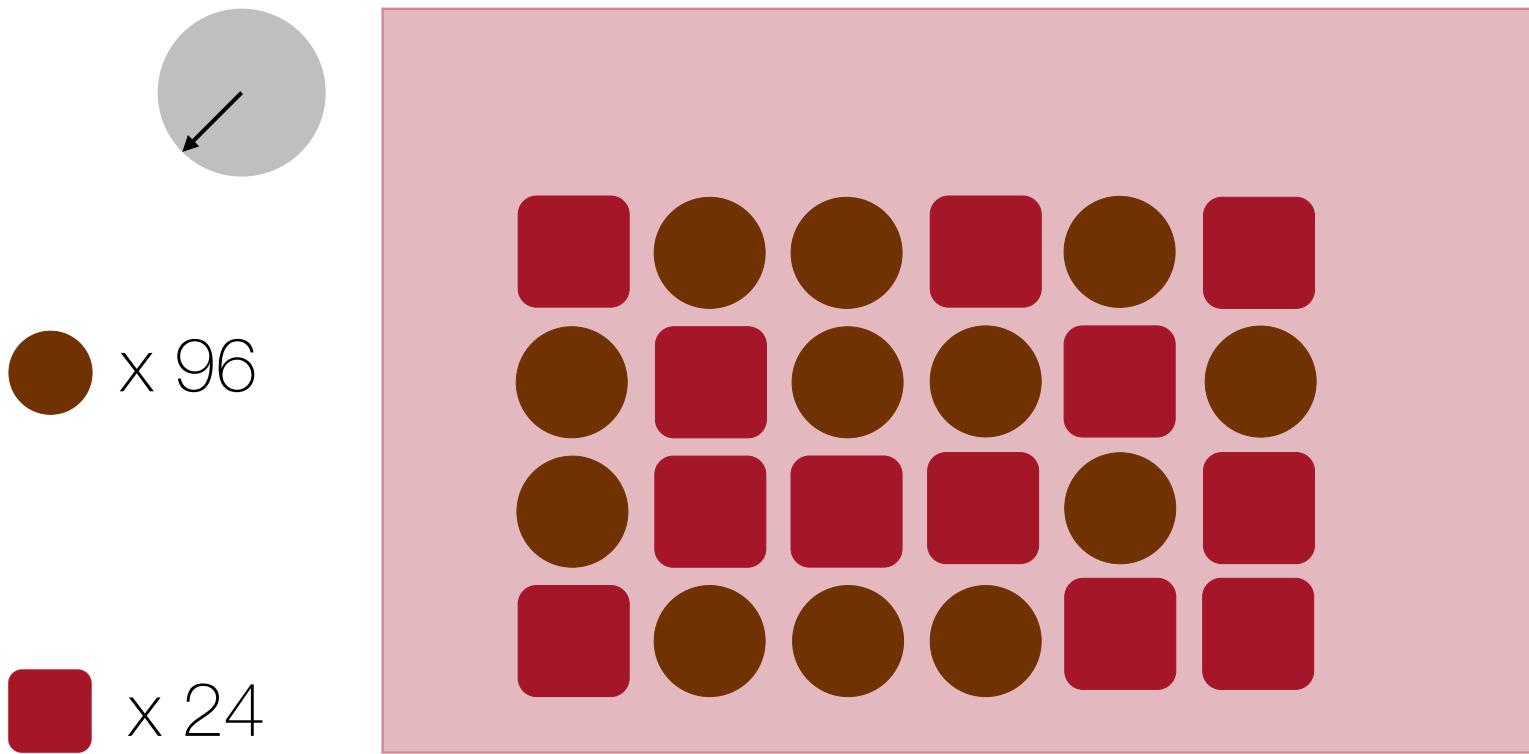
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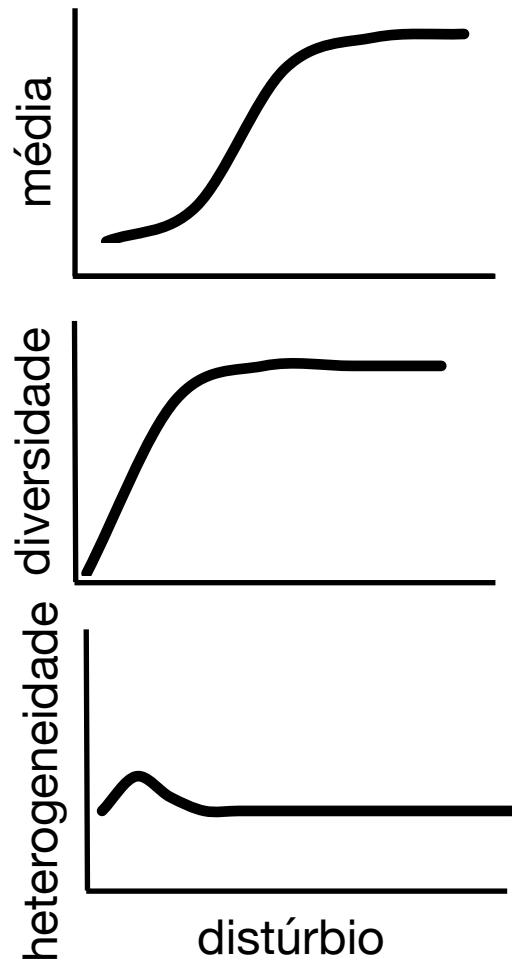
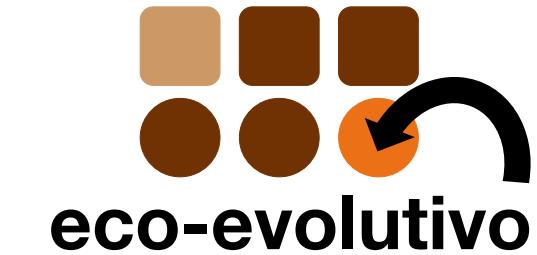
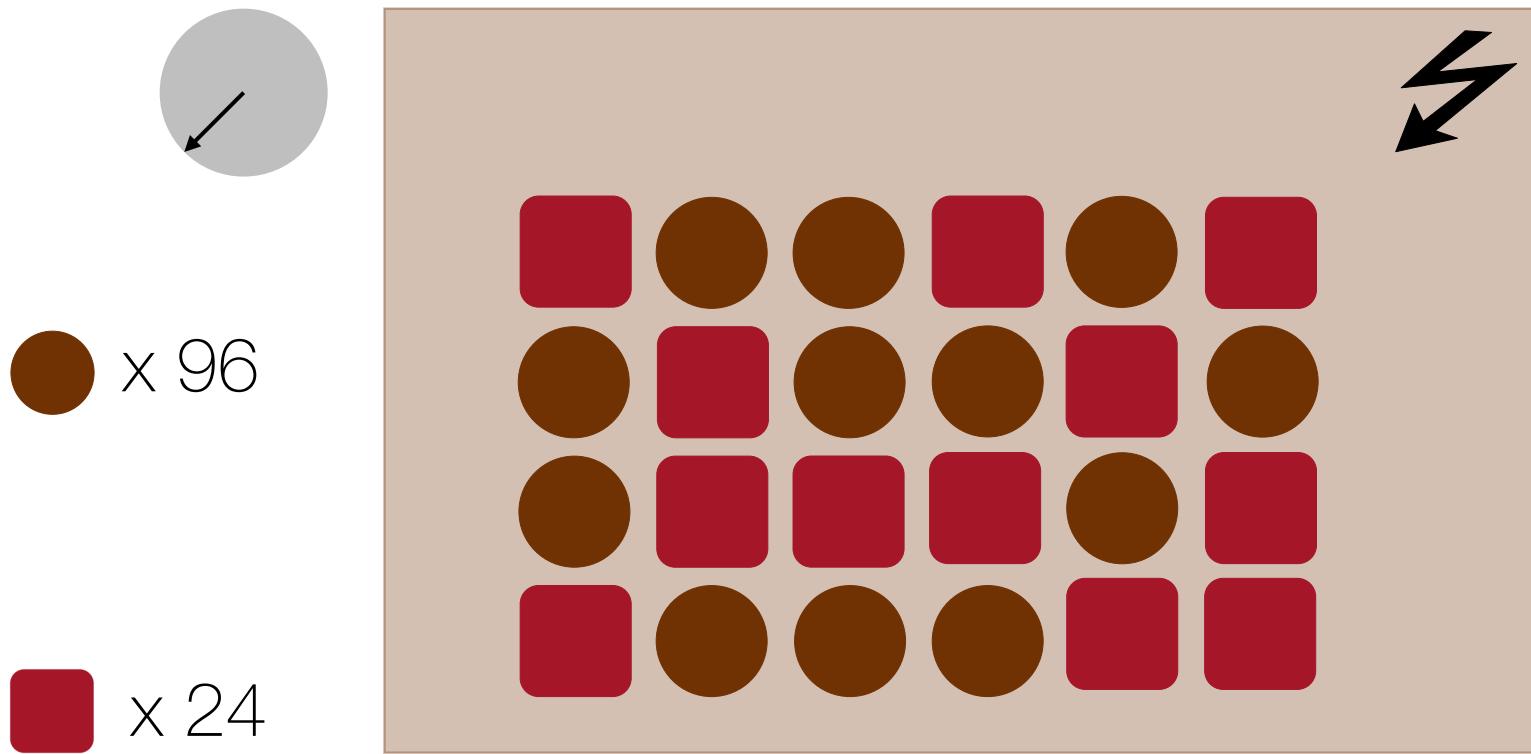
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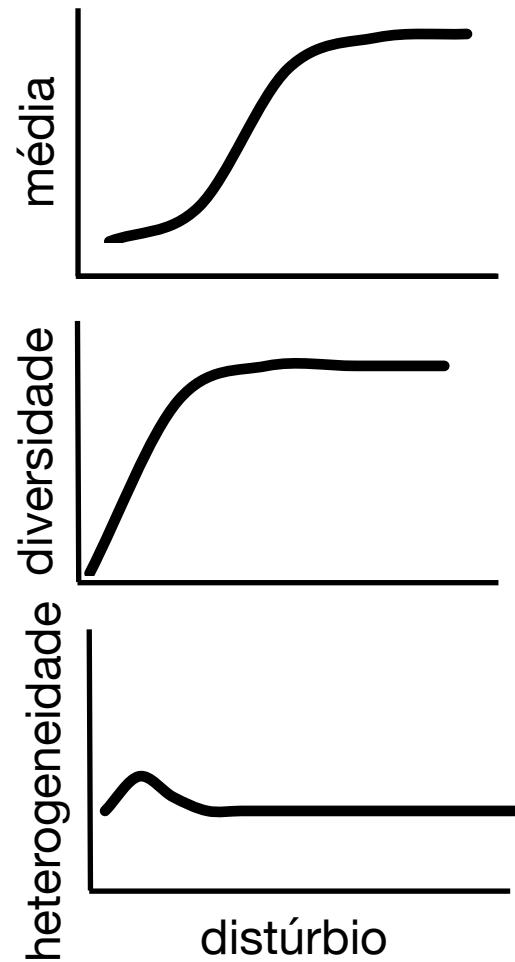
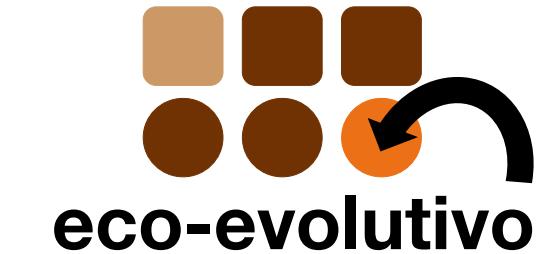
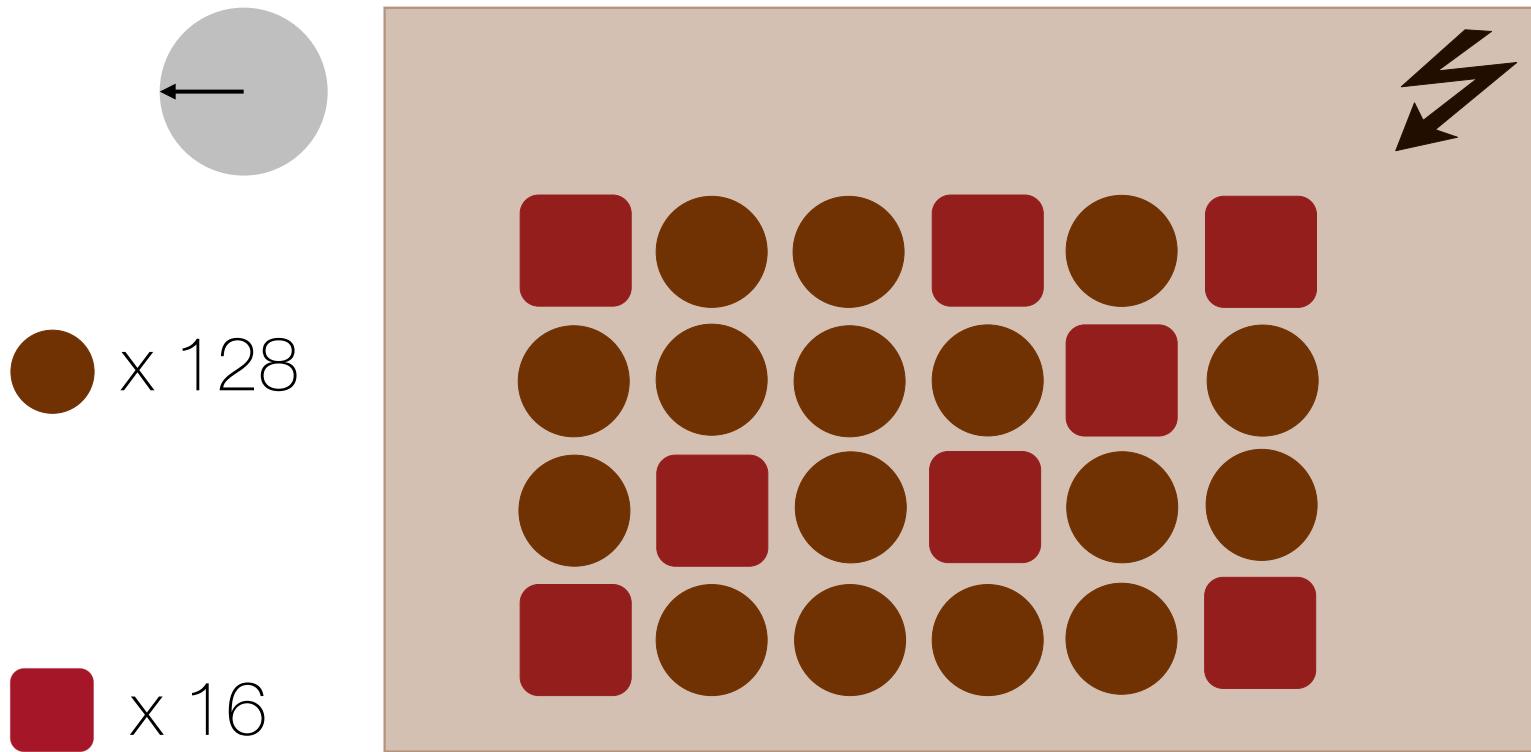
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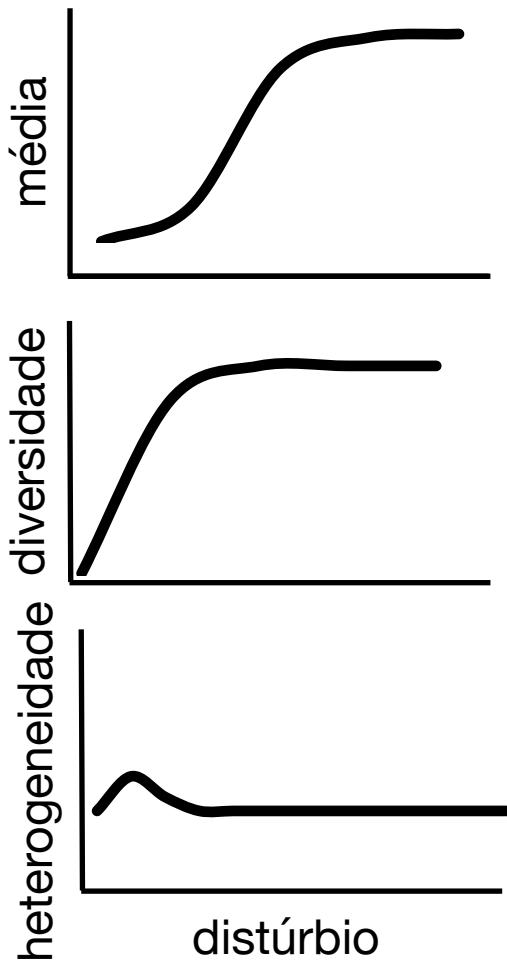
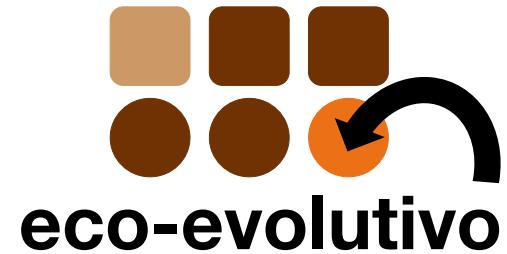
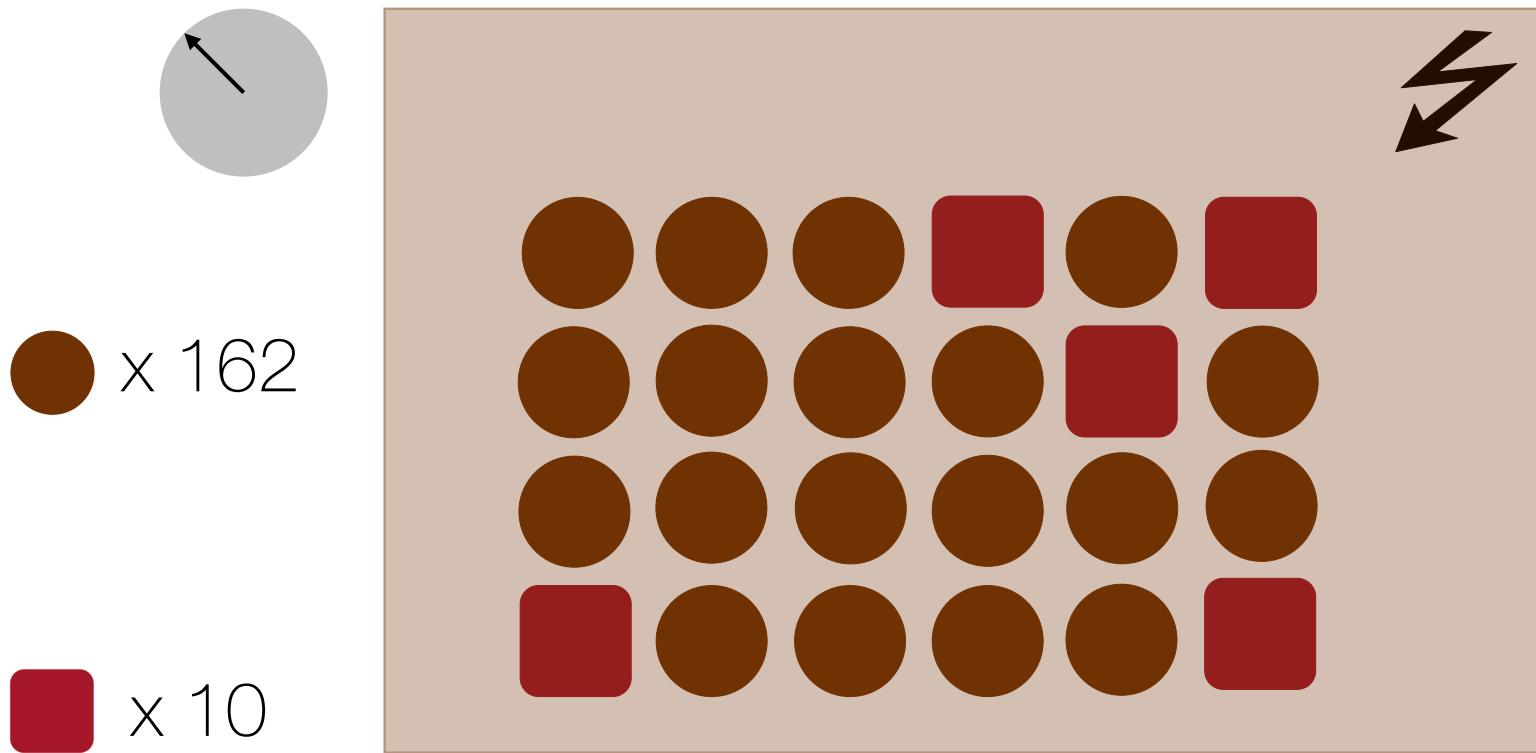
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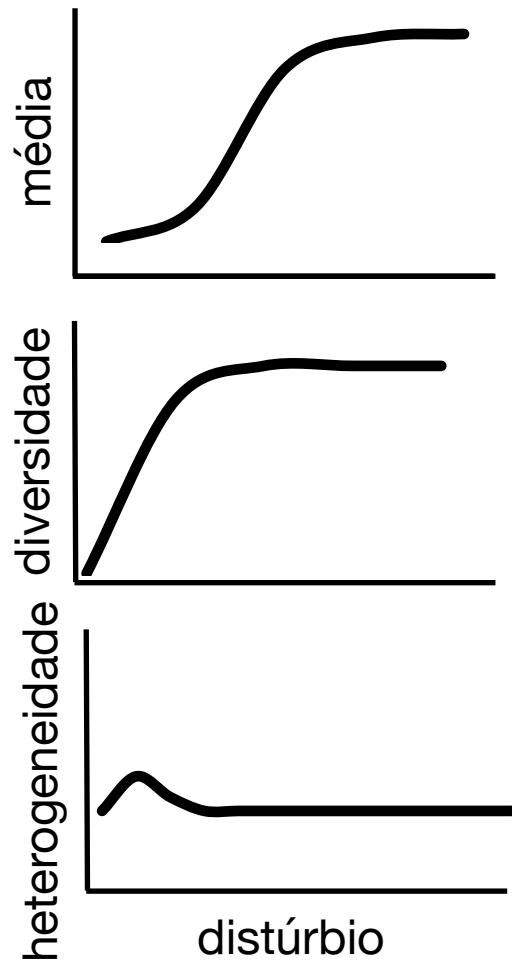
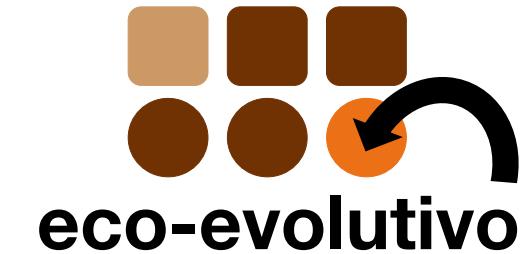
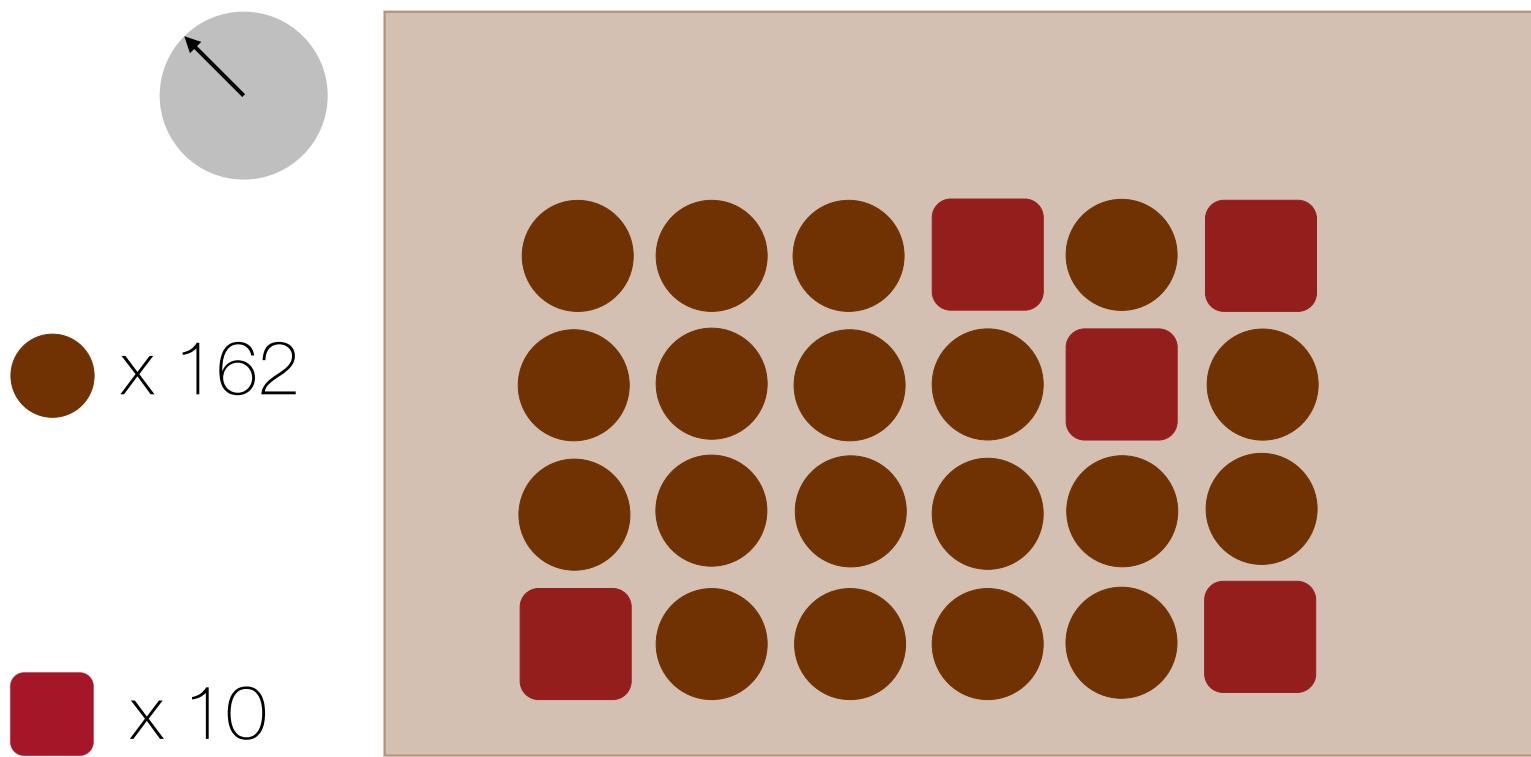
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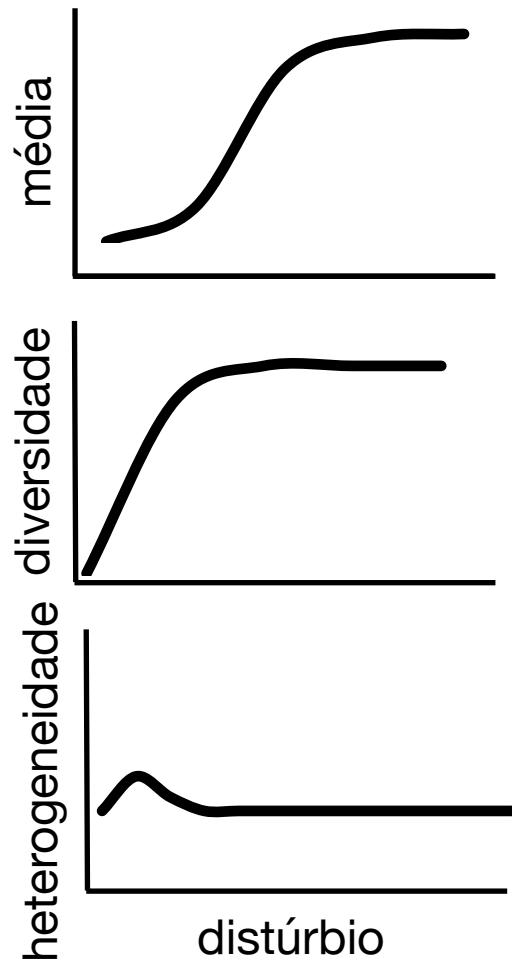
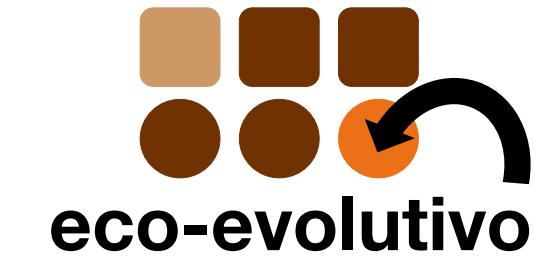
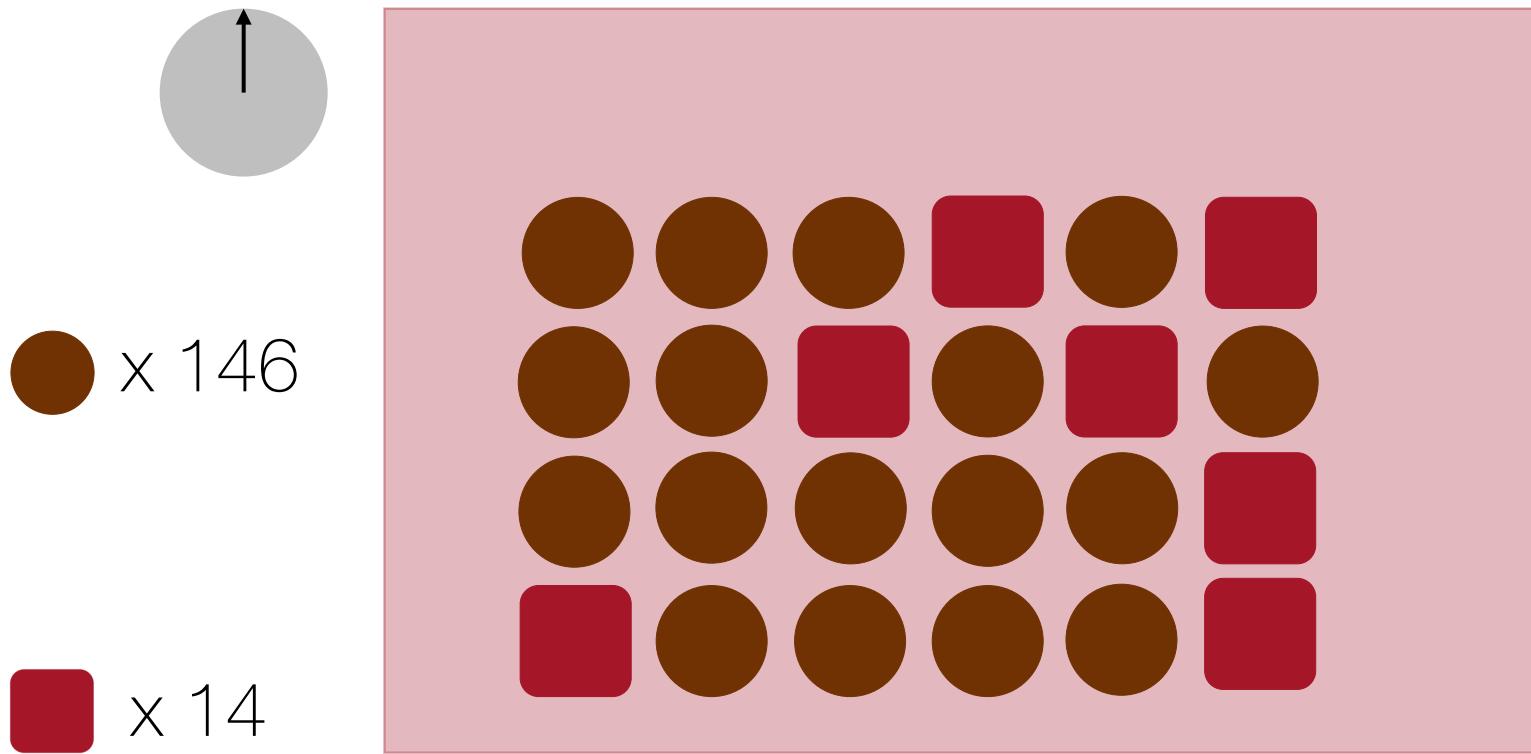
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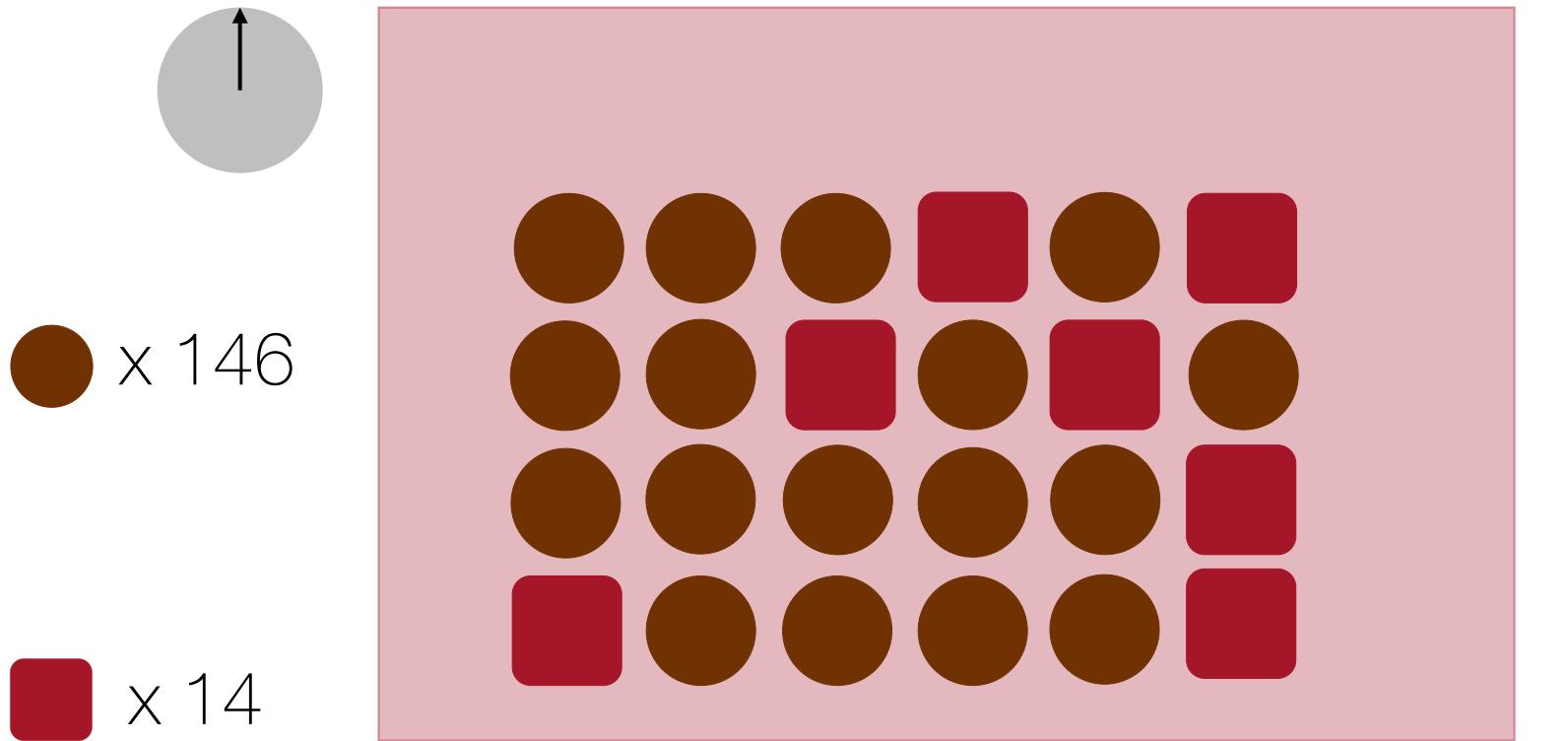
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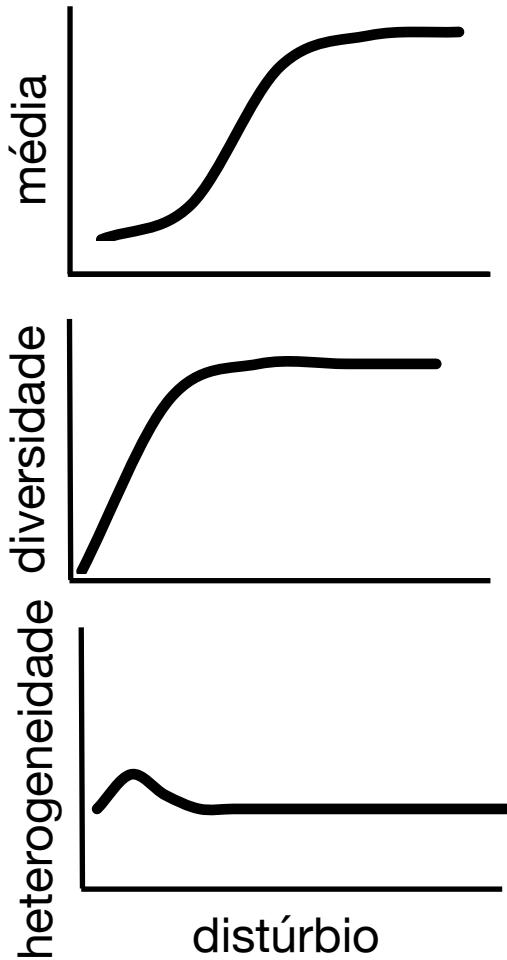
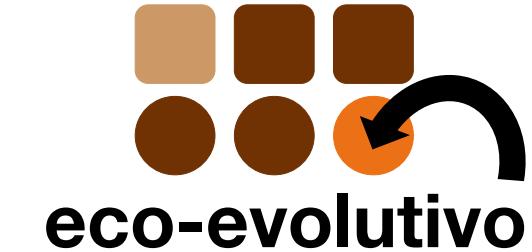
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# coexistência de estratégias mediada pelo distúrbio

