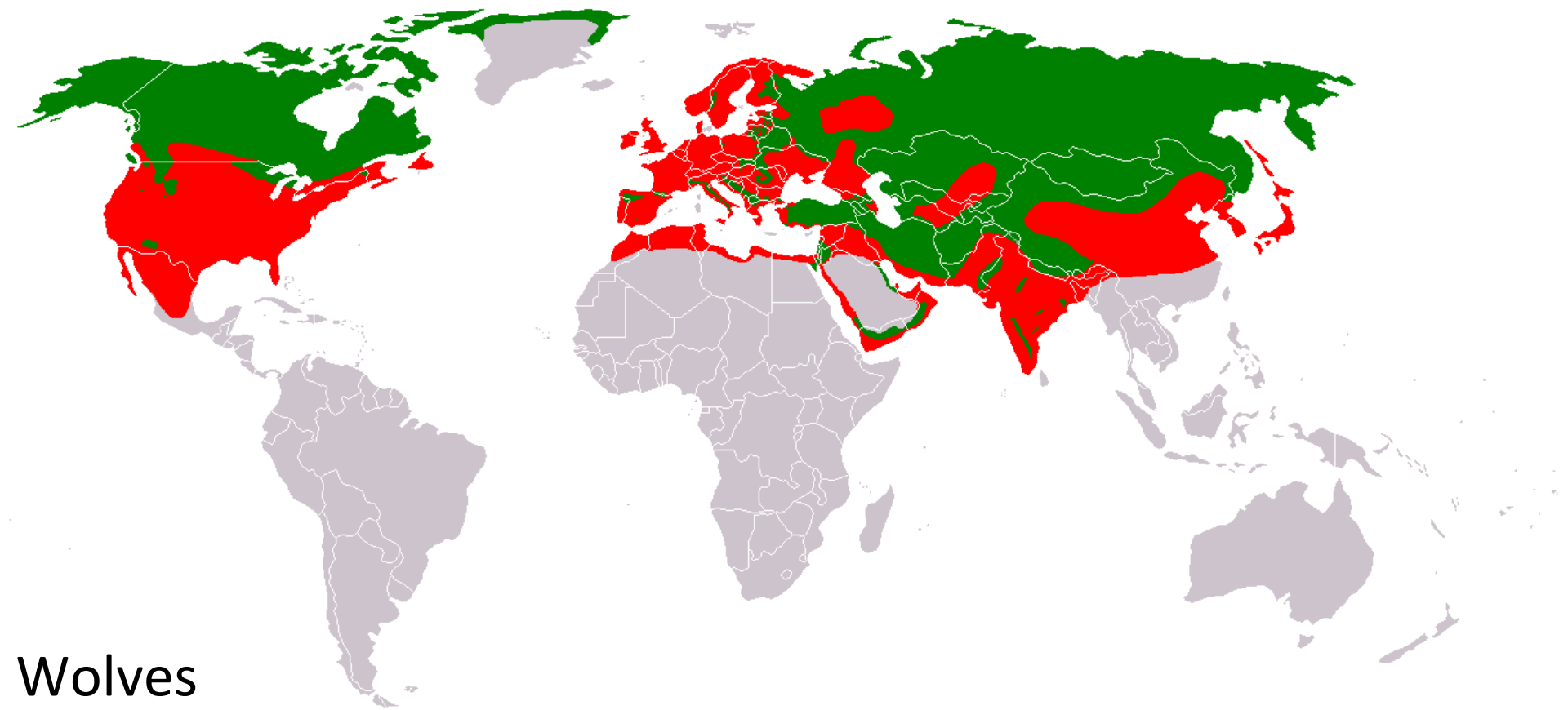
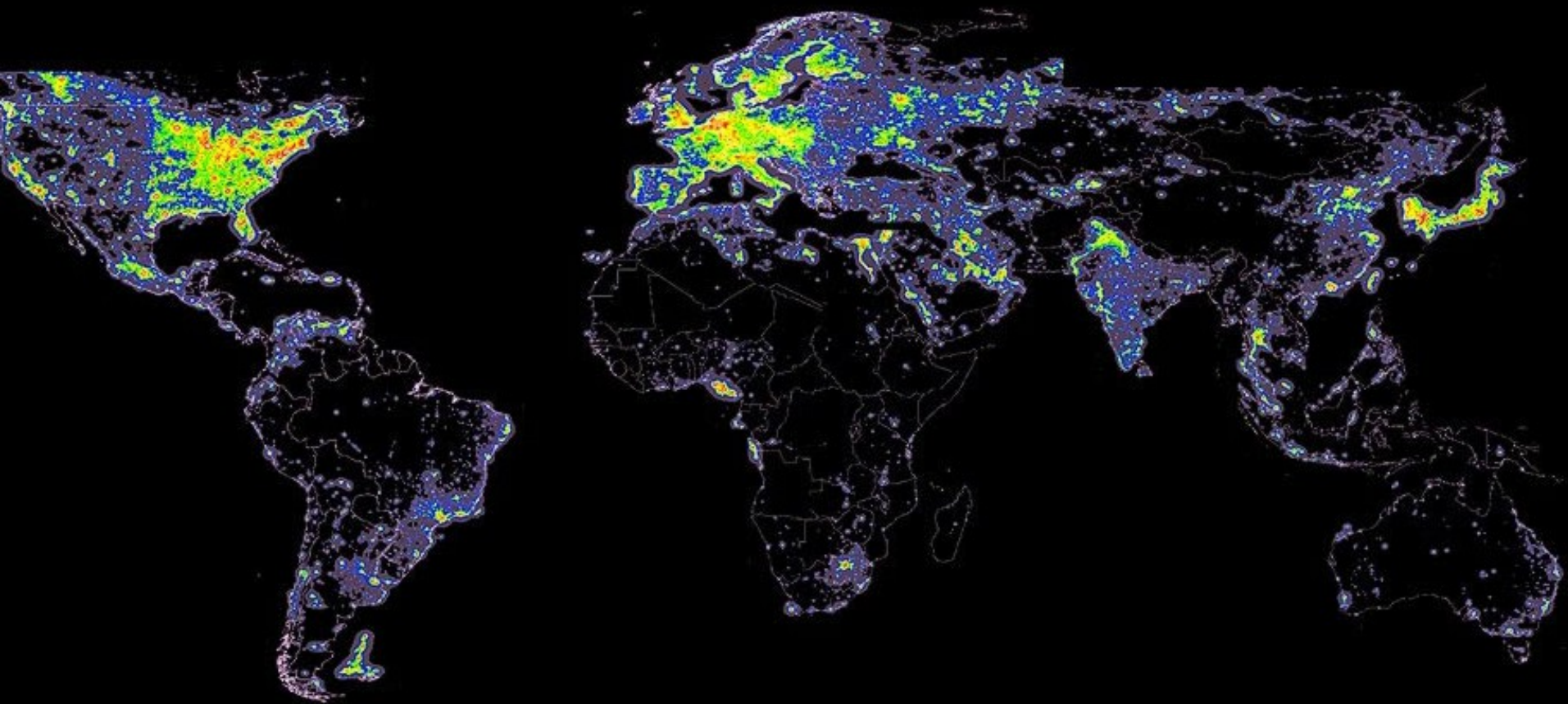


