



Happy
April fool
Day



UNIT 9: Mutualistic interactions

Outline

Introduction

Cooperation within species

Mutualism between species

The fight to survive

- All organisms need resources

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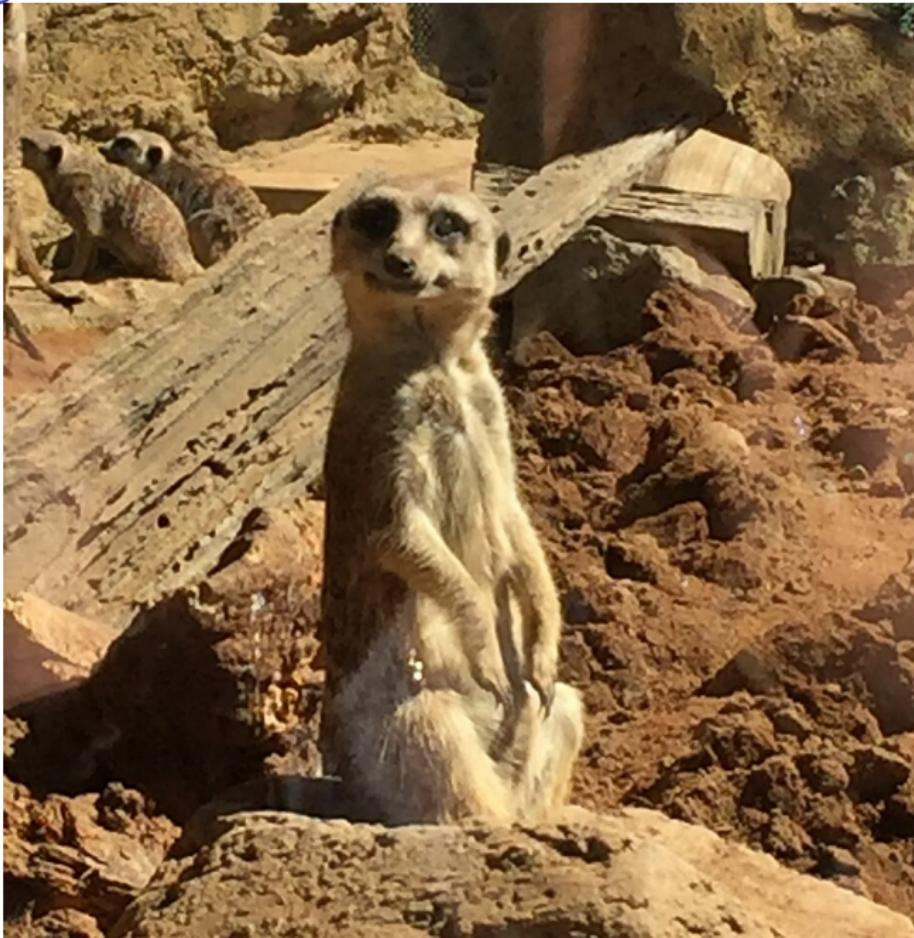
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Macaque grooming



Beaver grooming



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Prisoners dilemma

- The prisoners' dilemma is a parable for why cooperation can be hard to maintain

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A stays silent		S=3	T=0
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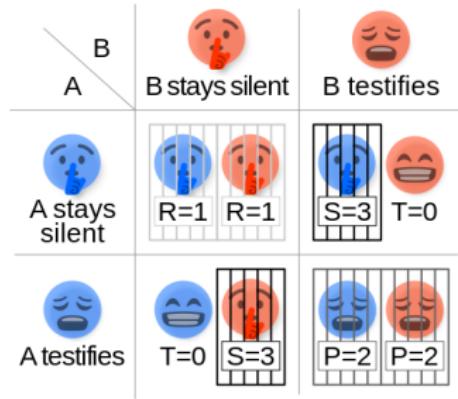
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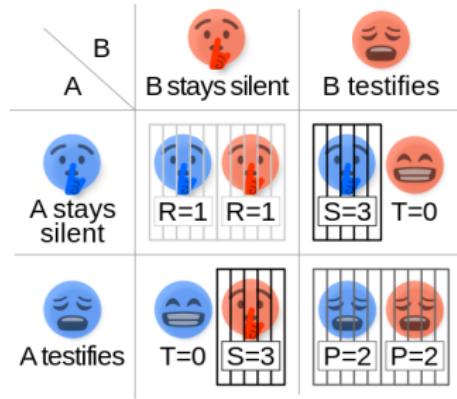
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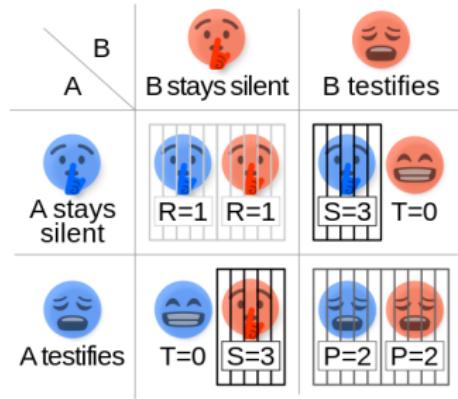
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Review: Lifetime fitness

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- ▶ What is the effective value of “relatedness”?
 - ▶ How much *more* related is the altruist to the beneficiary than to the average individual in the relevant population
- ▶ Why do we assume we're always competing with a relevant population?

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**Batesian
Mimic
(parasitic benefit)**



**Müllerian
Mimics
(mutual benefit)**



**Deceptive signal
Hoverfly harmless**

**Honest signal
Wasp can sting**

**Honest signal
Bee can sting**

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Acacia ants



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