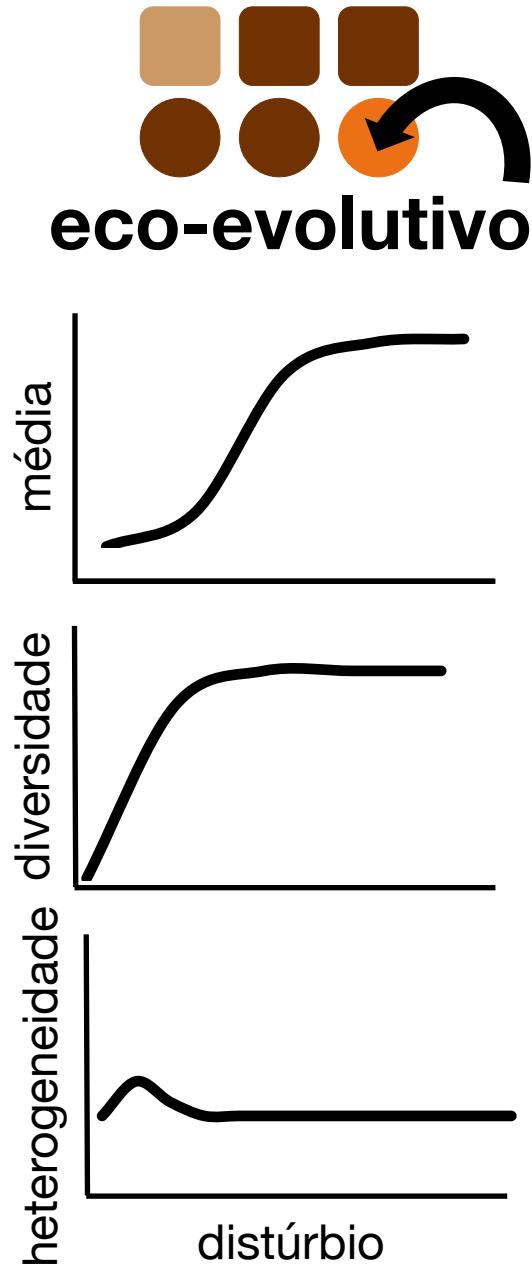
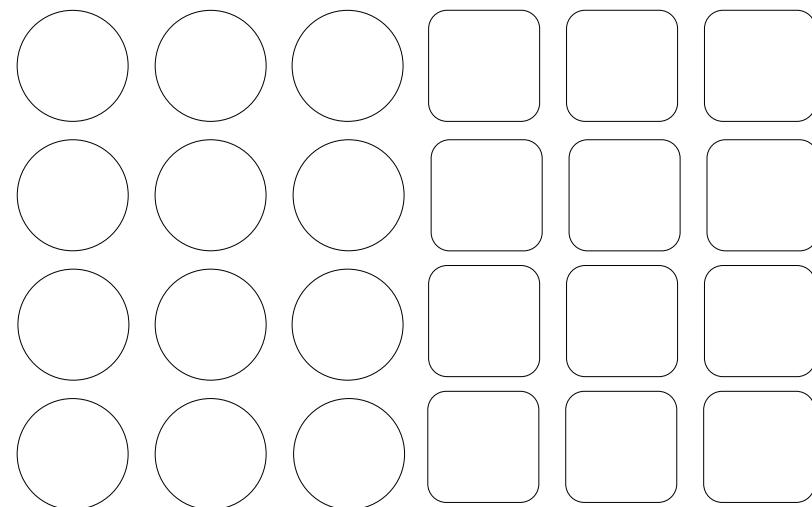


coexistência de especialistas



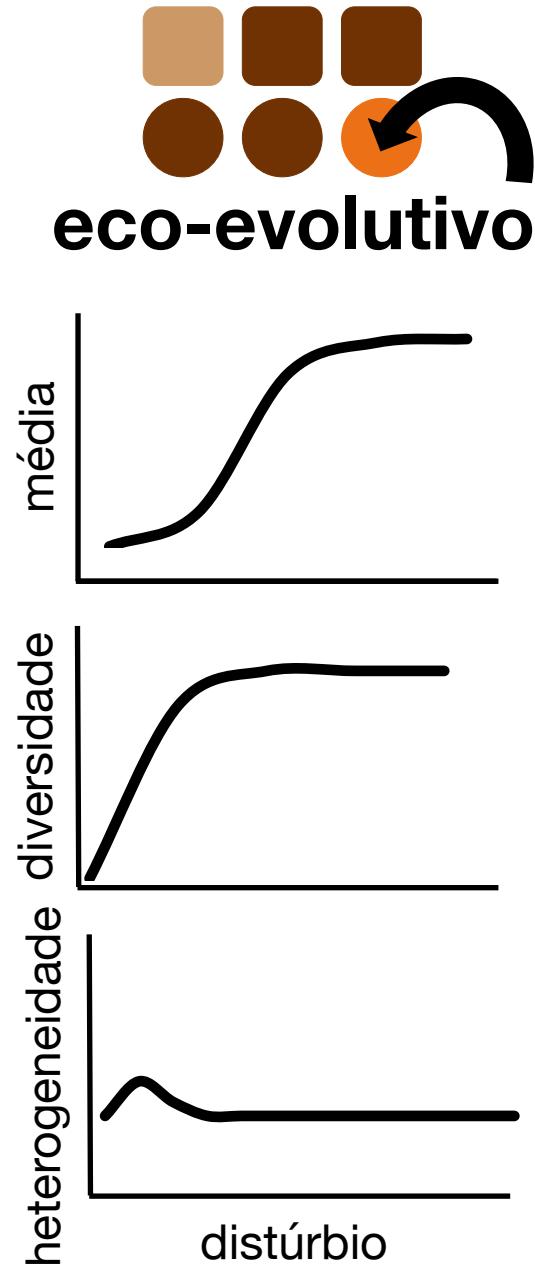
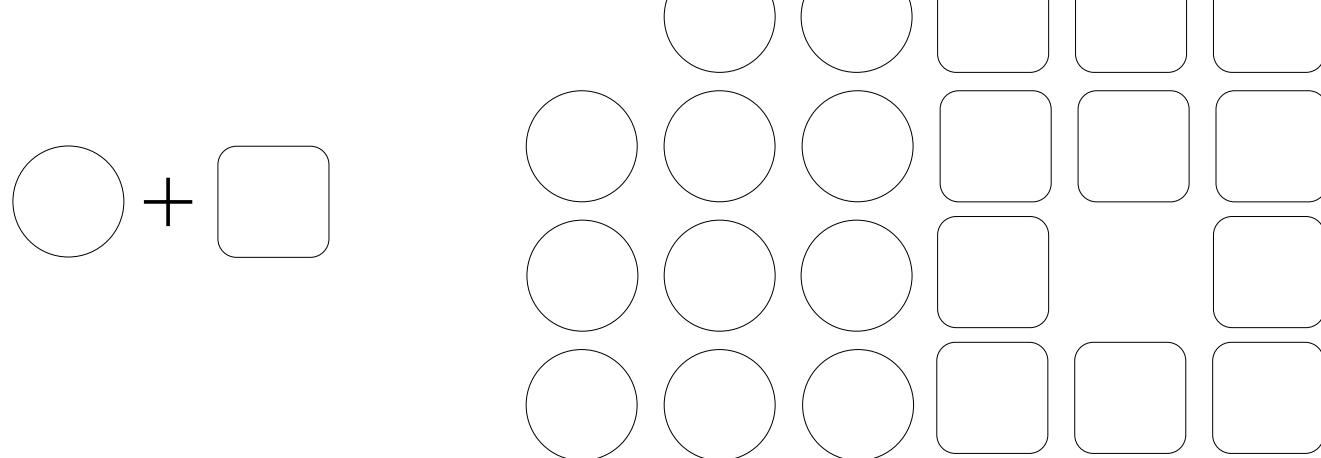
# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = isolamento reprodutivo