Are humans outliers in the
natural world?









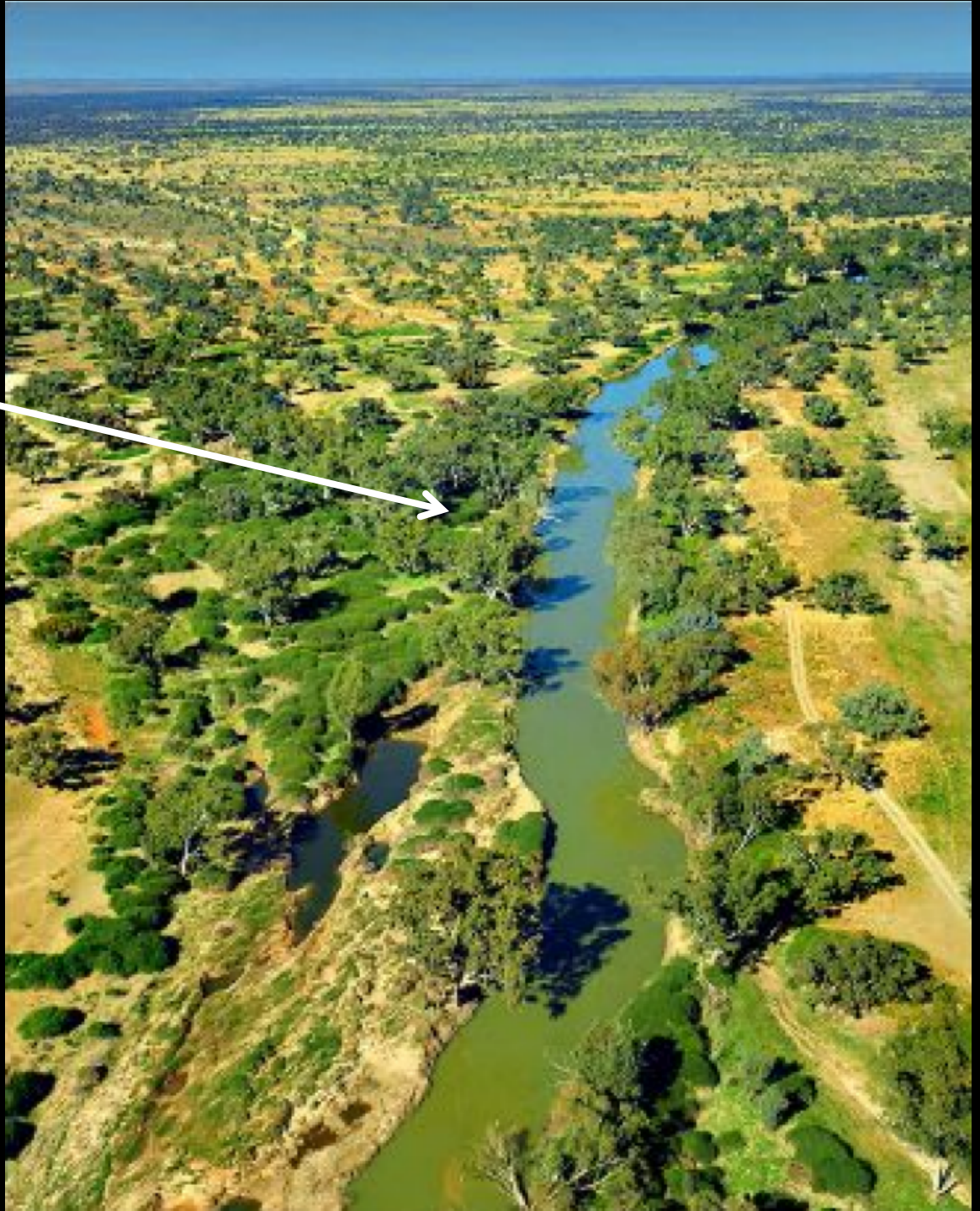
How were we able to do this?