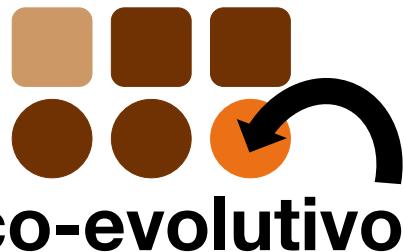
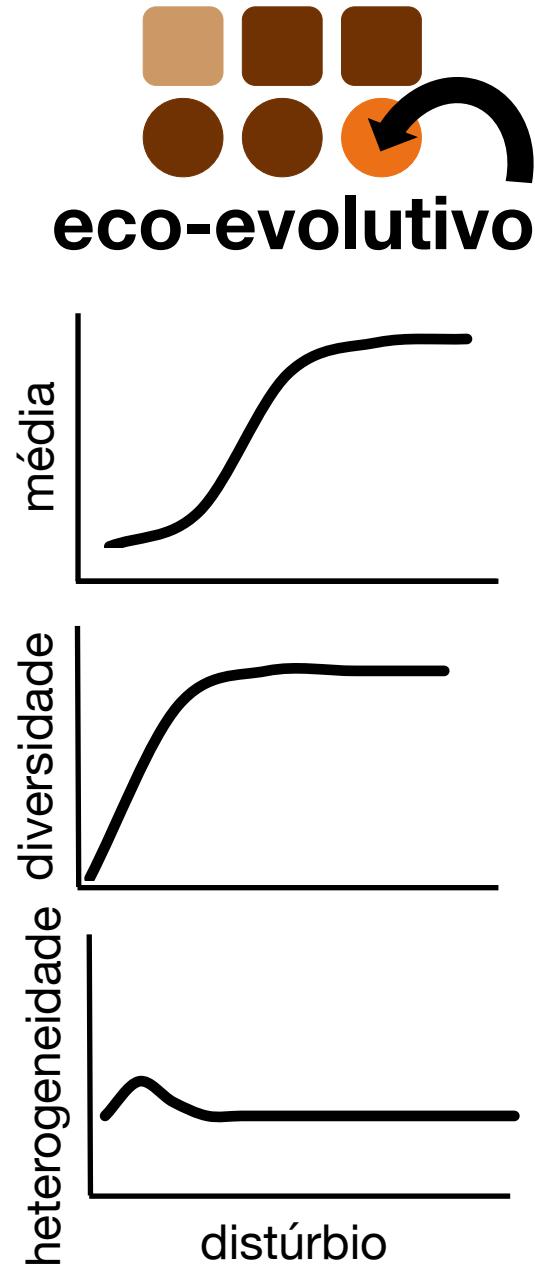
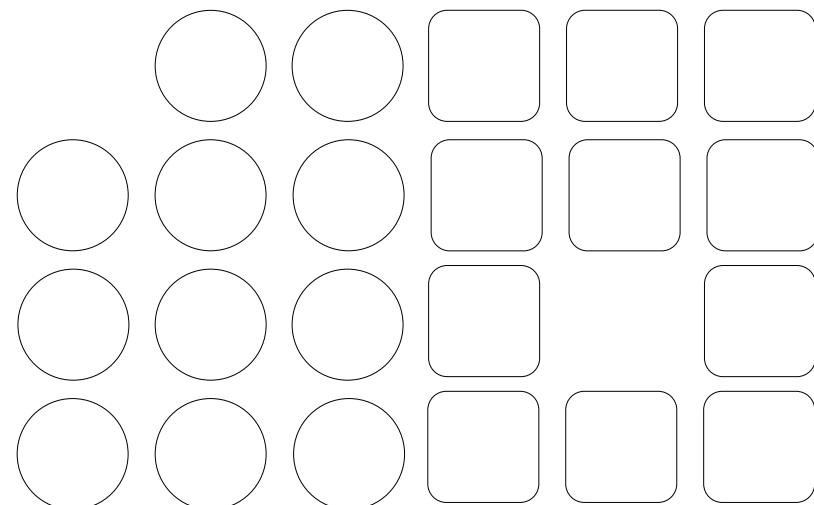
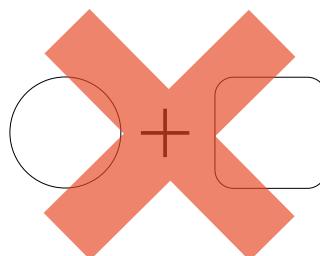
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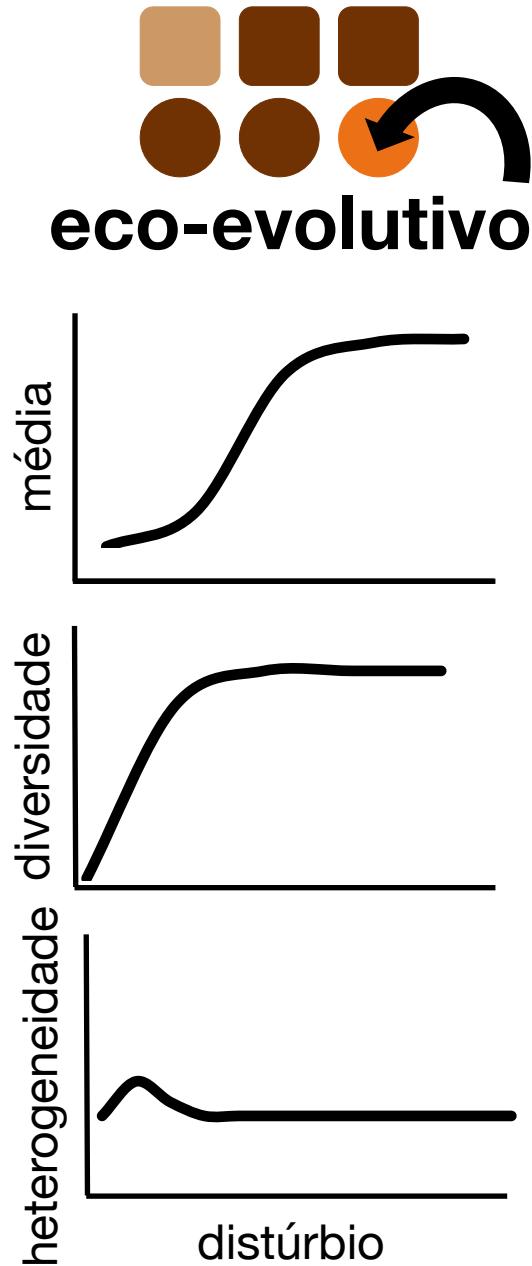
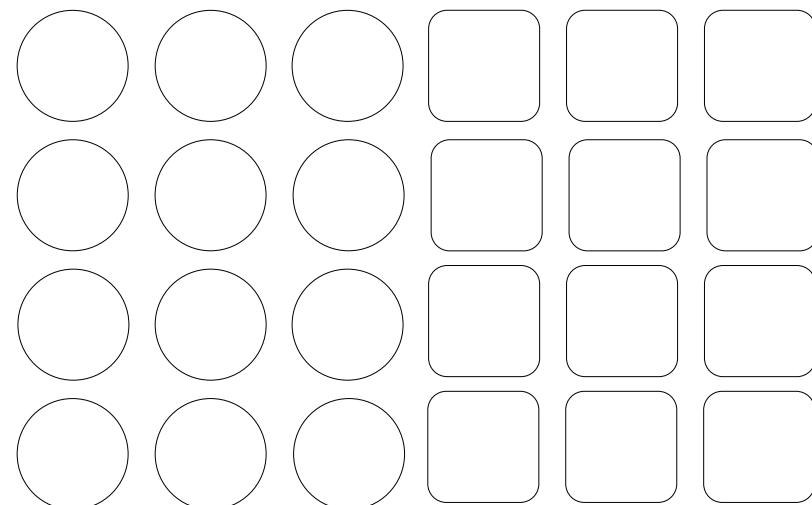
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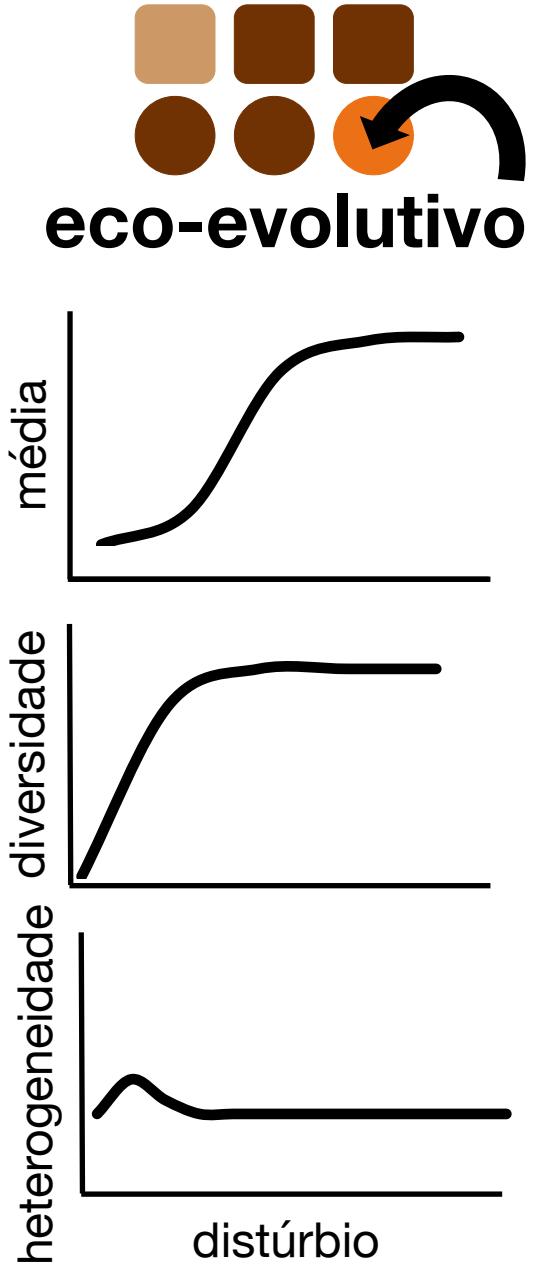
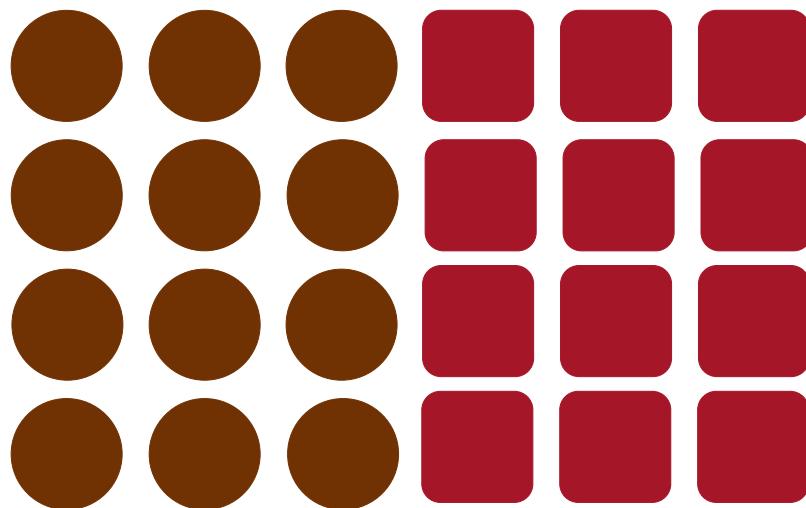
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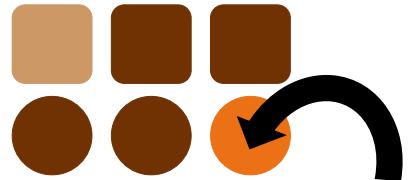
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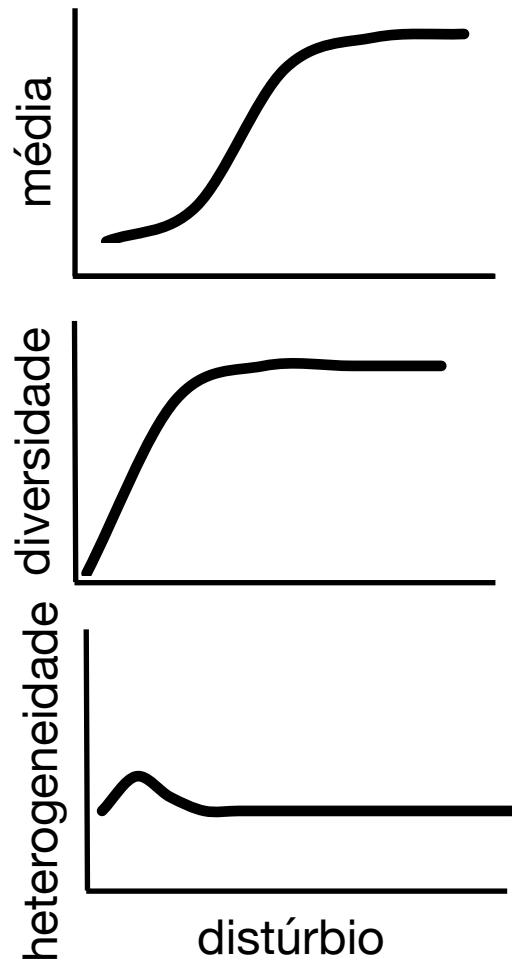


# coexistência de estratégias mediada pelo distúrbio

cenário eco-evolutivo = mutação

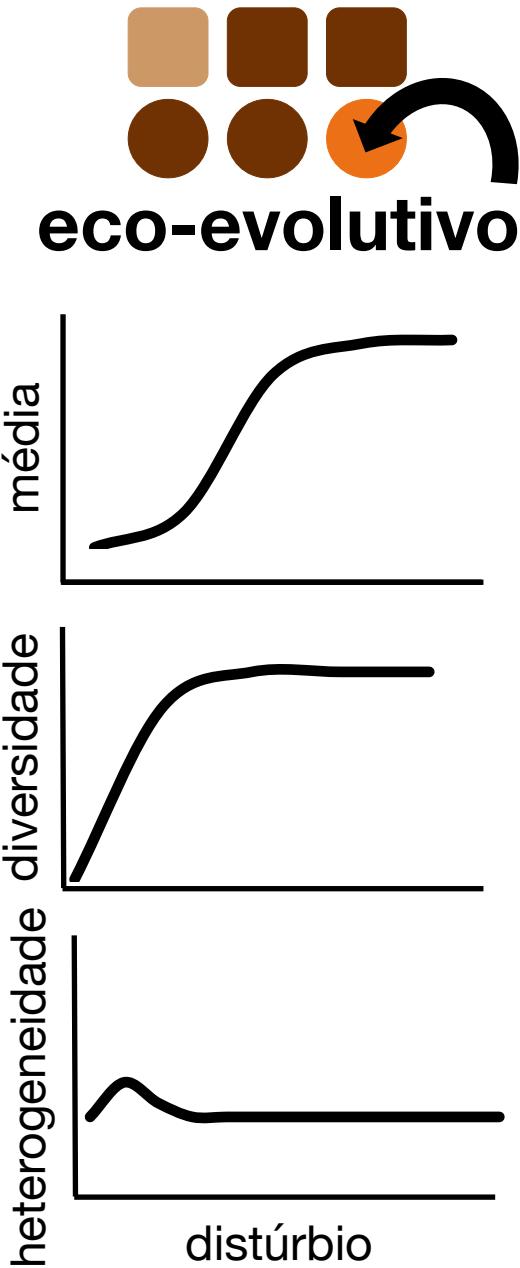
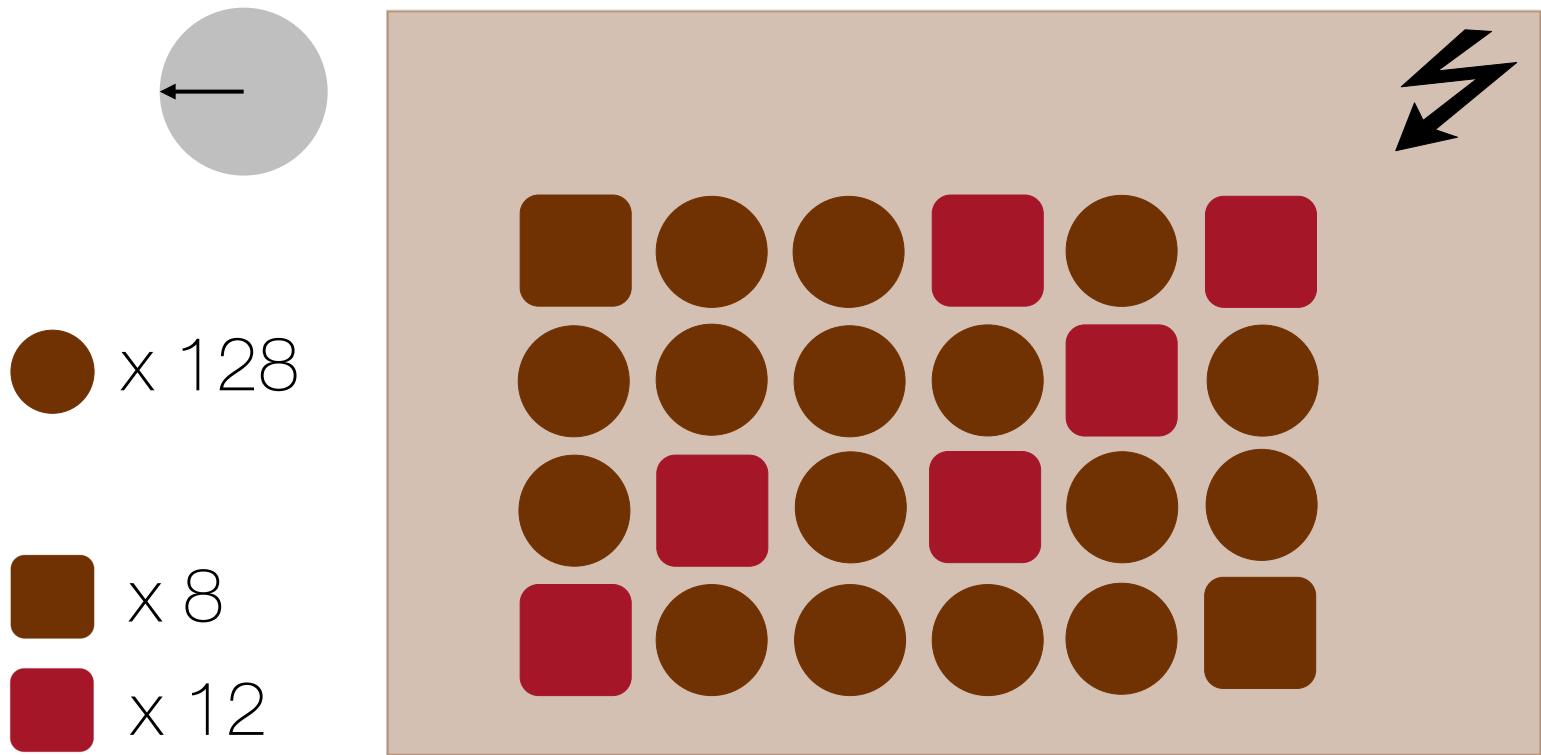


**eco-evolutivo**



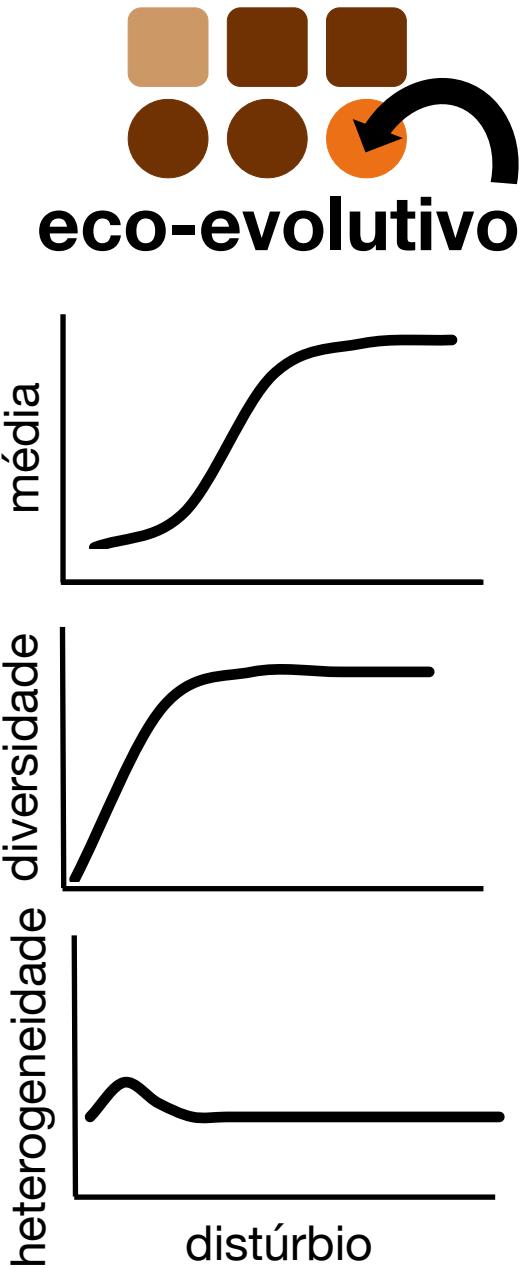
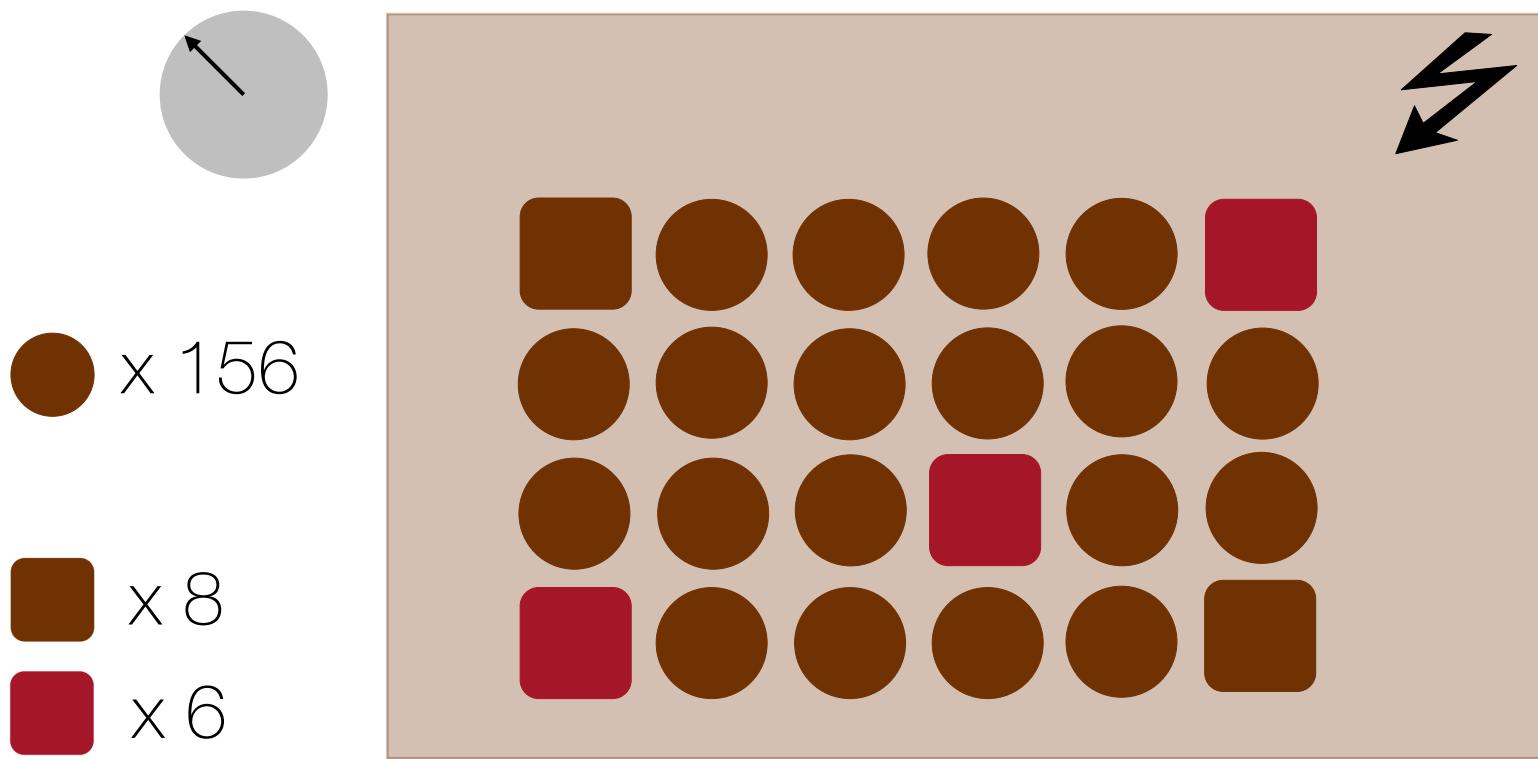
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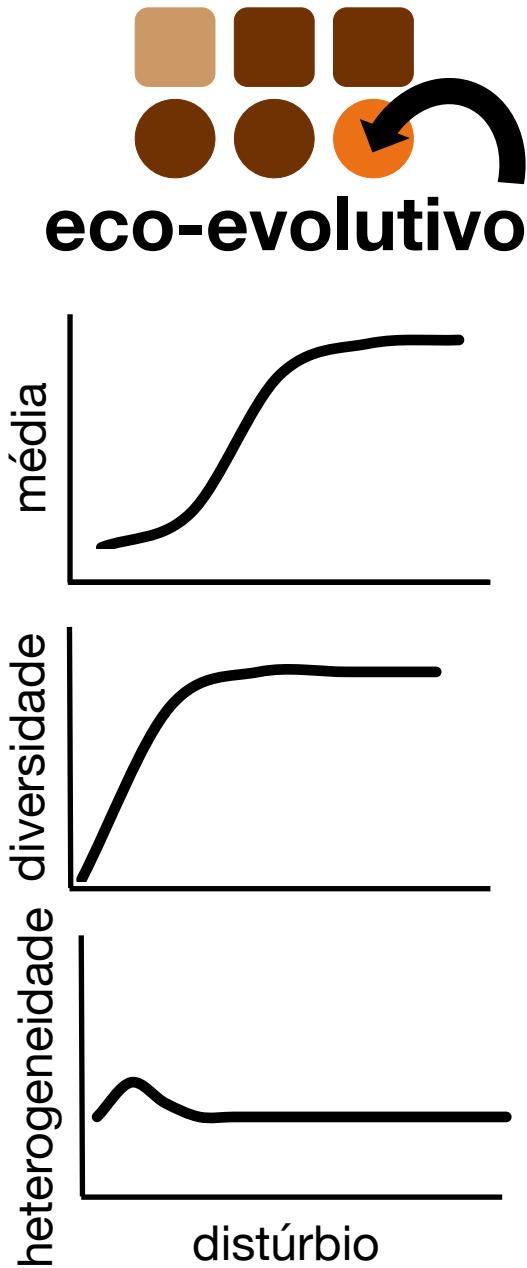
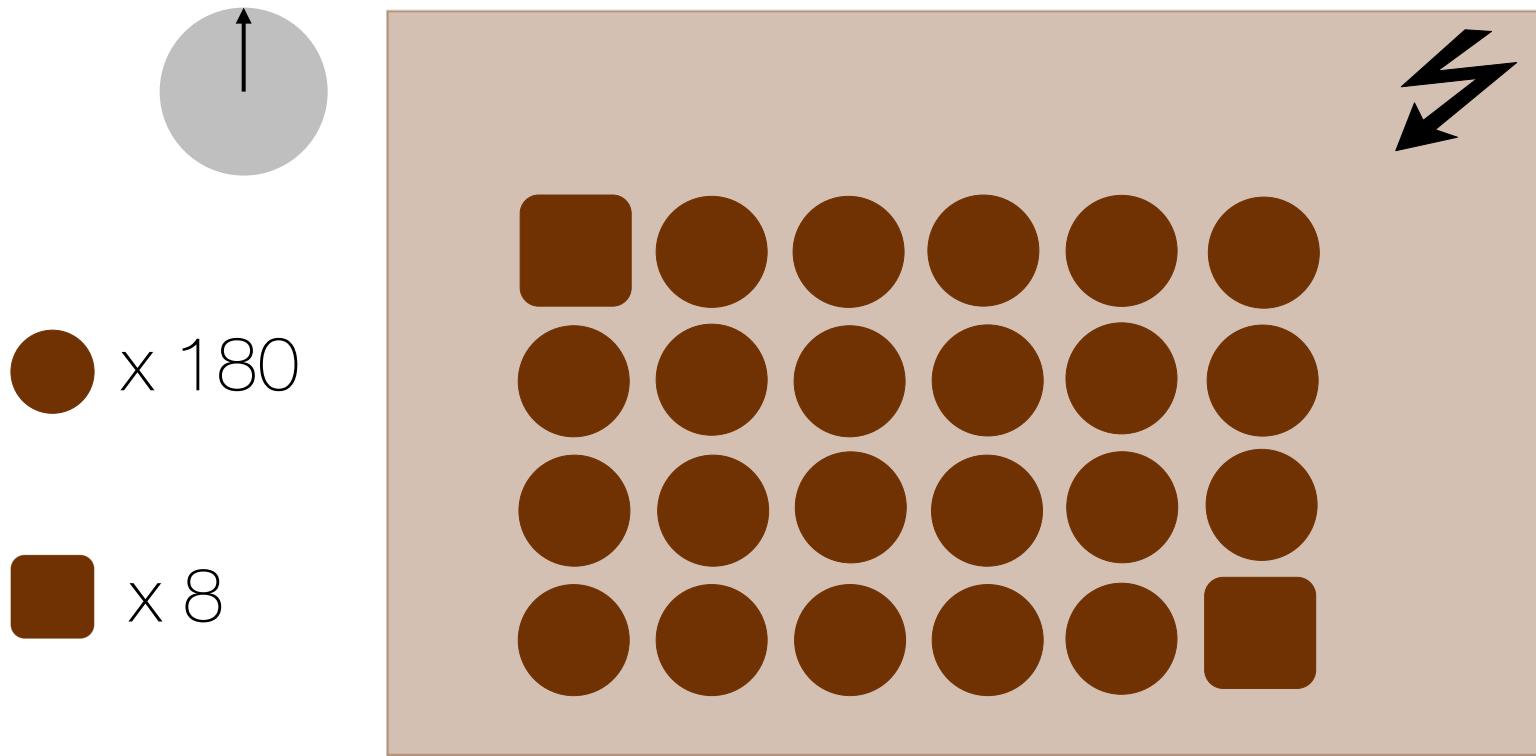
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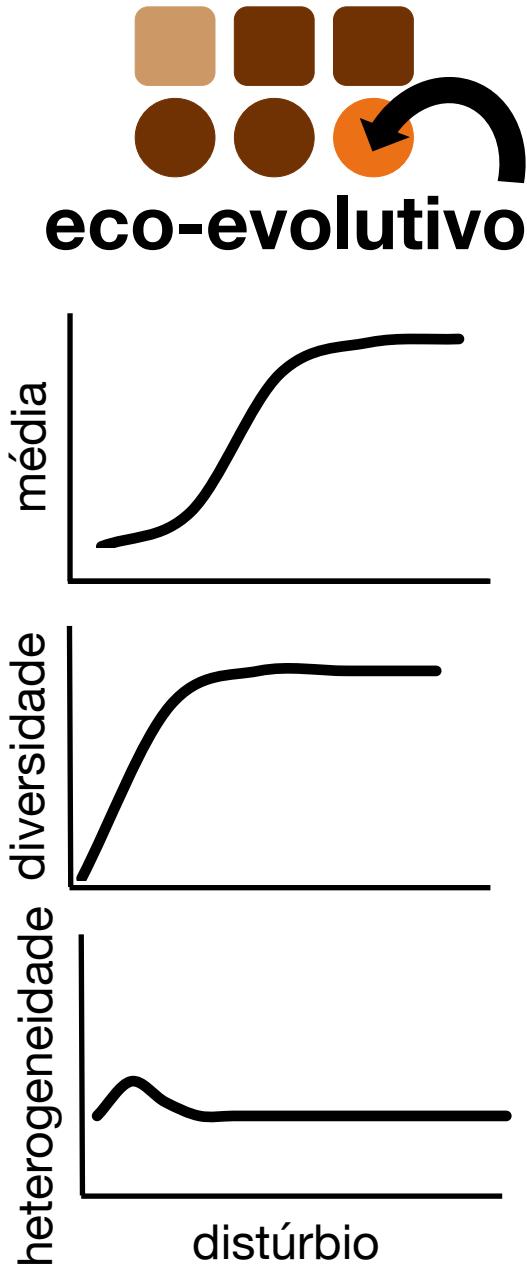
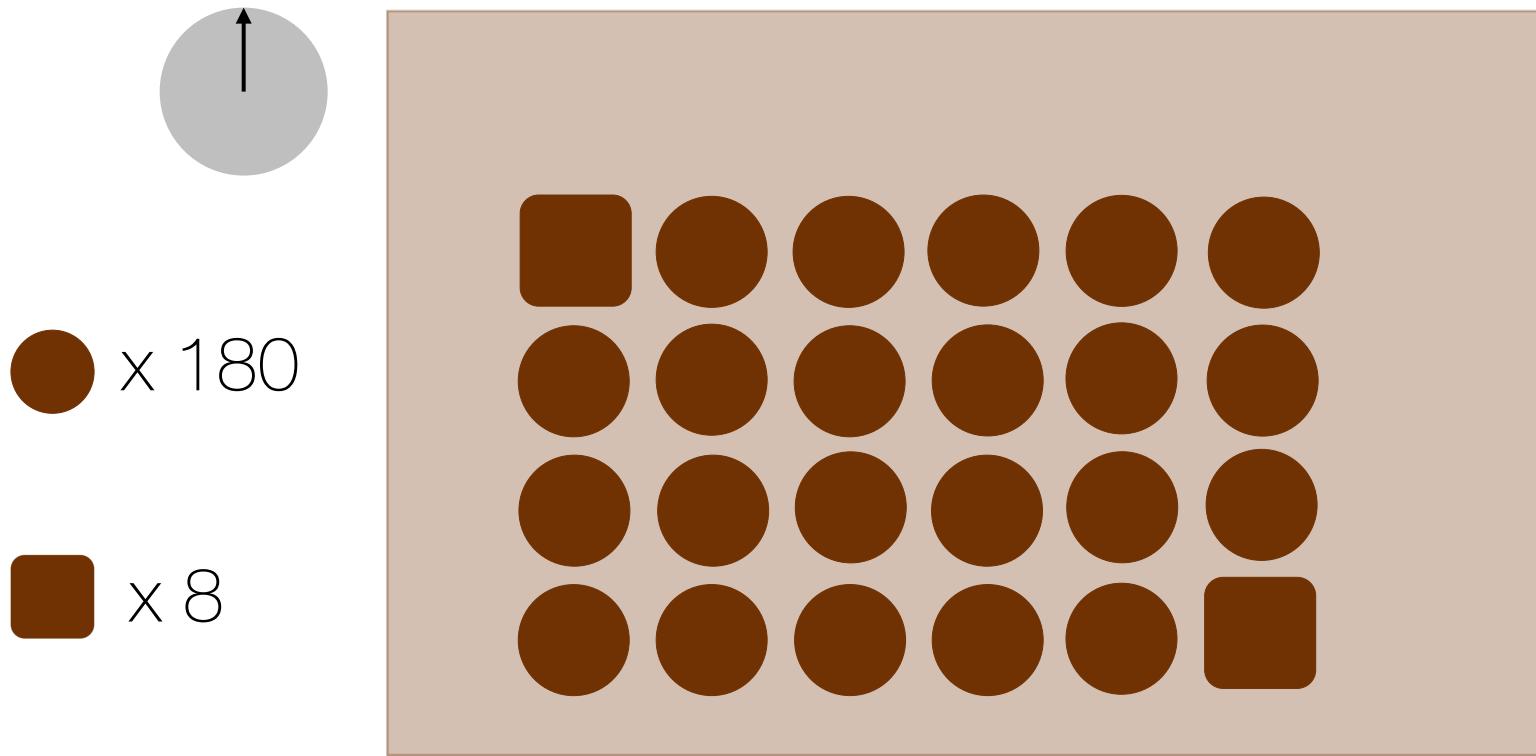
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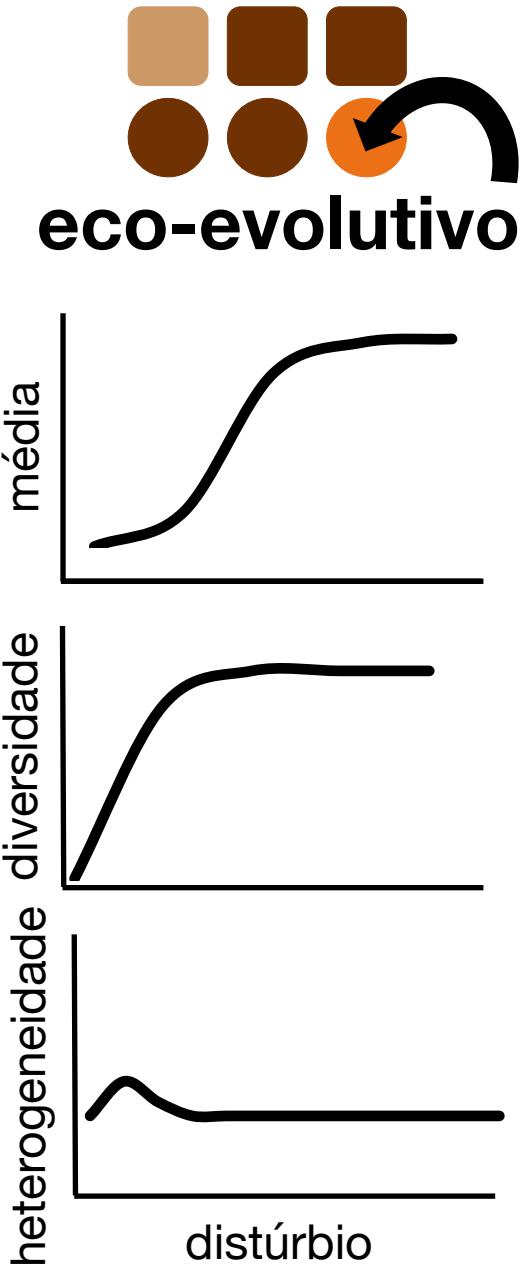
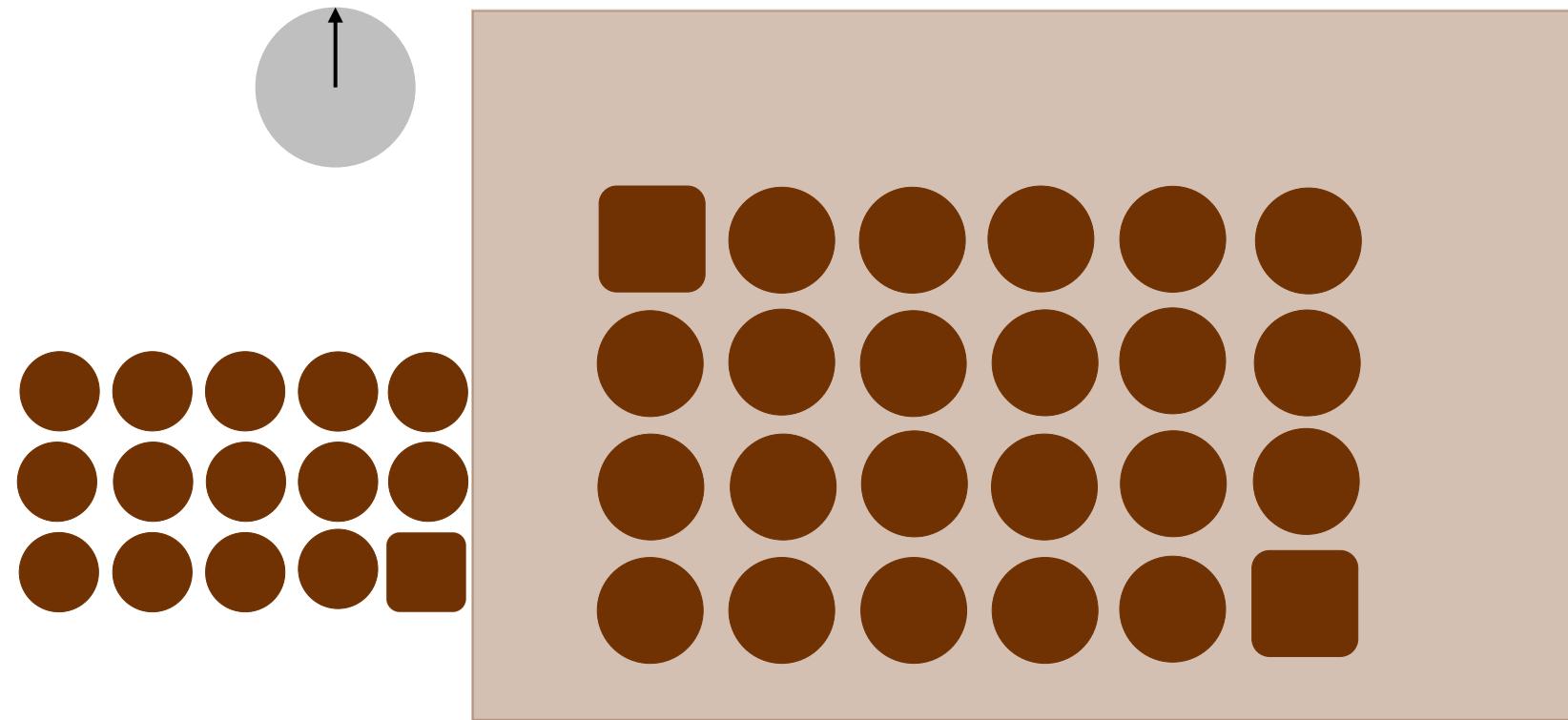
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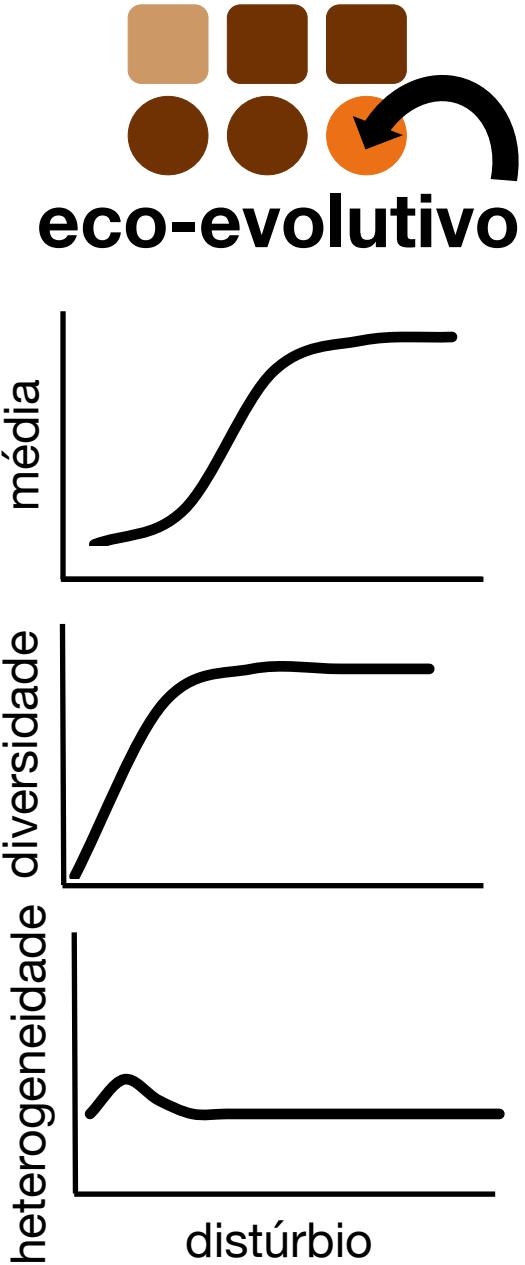
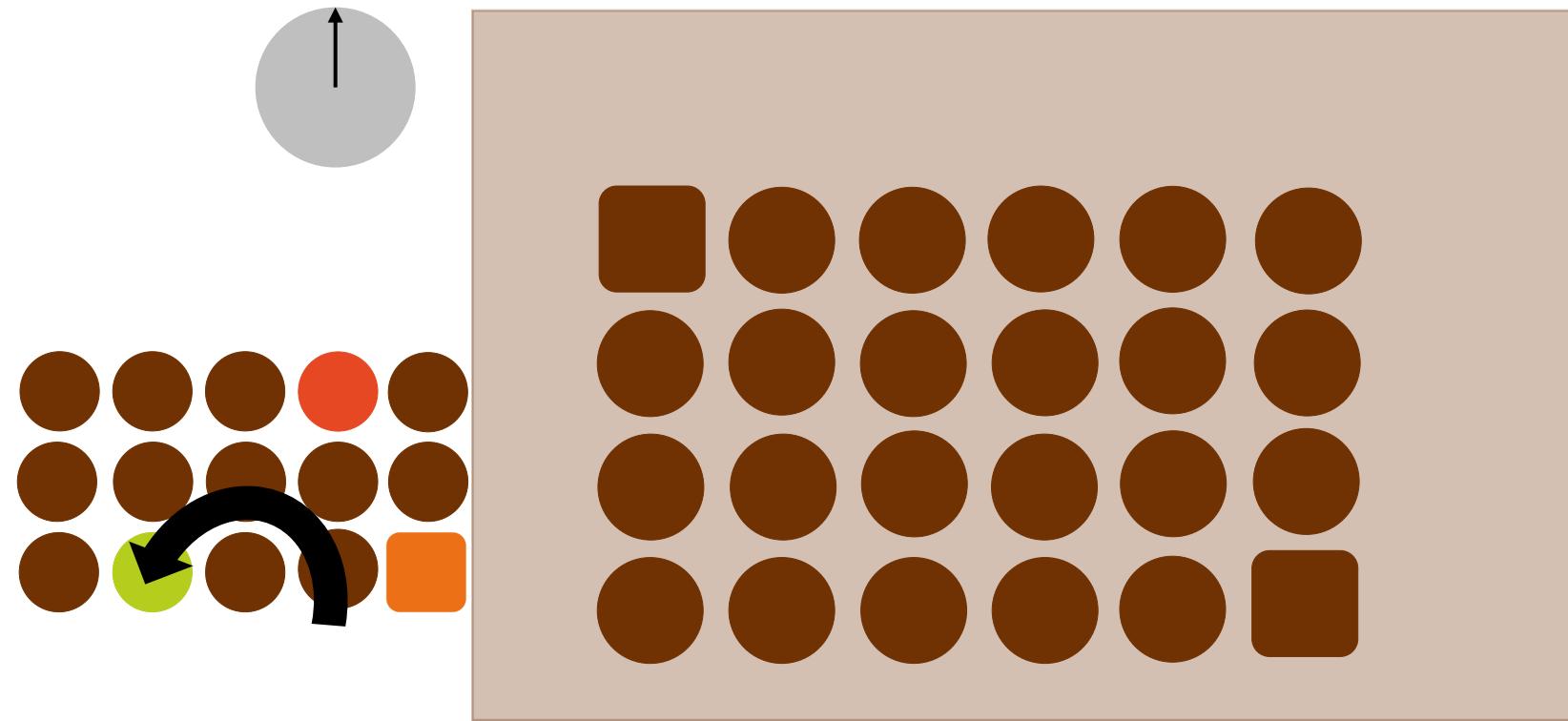
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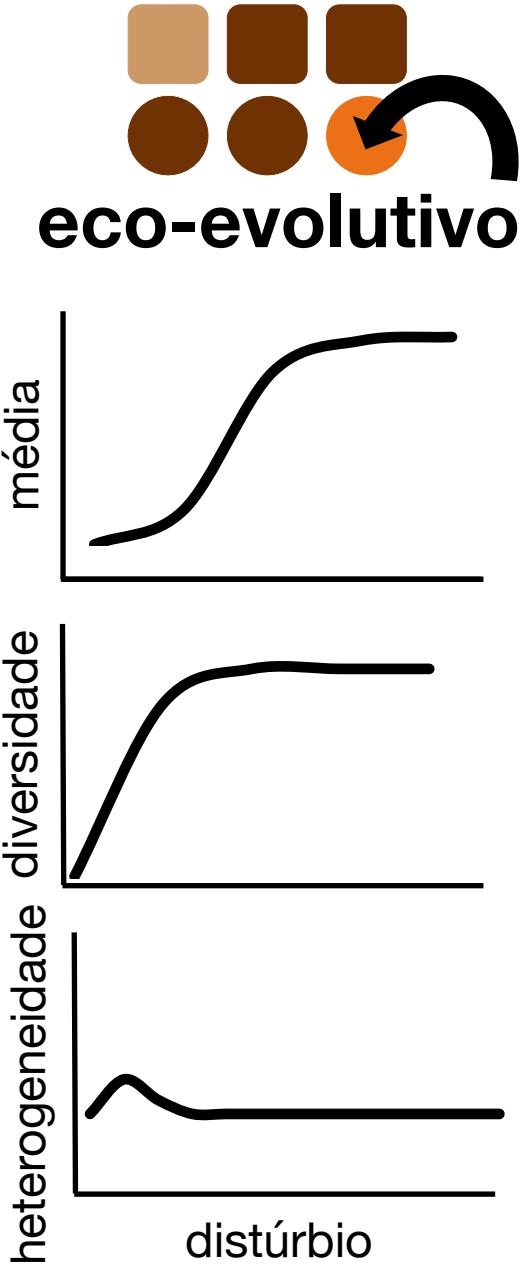
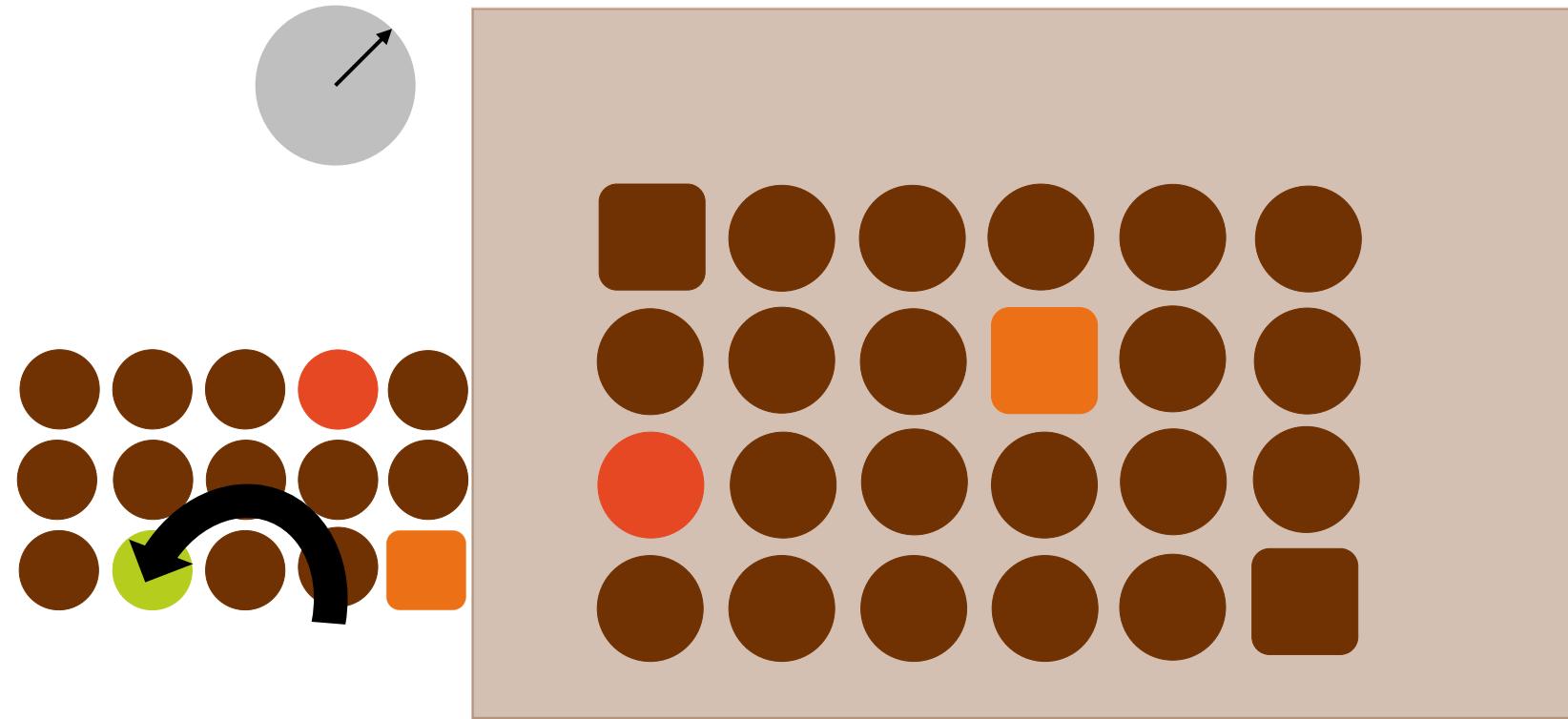
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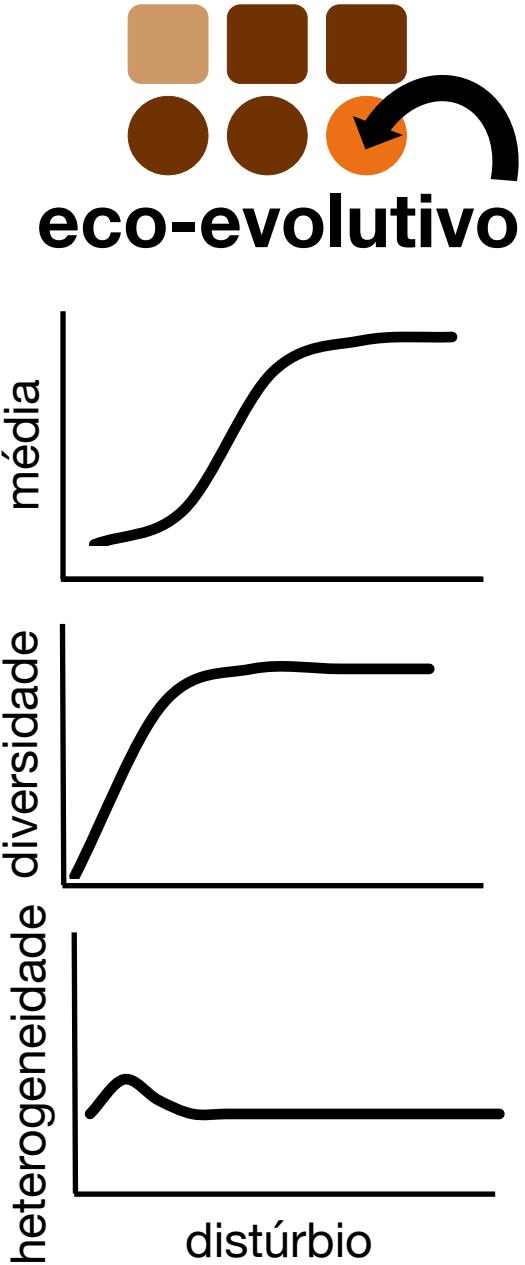
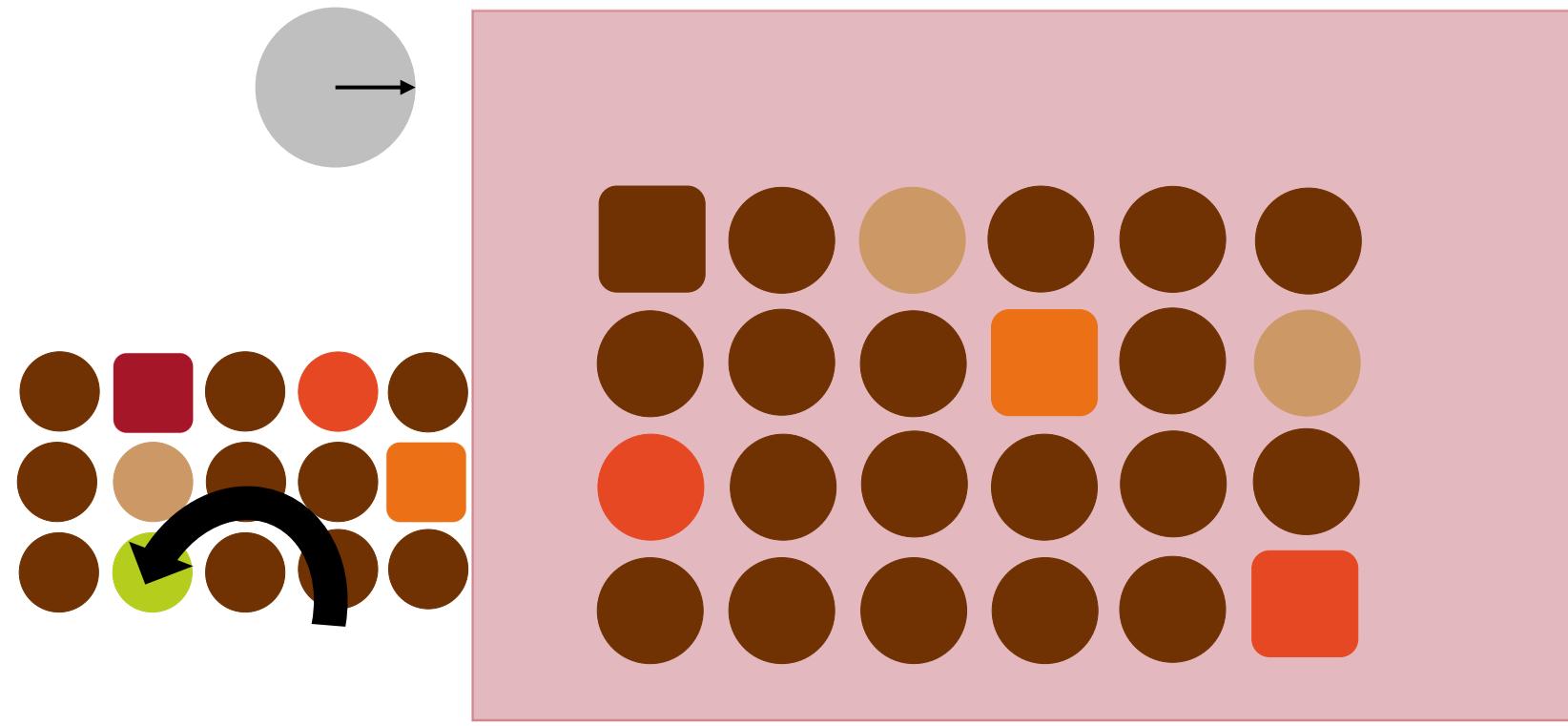
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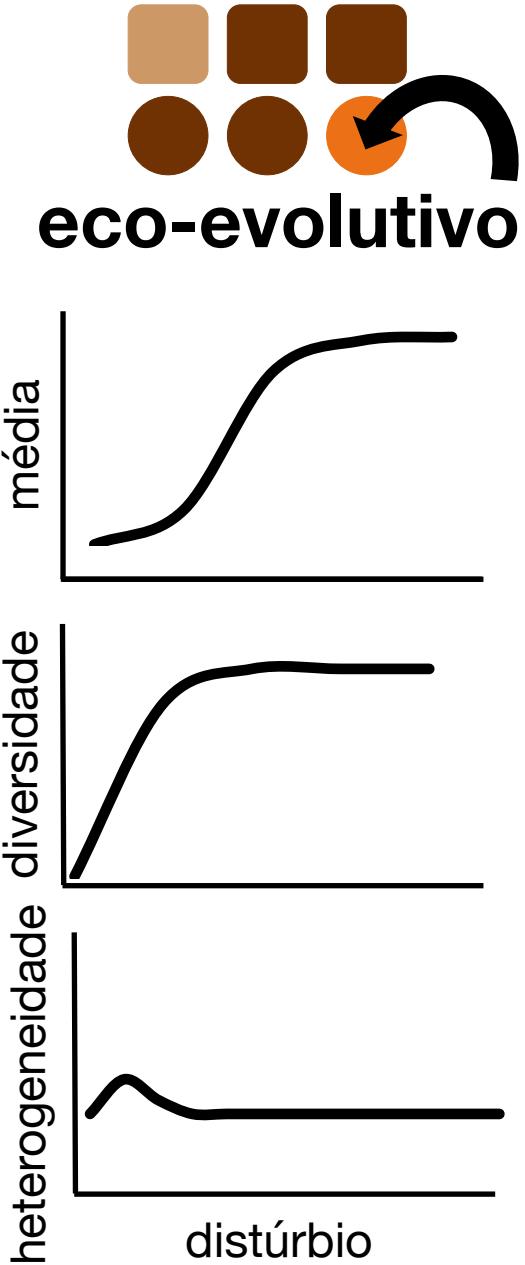
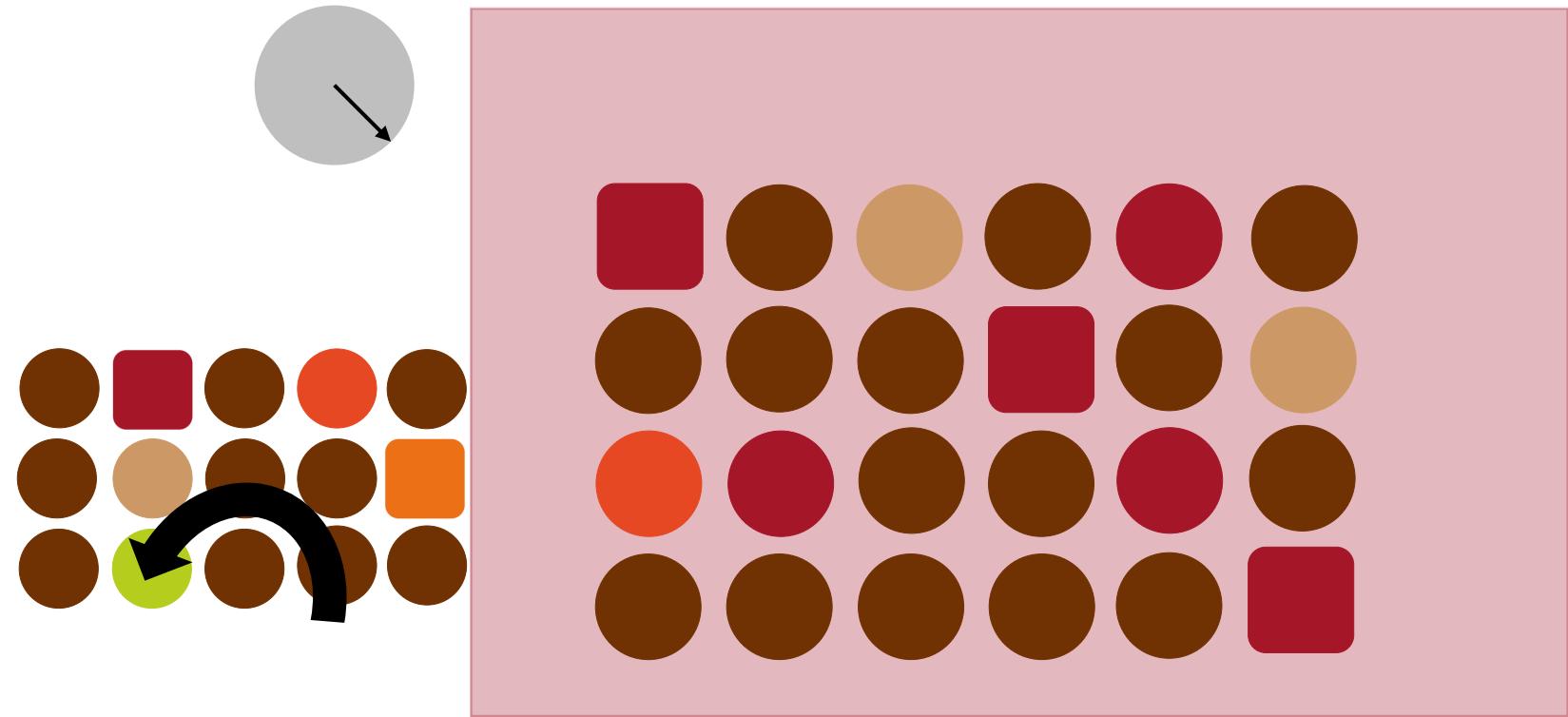
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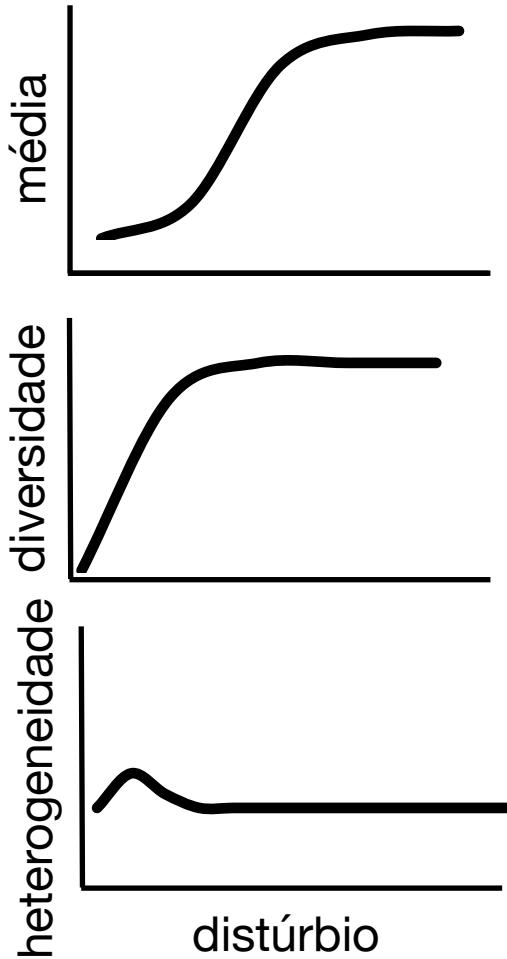
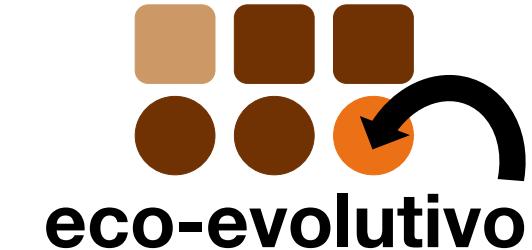
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cenário eco-evolutivo = mutação



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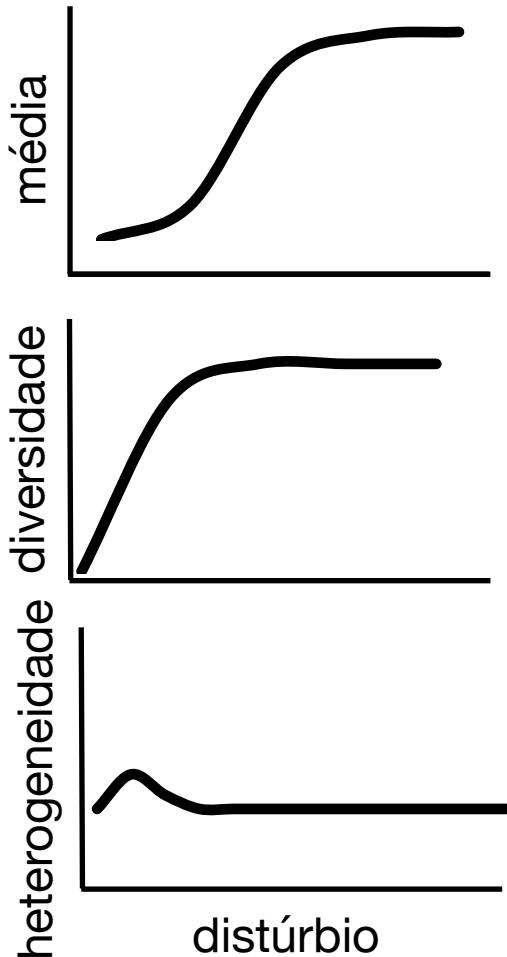
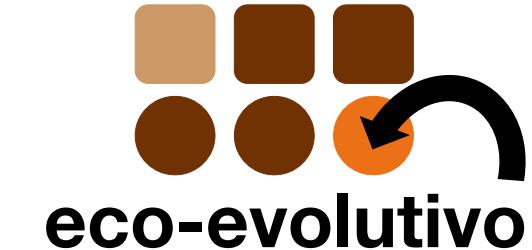
*storage effect:*



# coexistência de estratégias mediada pelo distúrbio

*storage effect:*

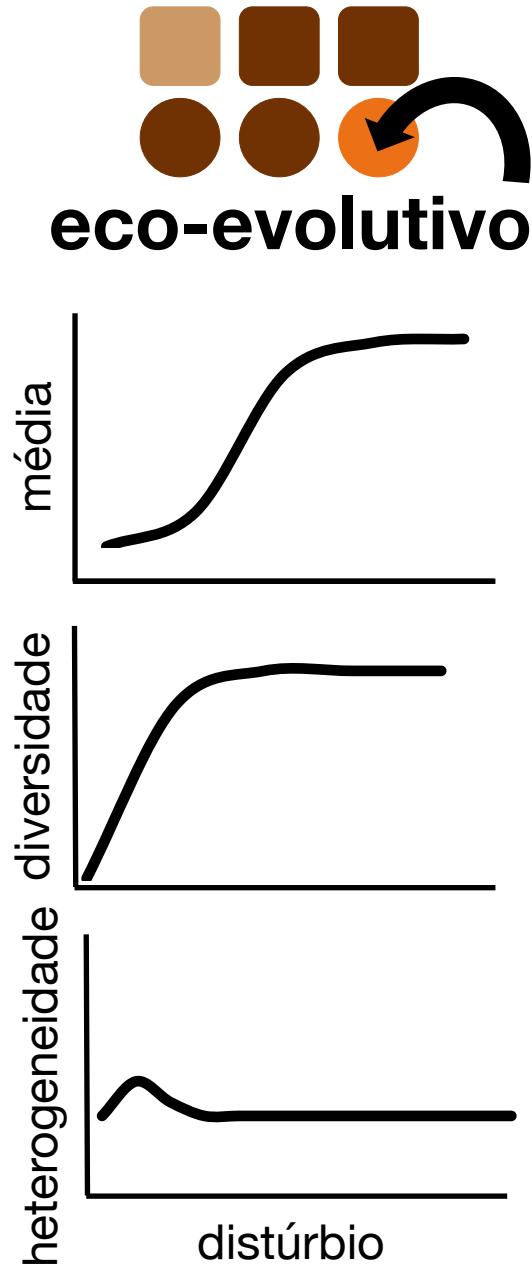
- diferença na resposta ao ambiente



# coexistência de estratégias mediada pelo distúrbio

*storage effect:*

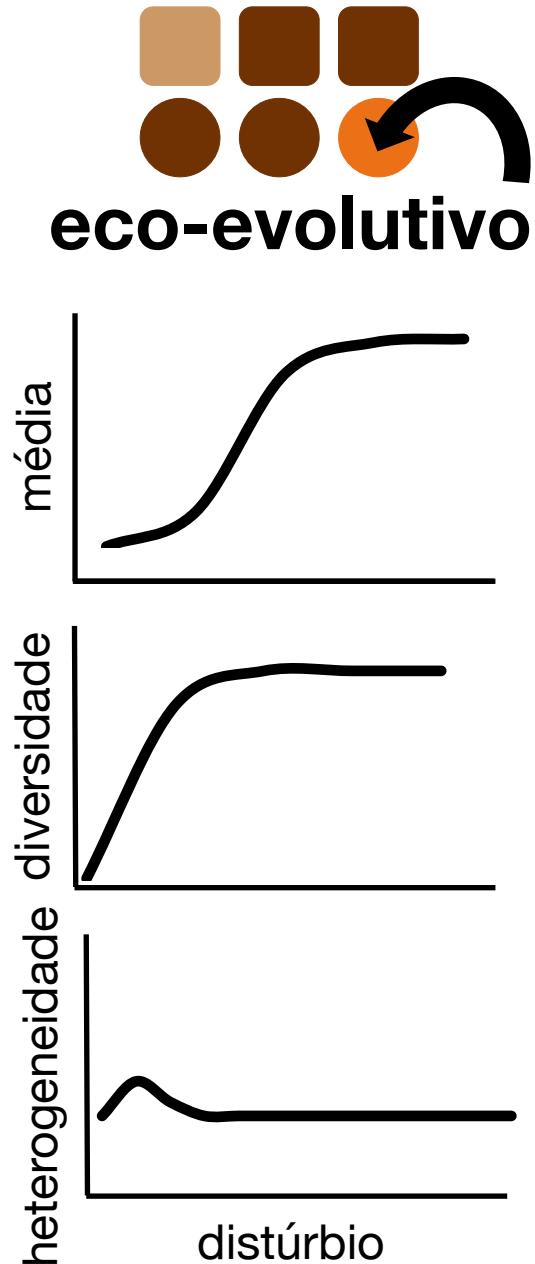
- diferença na reposita ao ambiente
- crescimento populacional tamponado



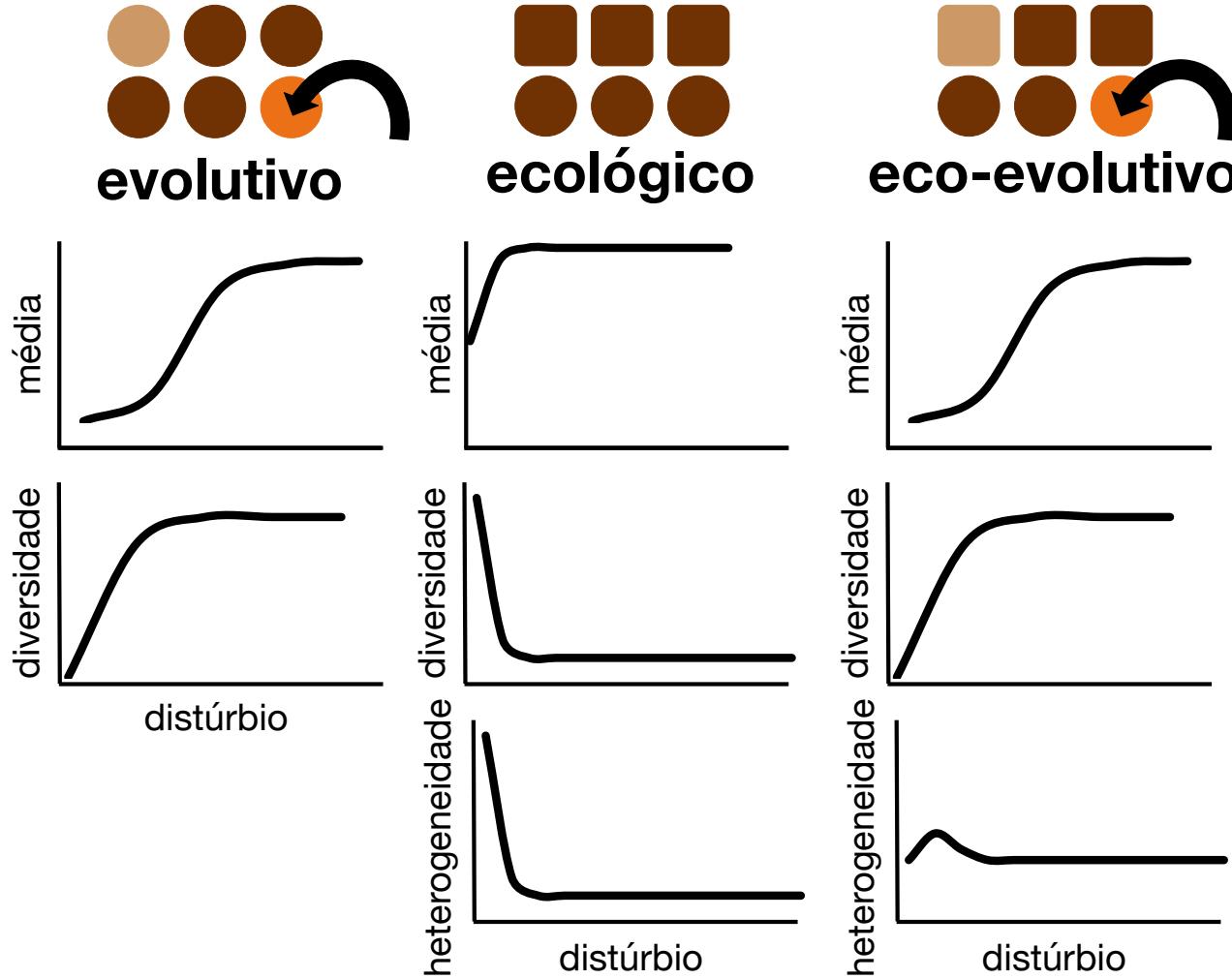
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*storage effect:*

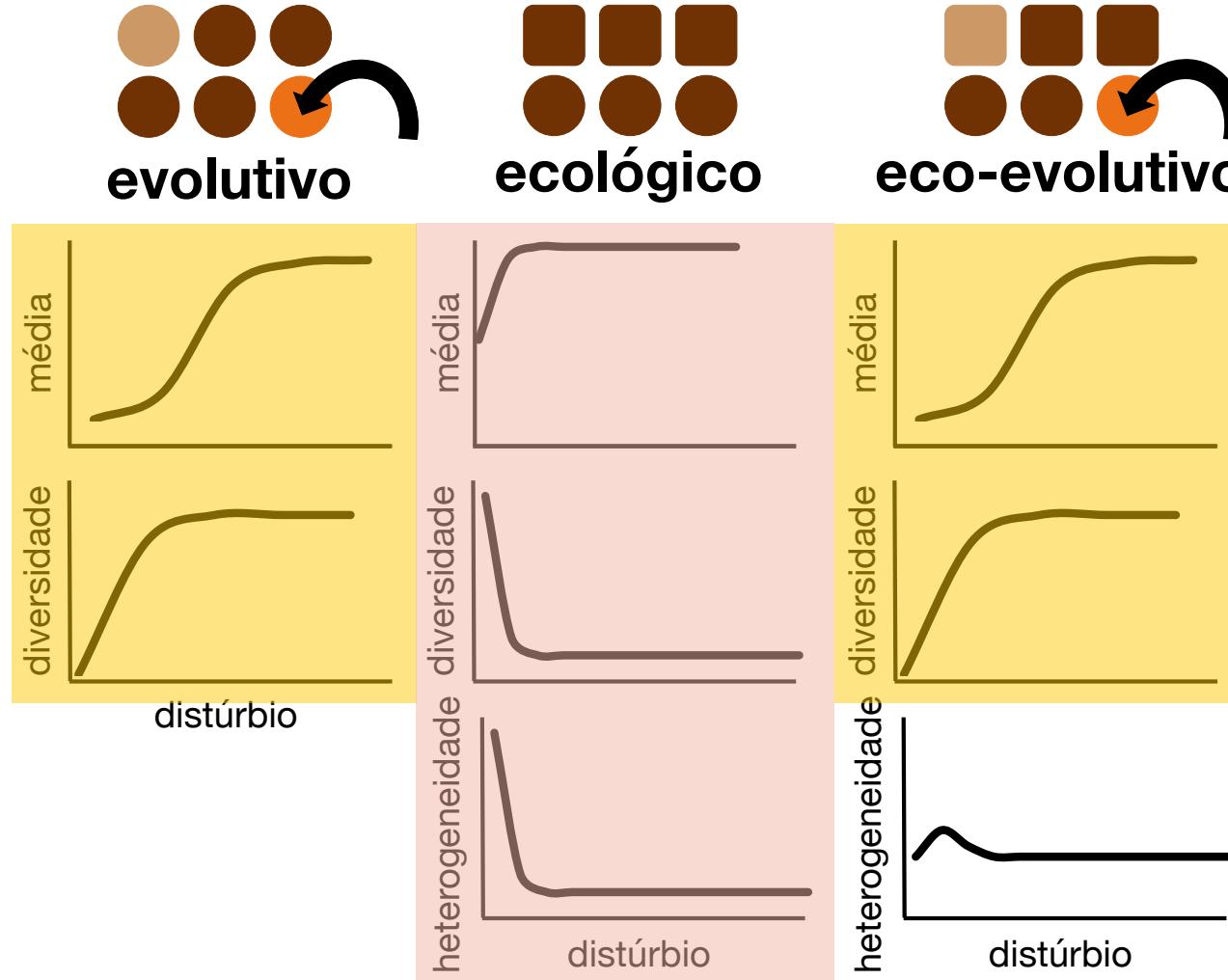
- diferença na resposta ao ambiente  
(isolamento reprodutivo das espécies)
- crescimento populacional tamponado  
(mutação)



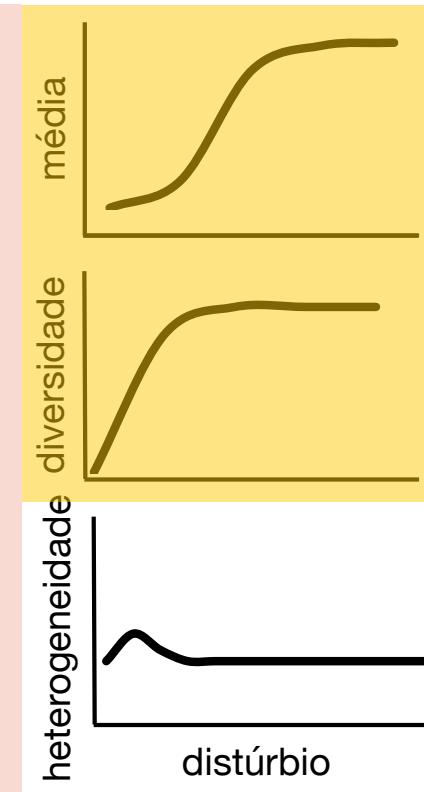
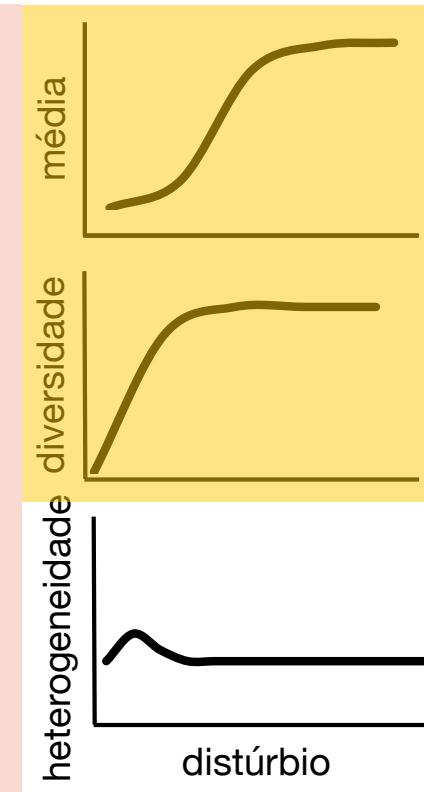
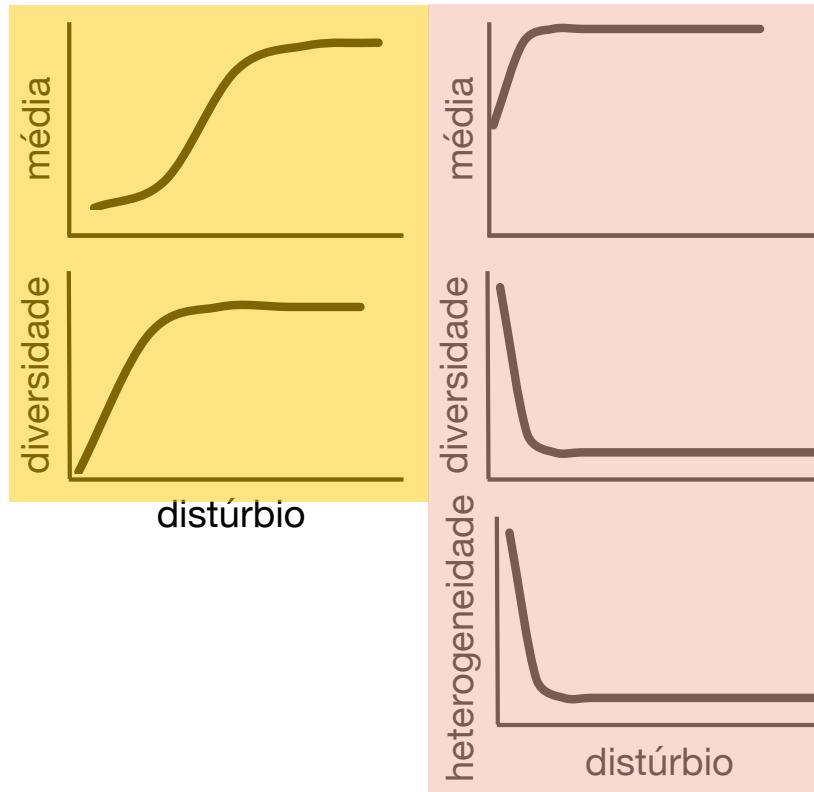
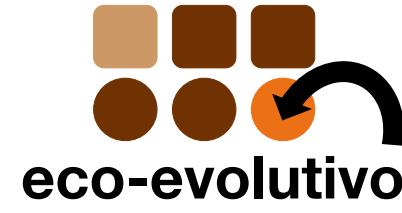
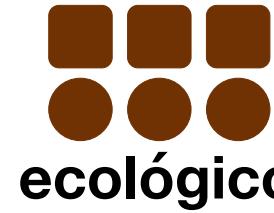
# cenários



# cenários

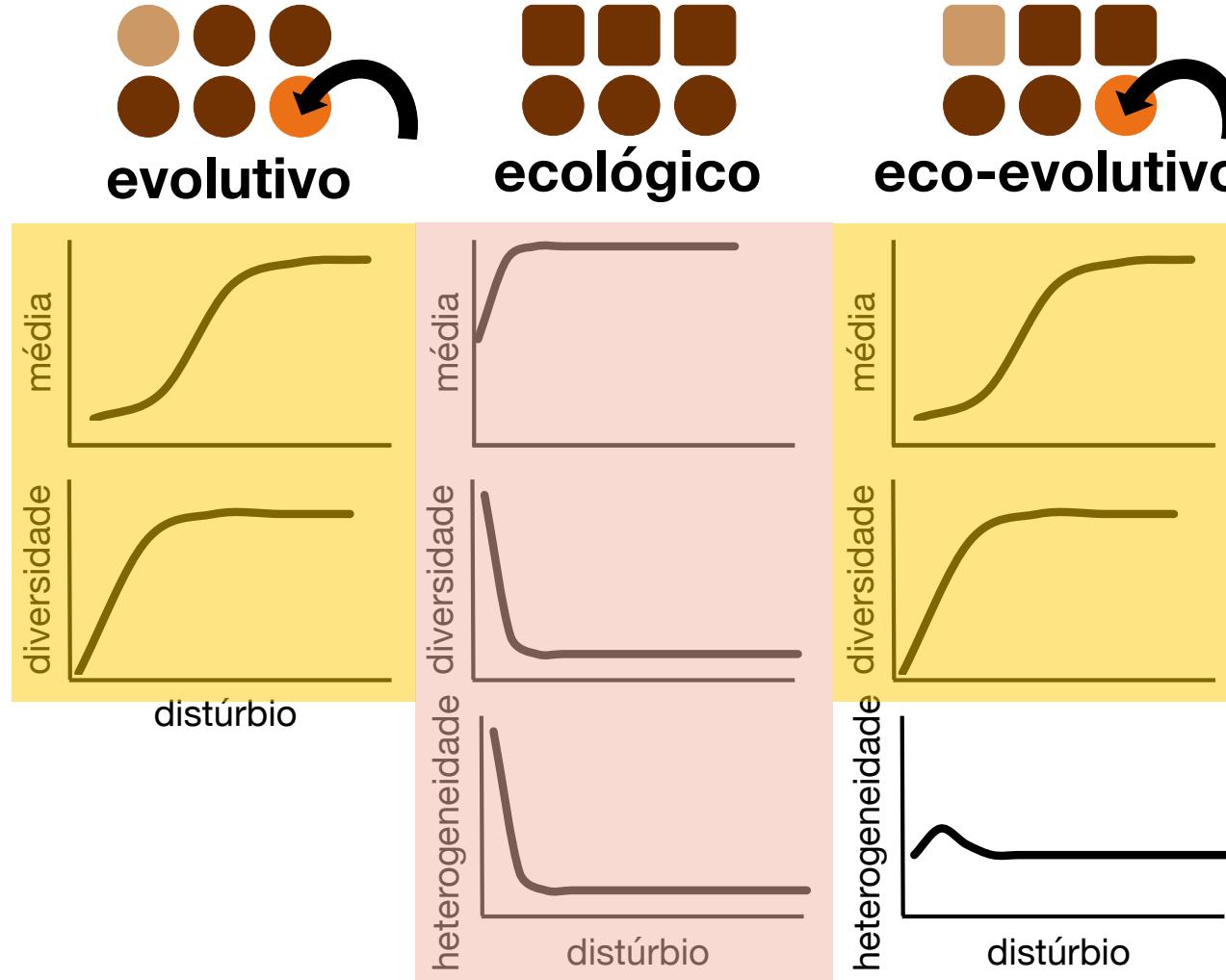


# cenários



# mutação

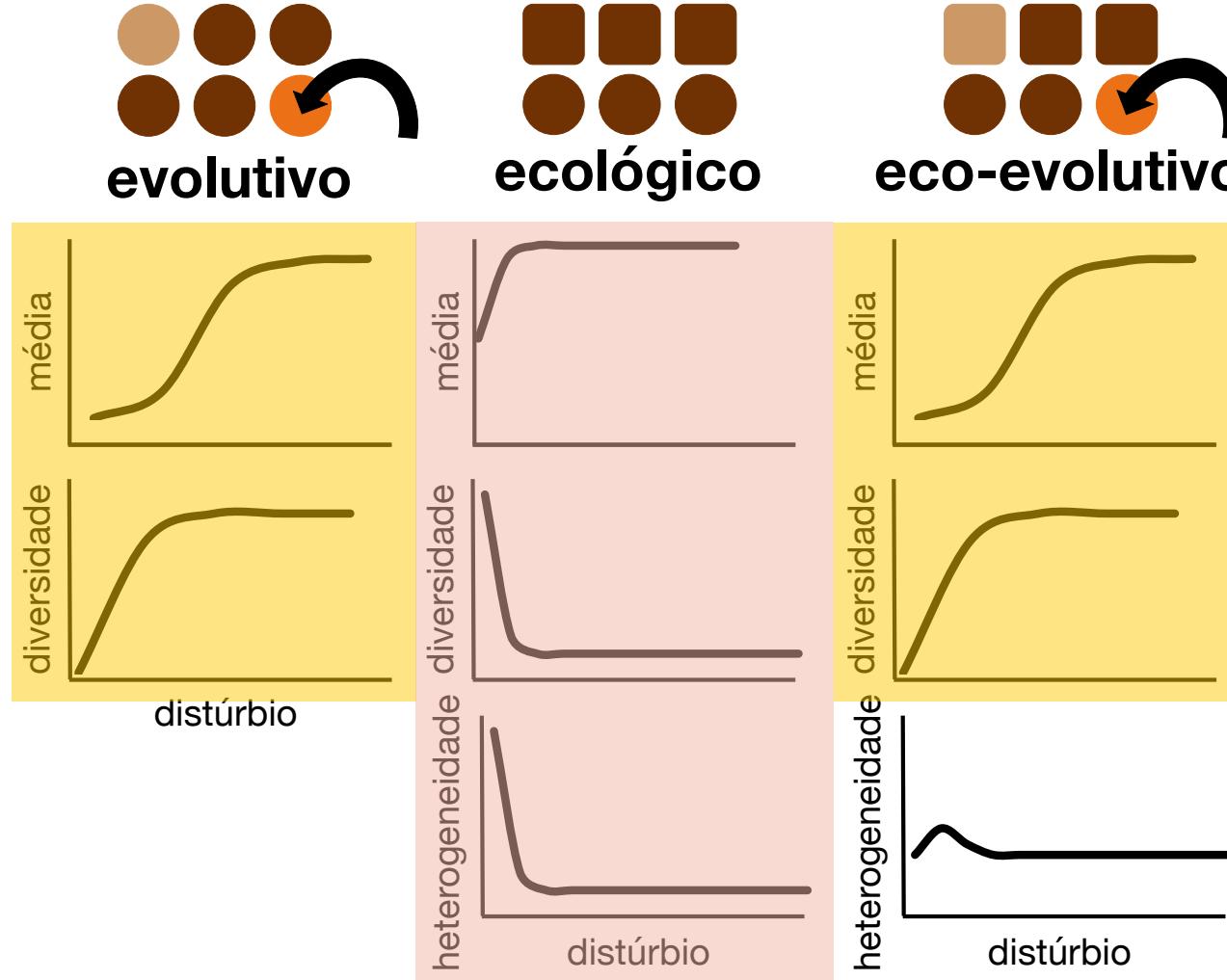
# cenários



# mutação

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

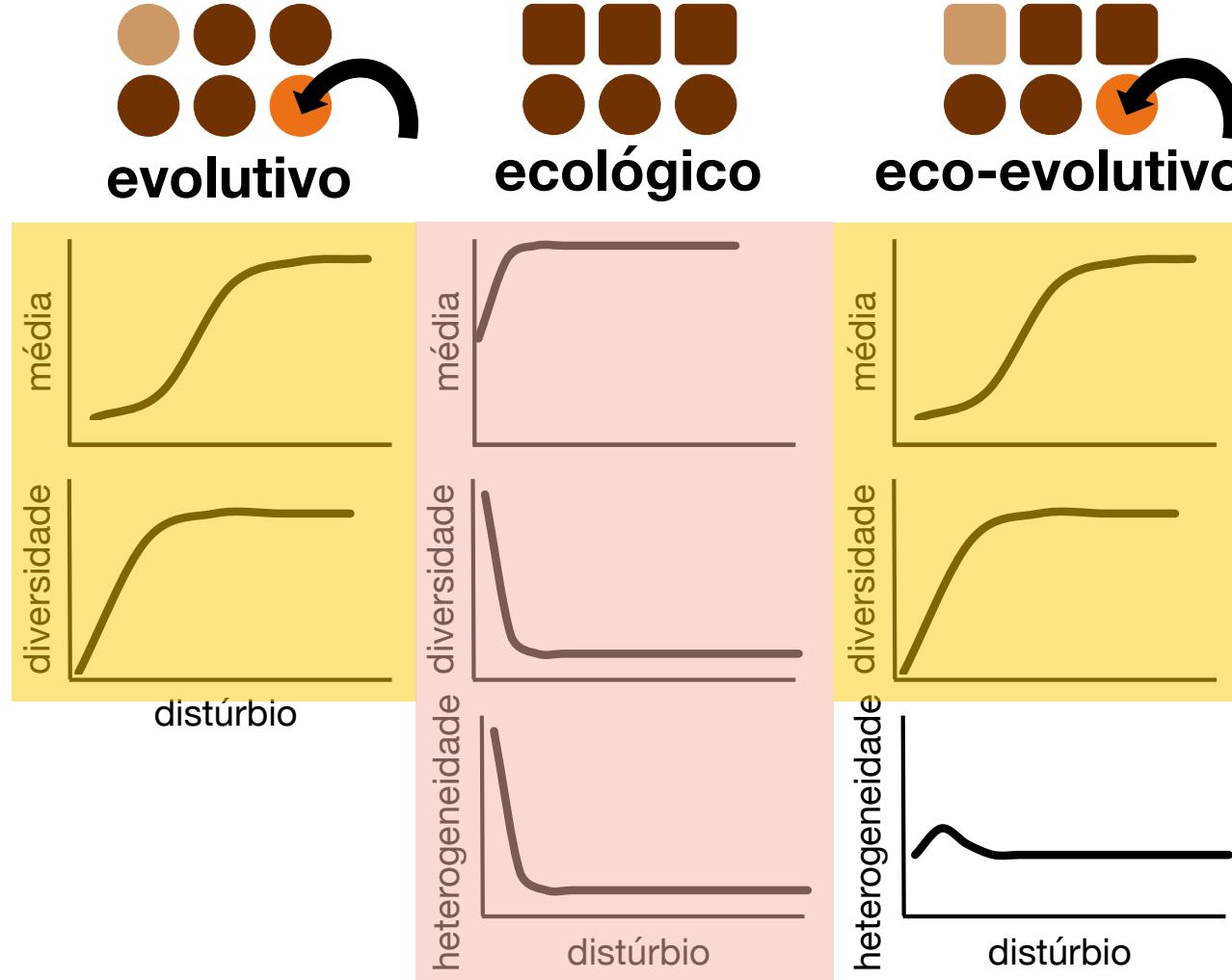
# cenários



# 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

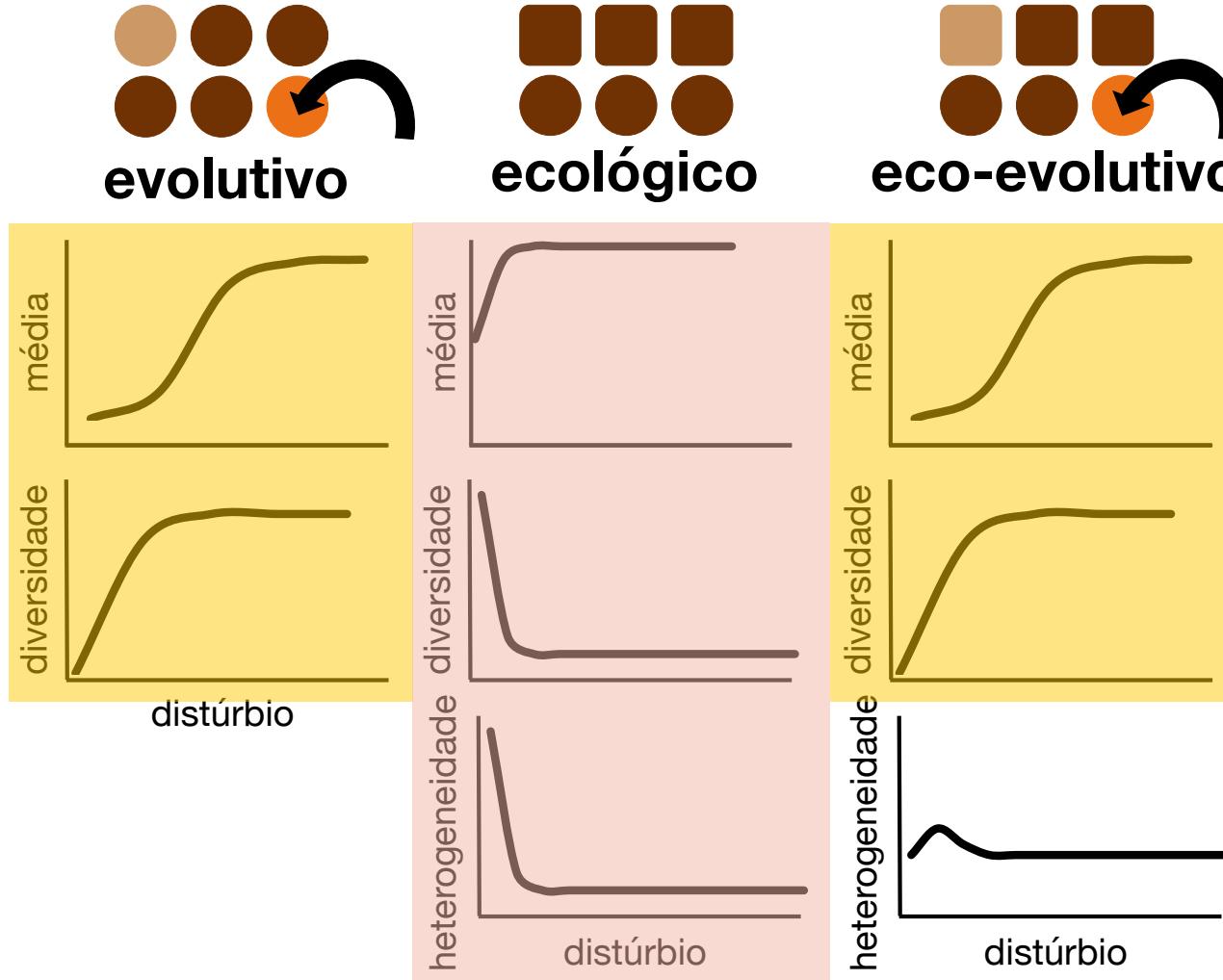
# cenários



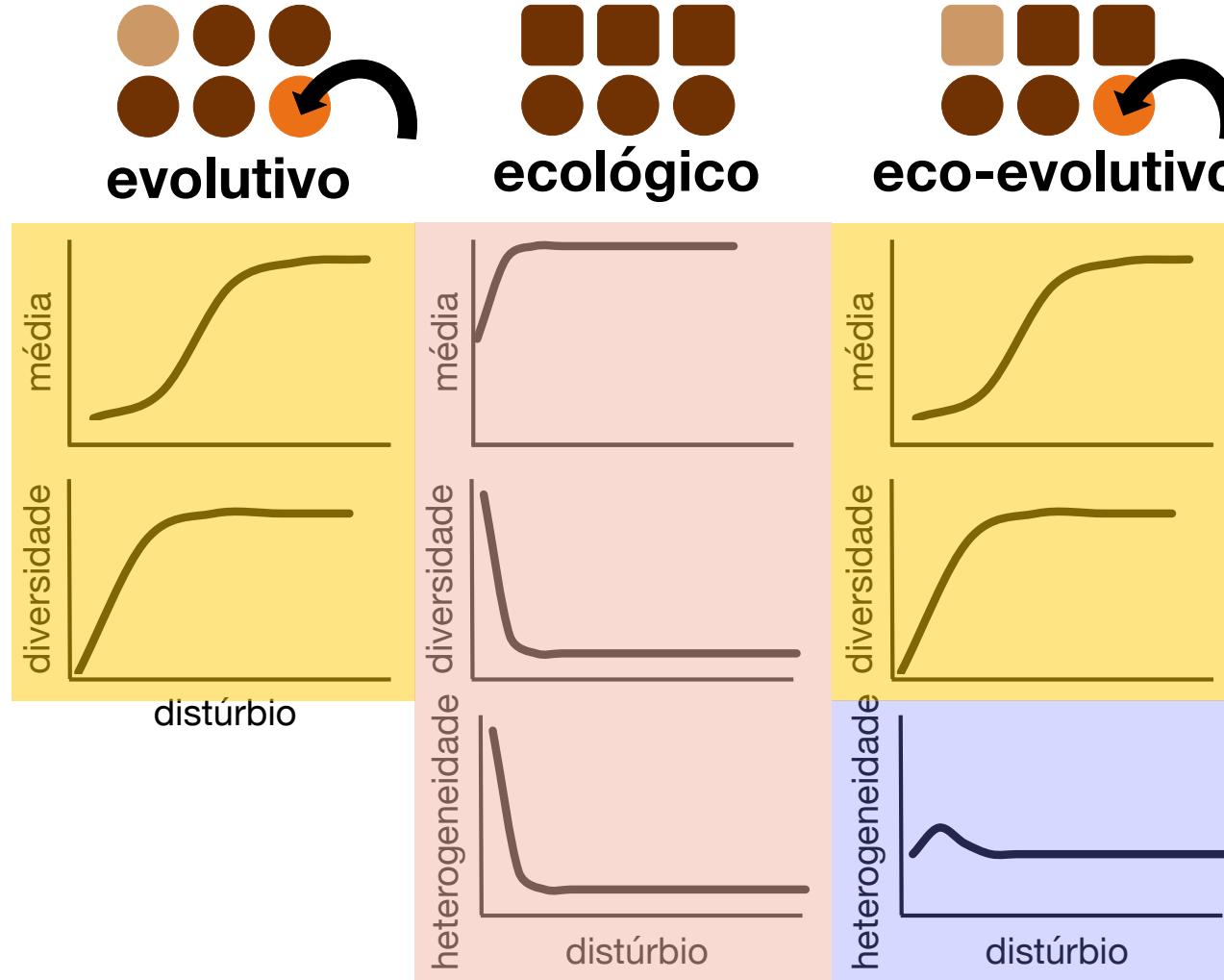
# mutação

- 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

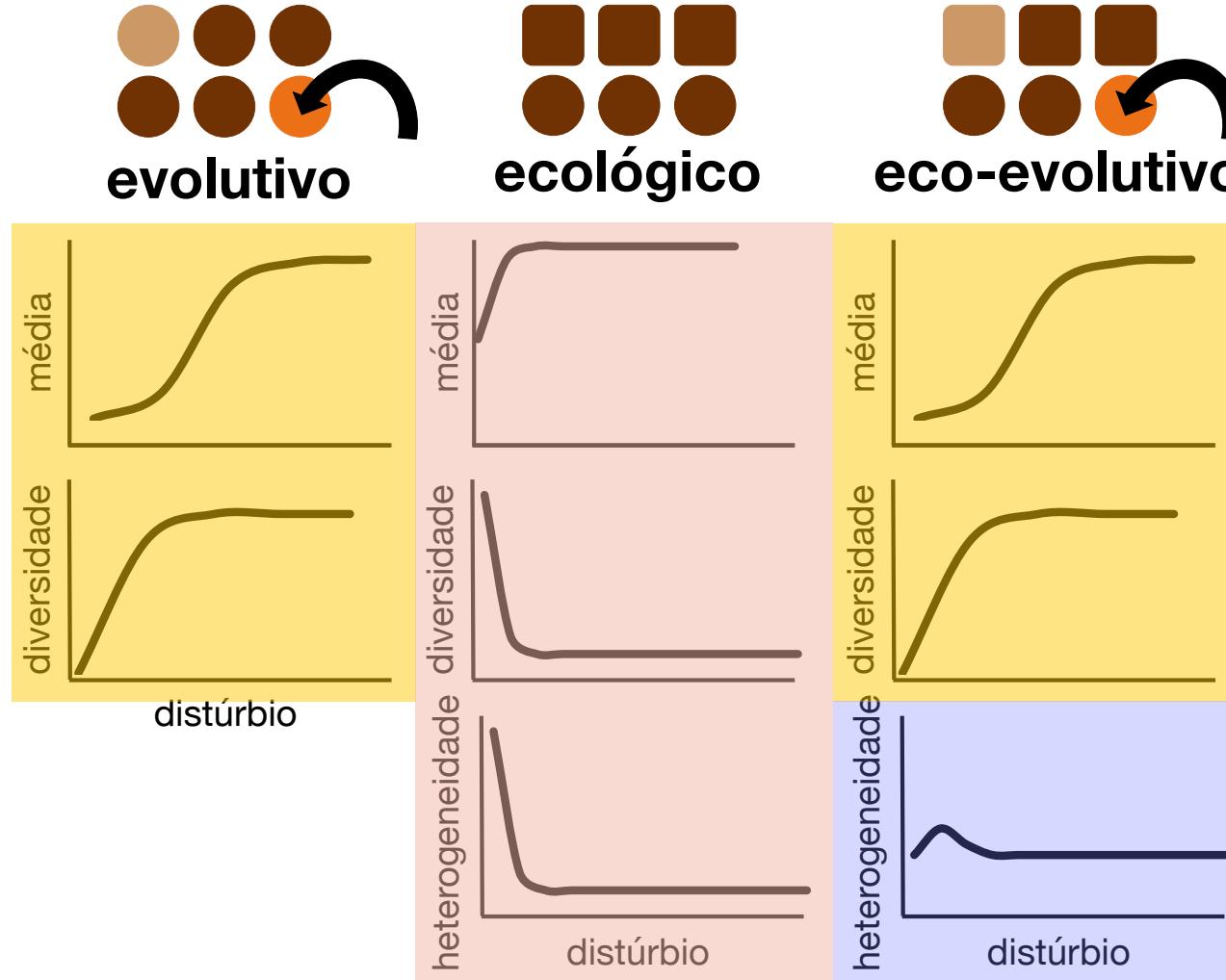
# cenários



# cenários

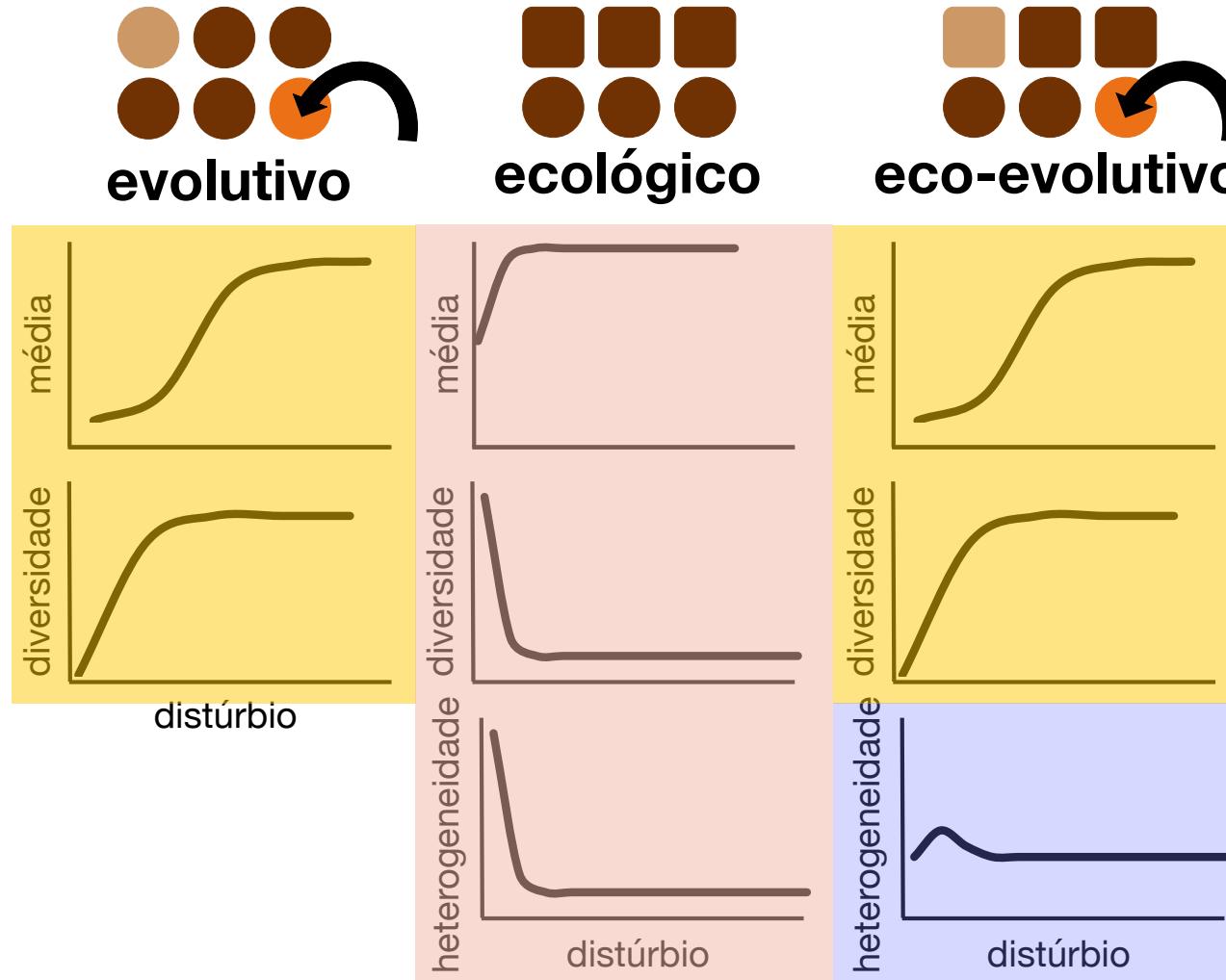


# cenários



# interação eco-evo

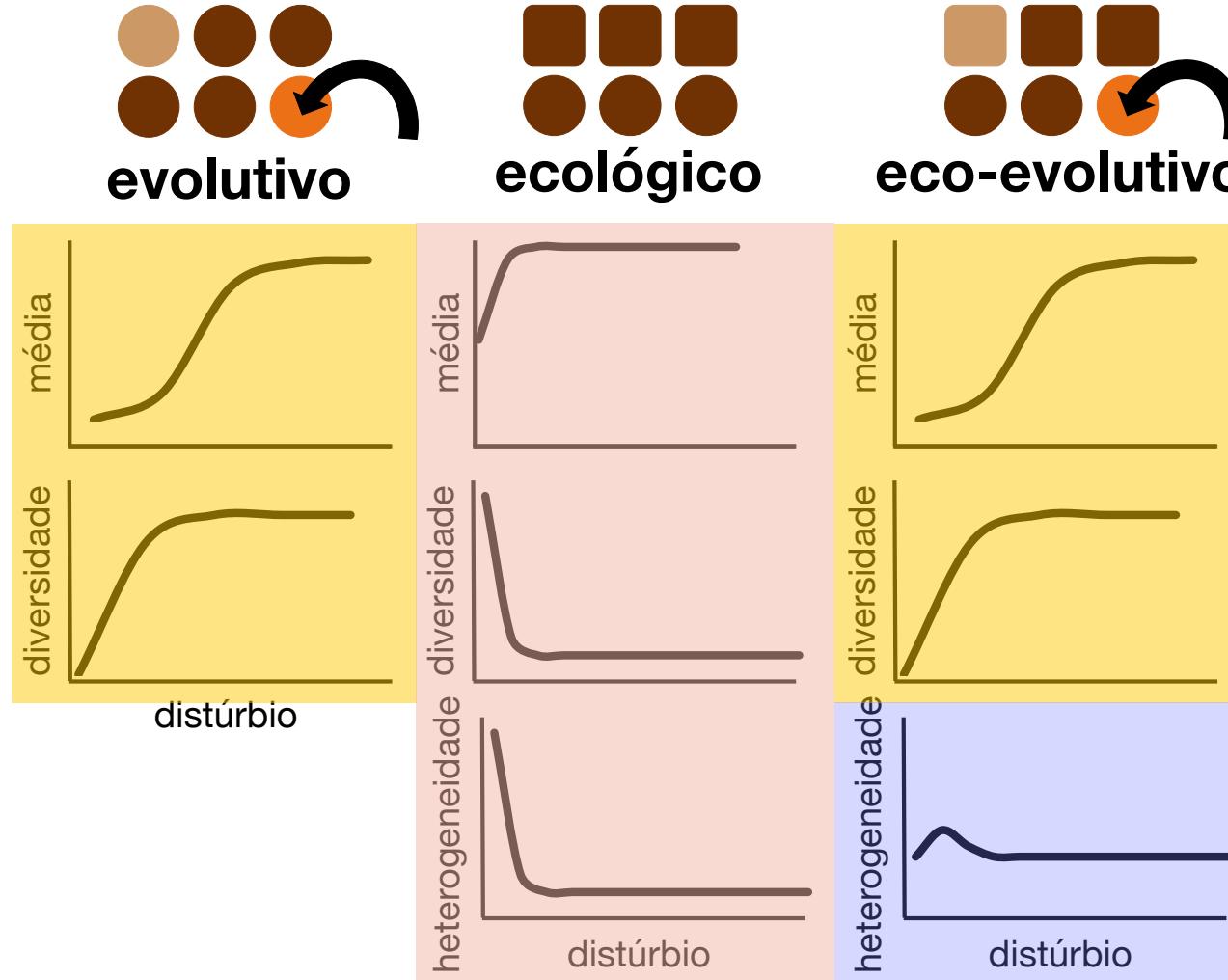
# cenários



# interação eco-evo

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

# cenários



# interação eco-evo

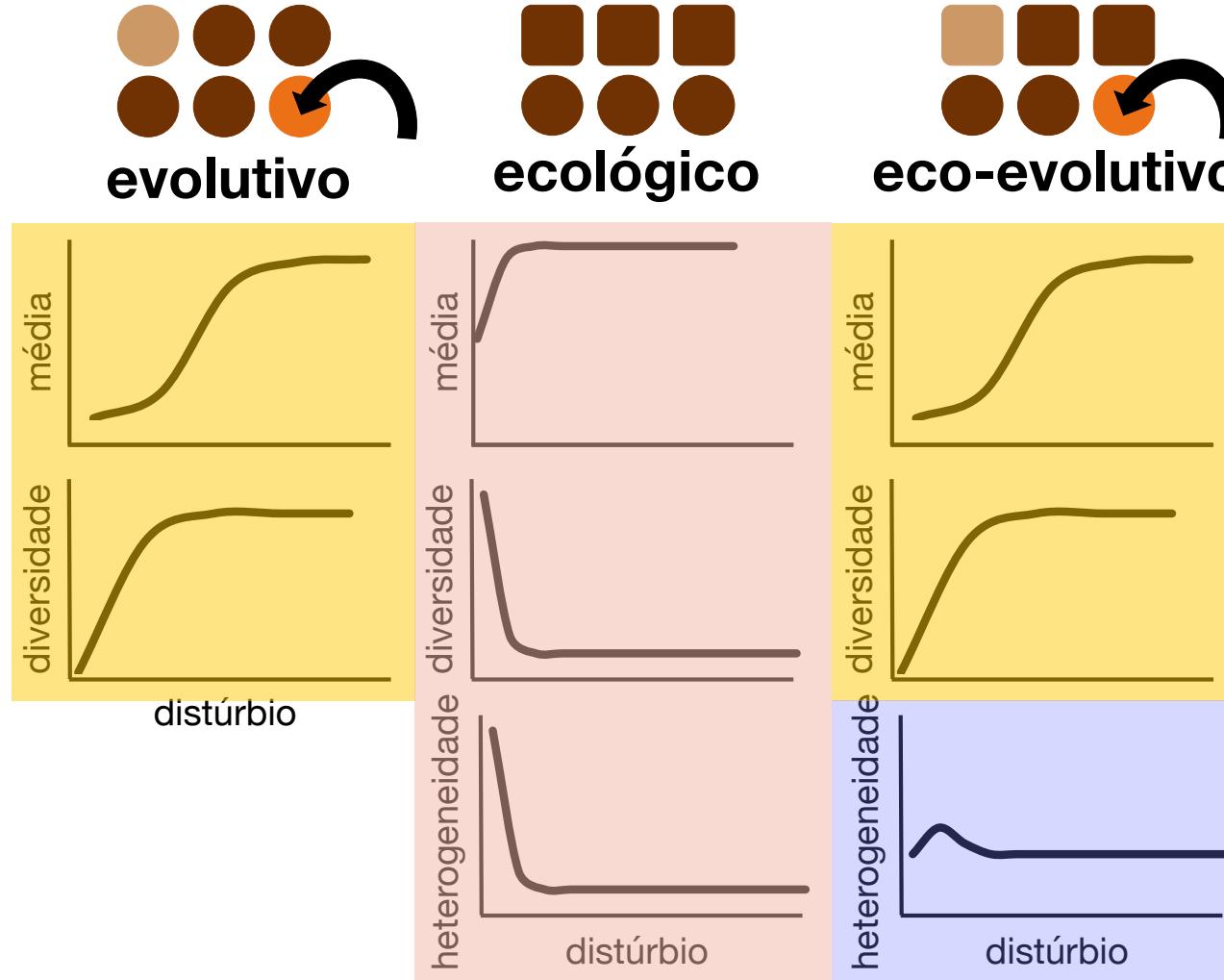
- entrada de variação por mutação
- competição entre linhagens isoladas (espécies diferentes)
- coexistência de estratégias distintas mediadas por distúrbio



## Ecologia

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

# cenários



ainda assim...



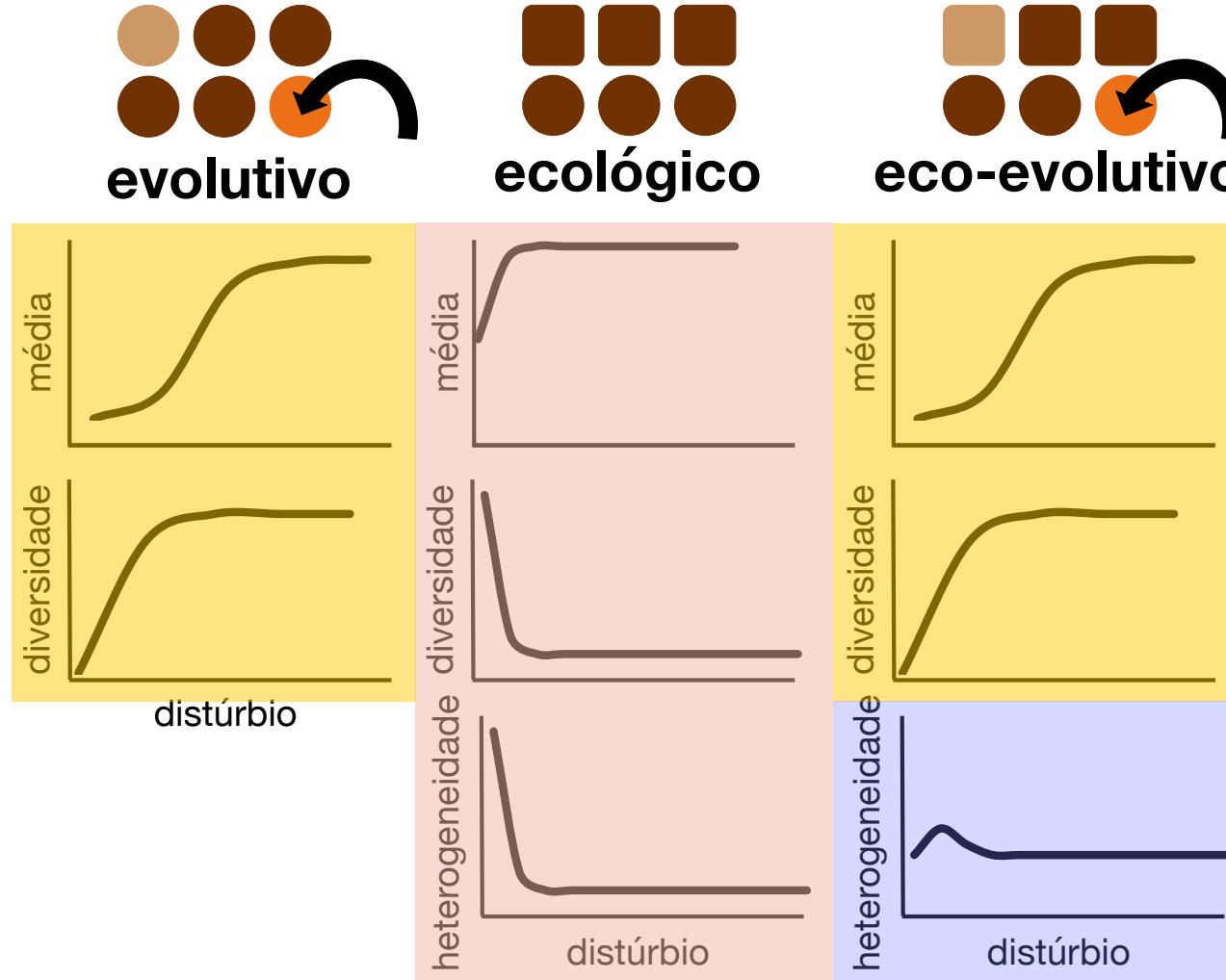
## Ecologia

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

## Biologia Evolutiva

- desconsidera contexto multiespecífico
- possíveis consequências:
  - não acessar padrões que emergem em escalas maiores
  - limitar-se a escalas que não explicam a maior parte da diversidade

# cenários



# conclusões

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- 
-

# conclusões

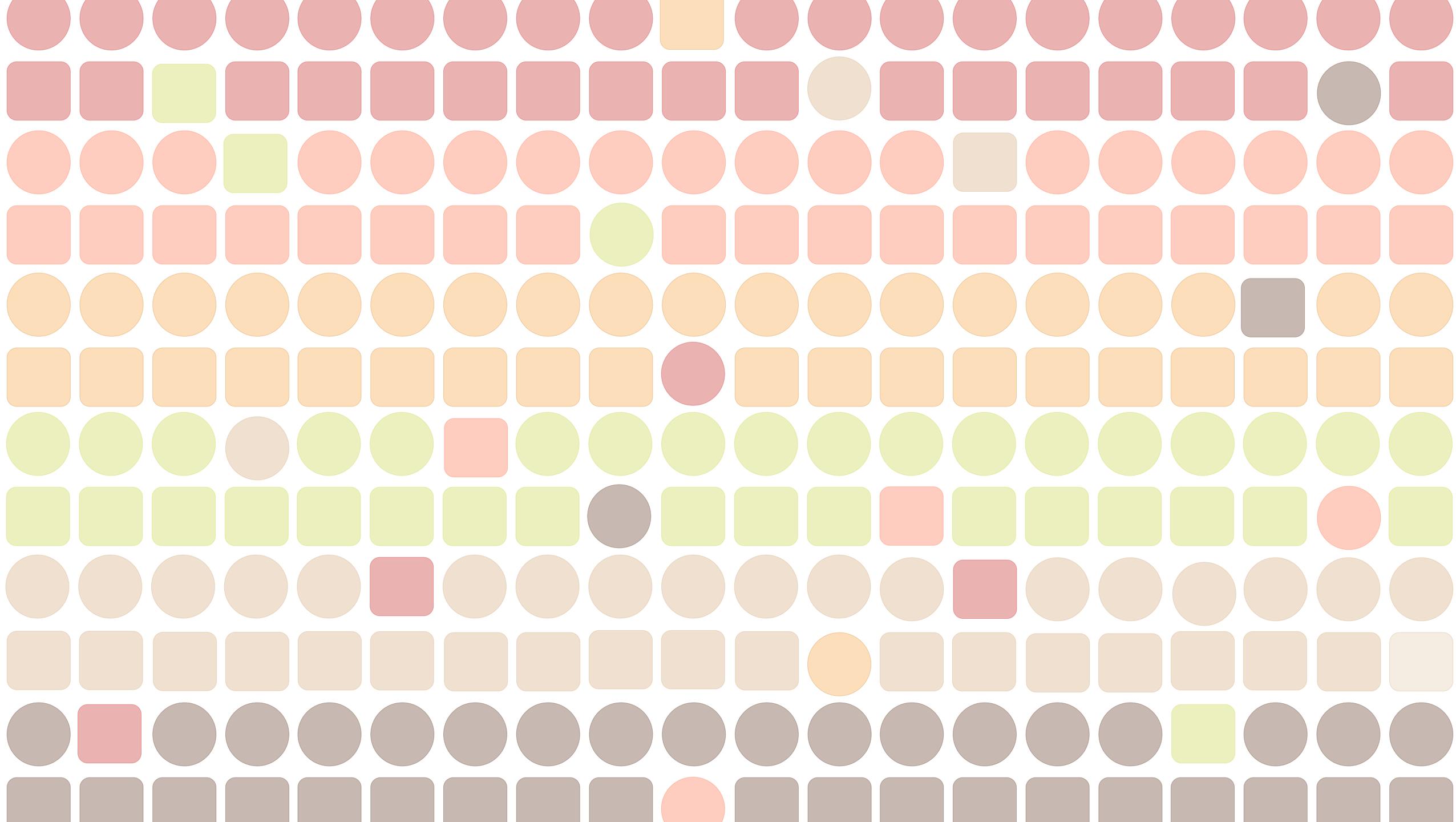
- efeito do distúrbio nas estratégias de vida é diferente comparando dinâmicas ecológicas e evolutivas
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# conclusões

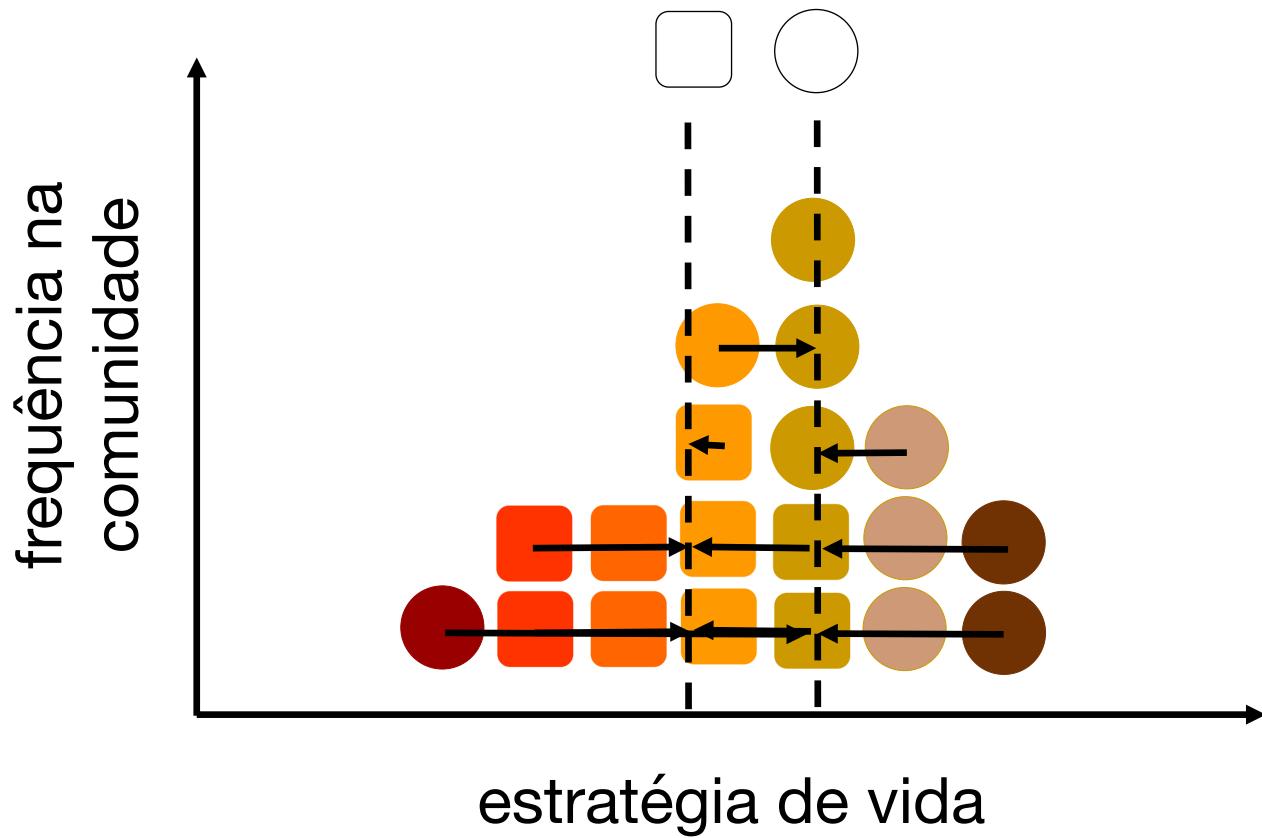
- efeito do distúrbio nas estratégias de vida é diferente comparando dinâmicas ecológicas e evolutivas
- há padrões que emergem apenas em dinâmicas eco-evolutivas
-

# conclusões

- efeito do distúrbio nas estratégias de vida 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, na interface entre Biologia Evolutiva e Ecologia



# variáveis de interesse



média da estratégia

variância total da estratégia

variância interespecífica da estratégia

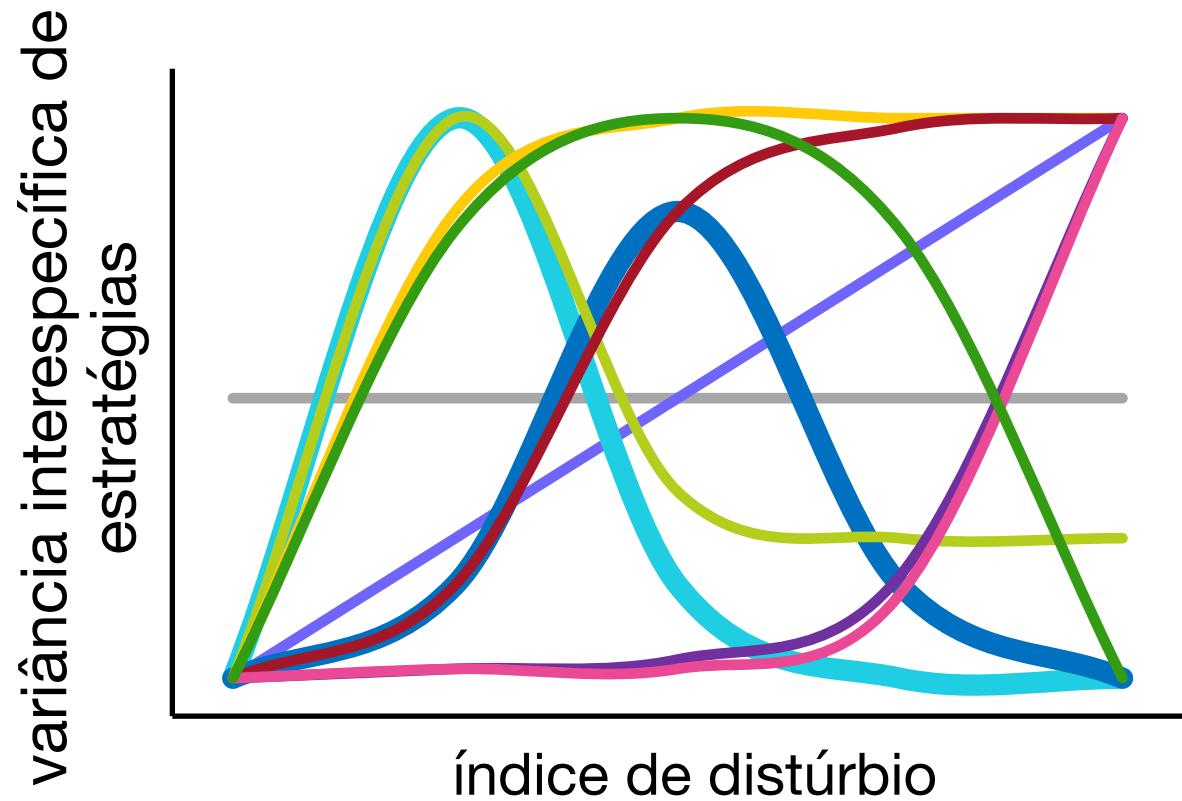
**estratégia média**

**diversidade de estratégias**

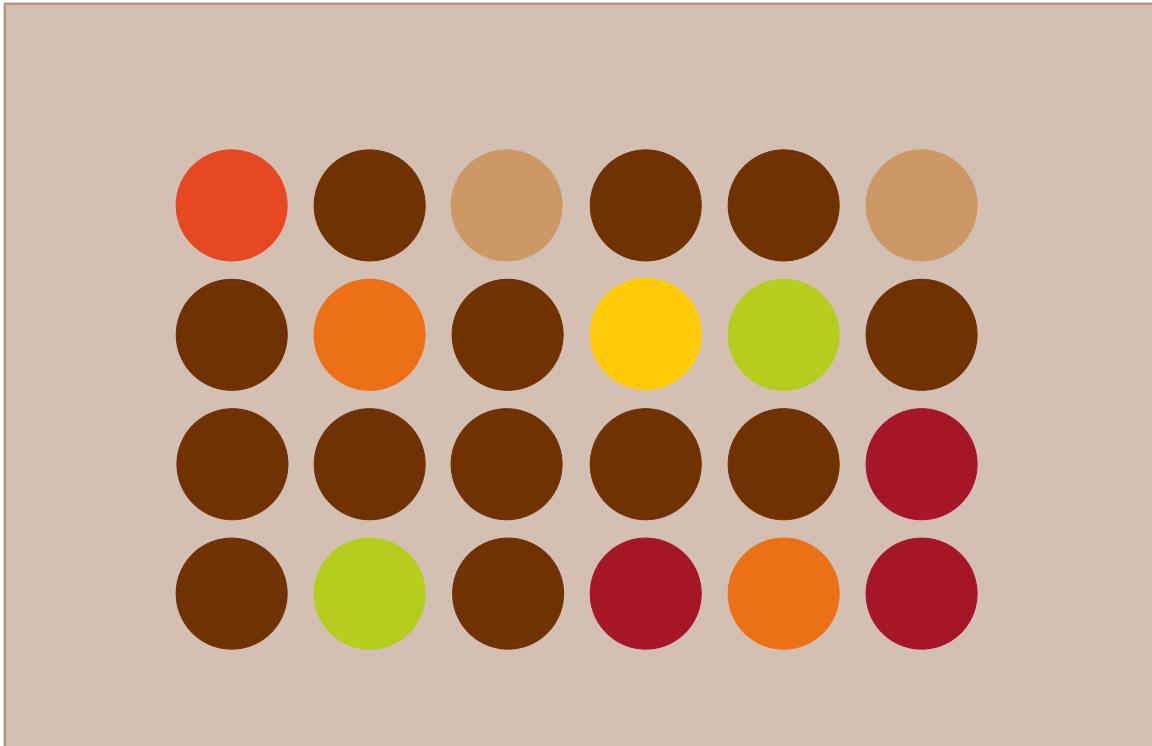
**heterogeneidade interespecífica de estratégias**

variância

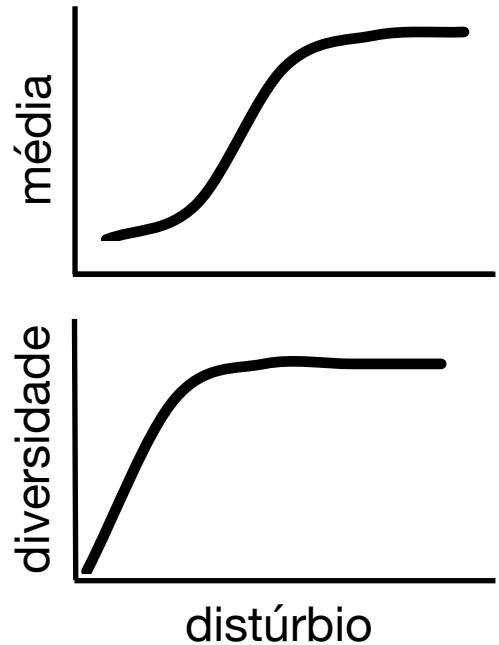
( heterogeneidade interespecífica de ) ~ estratéгias distúrbio



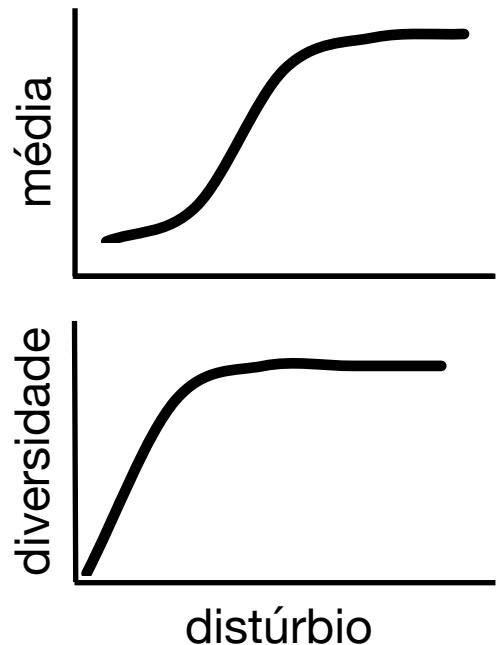
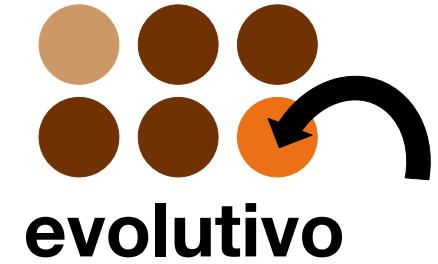
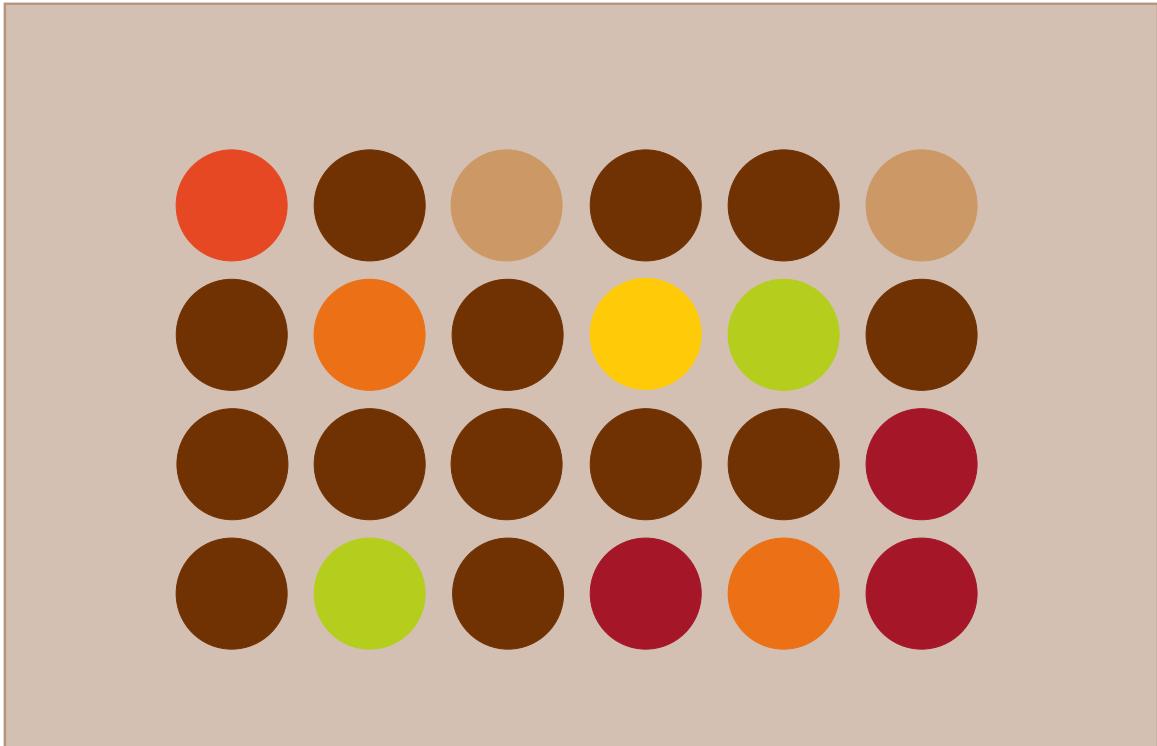
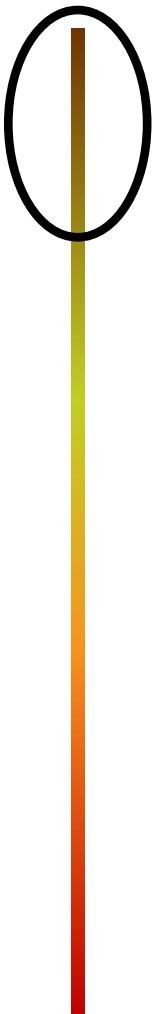
# mutação



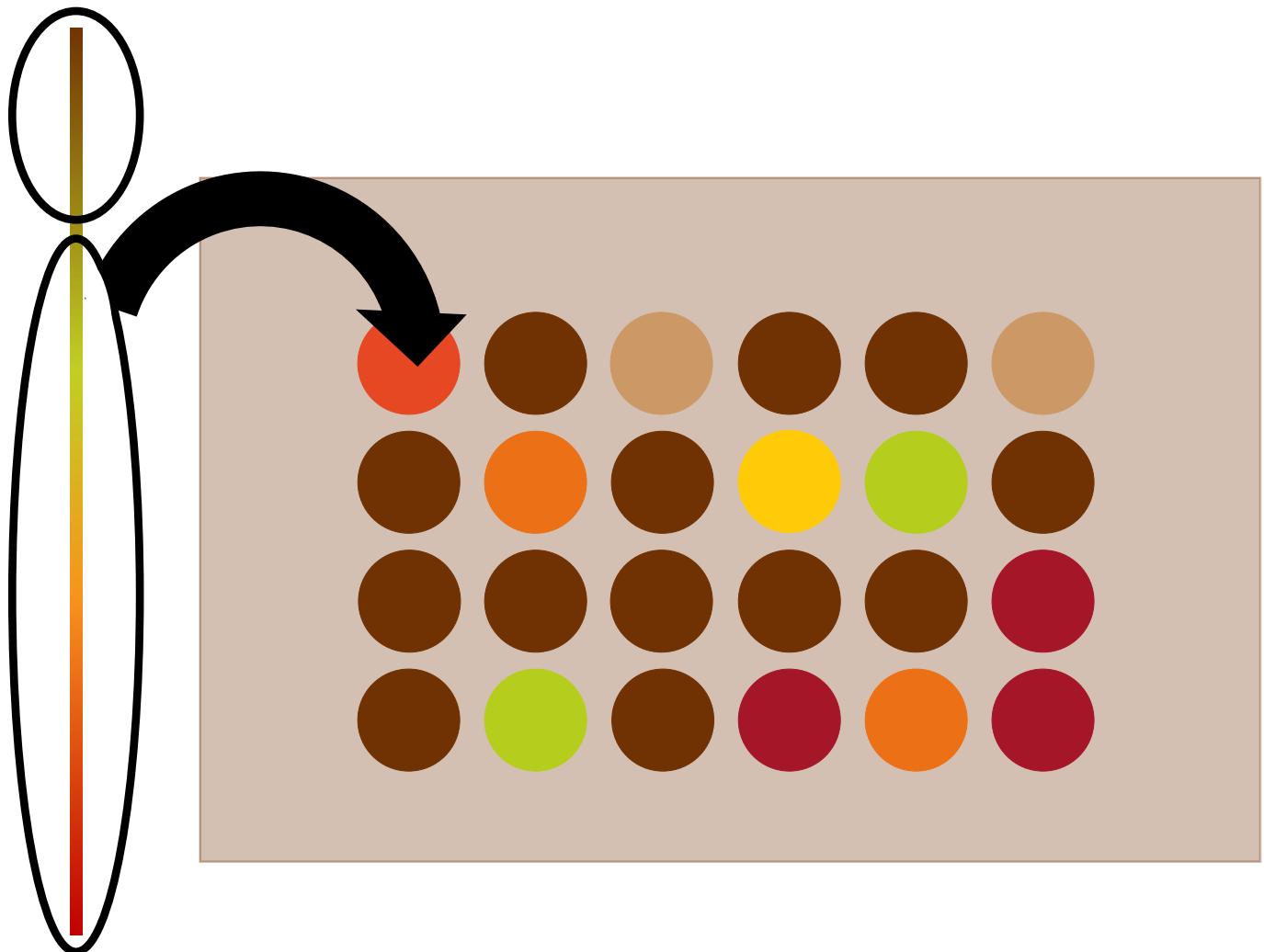
**evolutivo**



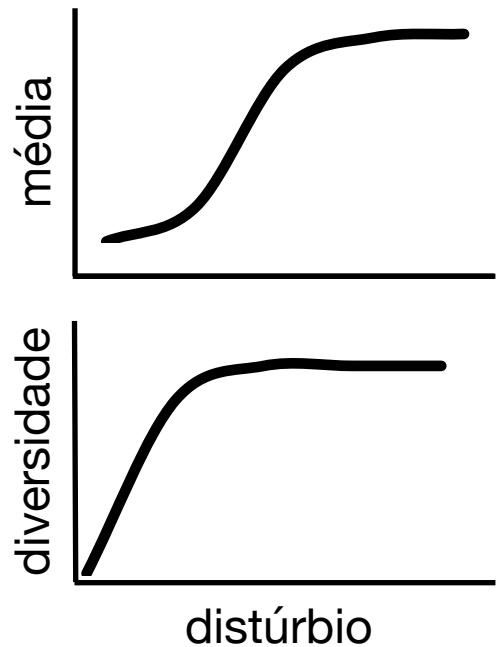
# mutação



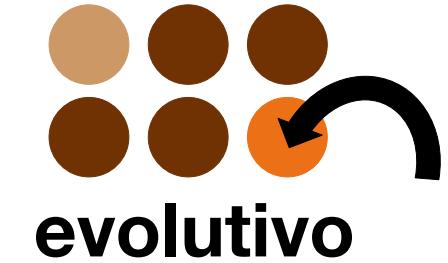
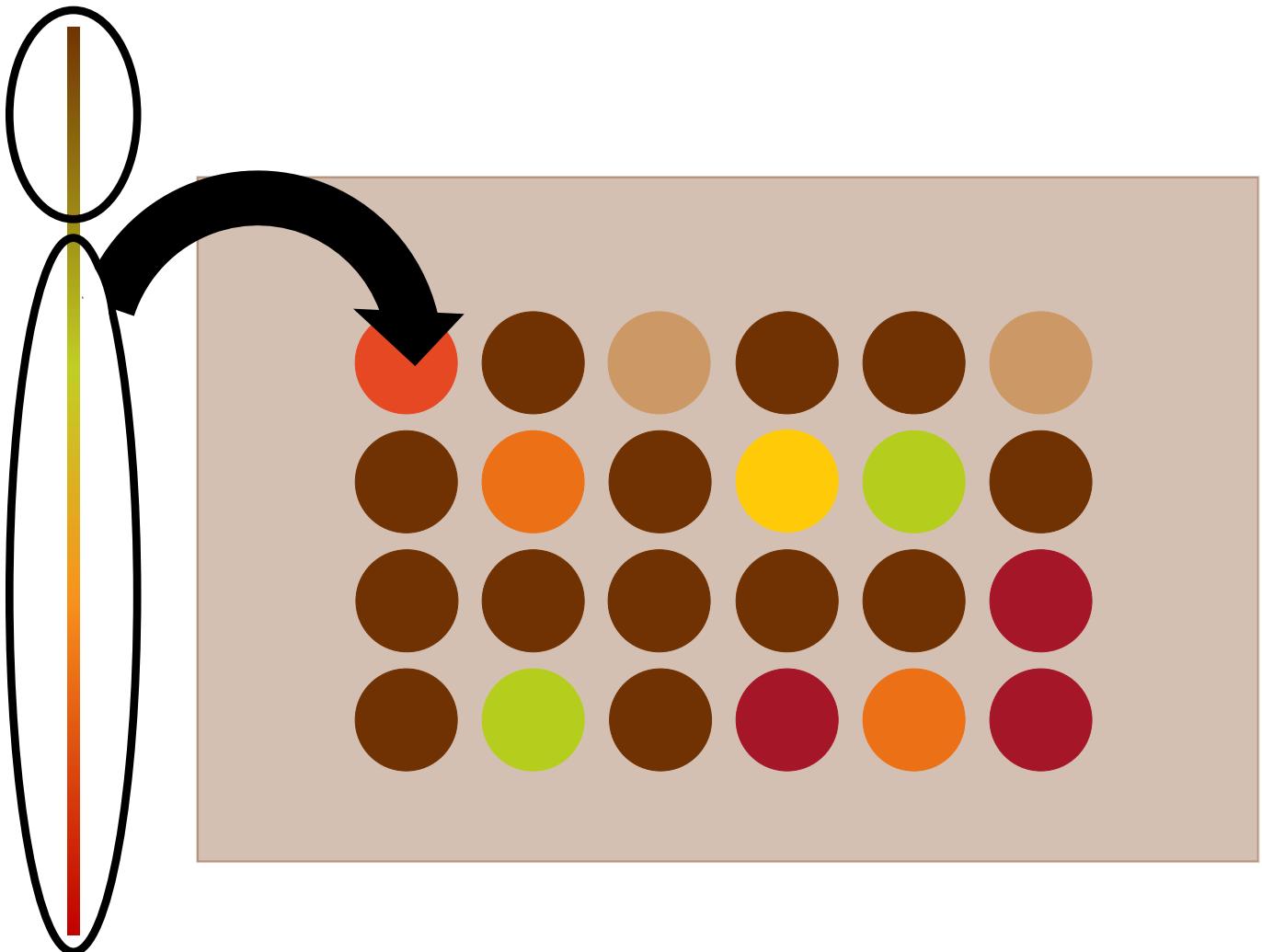
# mutação



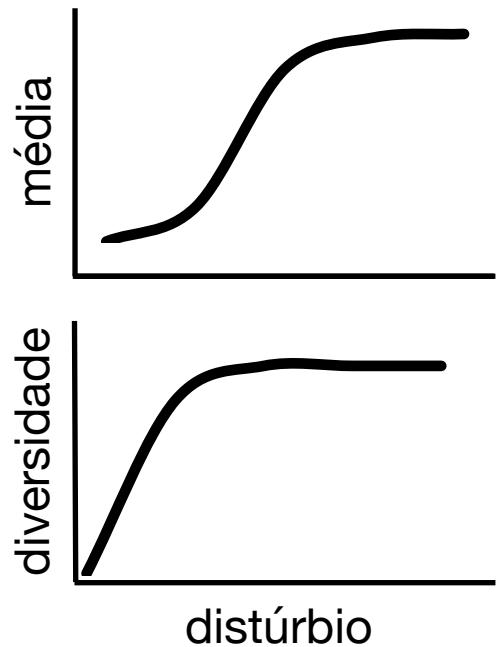
**evolutivo**



# produtividade



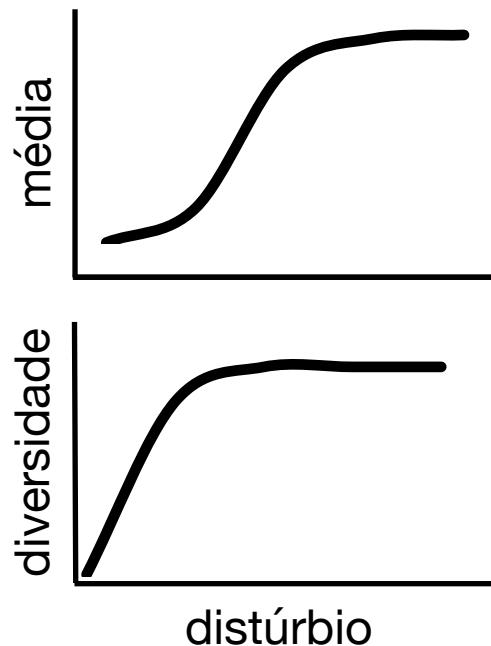
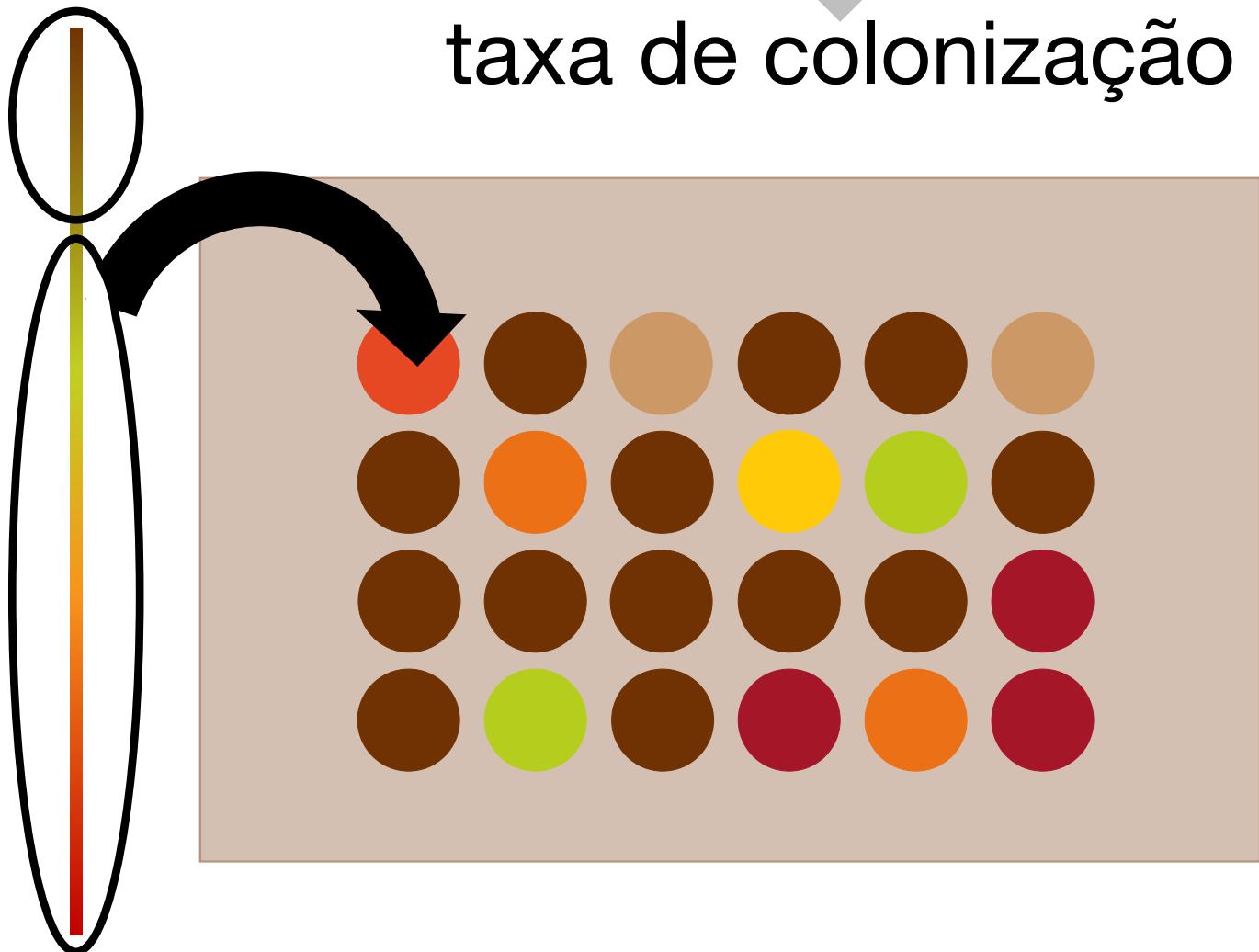
**evolutivo**



produtividade



taxa de colonização



## Queda na diversidade:

- O aumento do distúrbio, ainda que possa prejudicar o melhor competidor anterior, cria uma nova condição, em que outra estratégia passa a ser melhor competidora
- Quanto maior o distúrbio, mais **rápida** é a perda de espécies por deriva ecológica e por exclusão competitiva