Usual explanation:

We're smarter
than the
average bear



Your new home



Not a ridiculous question





So, will you make it?

I don't like your chances



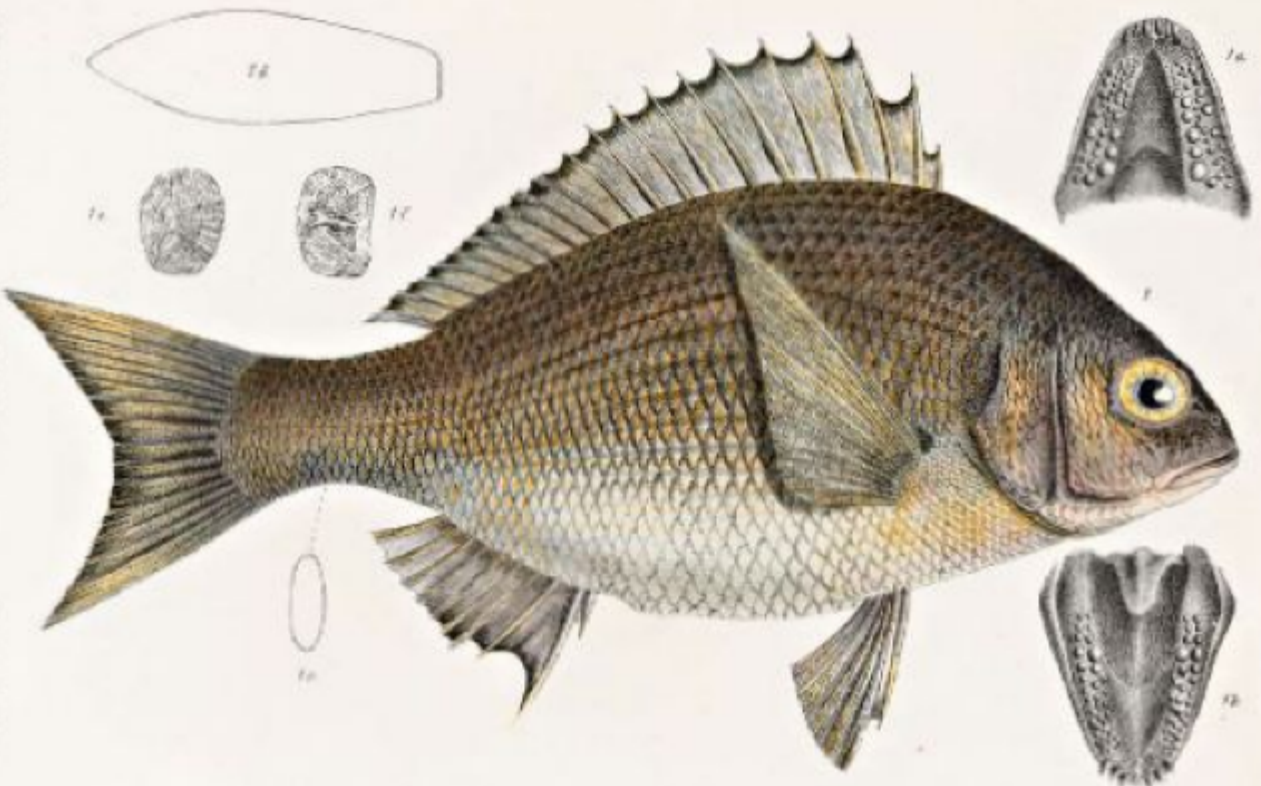












A. Macdonald del. & lith.

Not 1/10 in. above

1/10 in. above



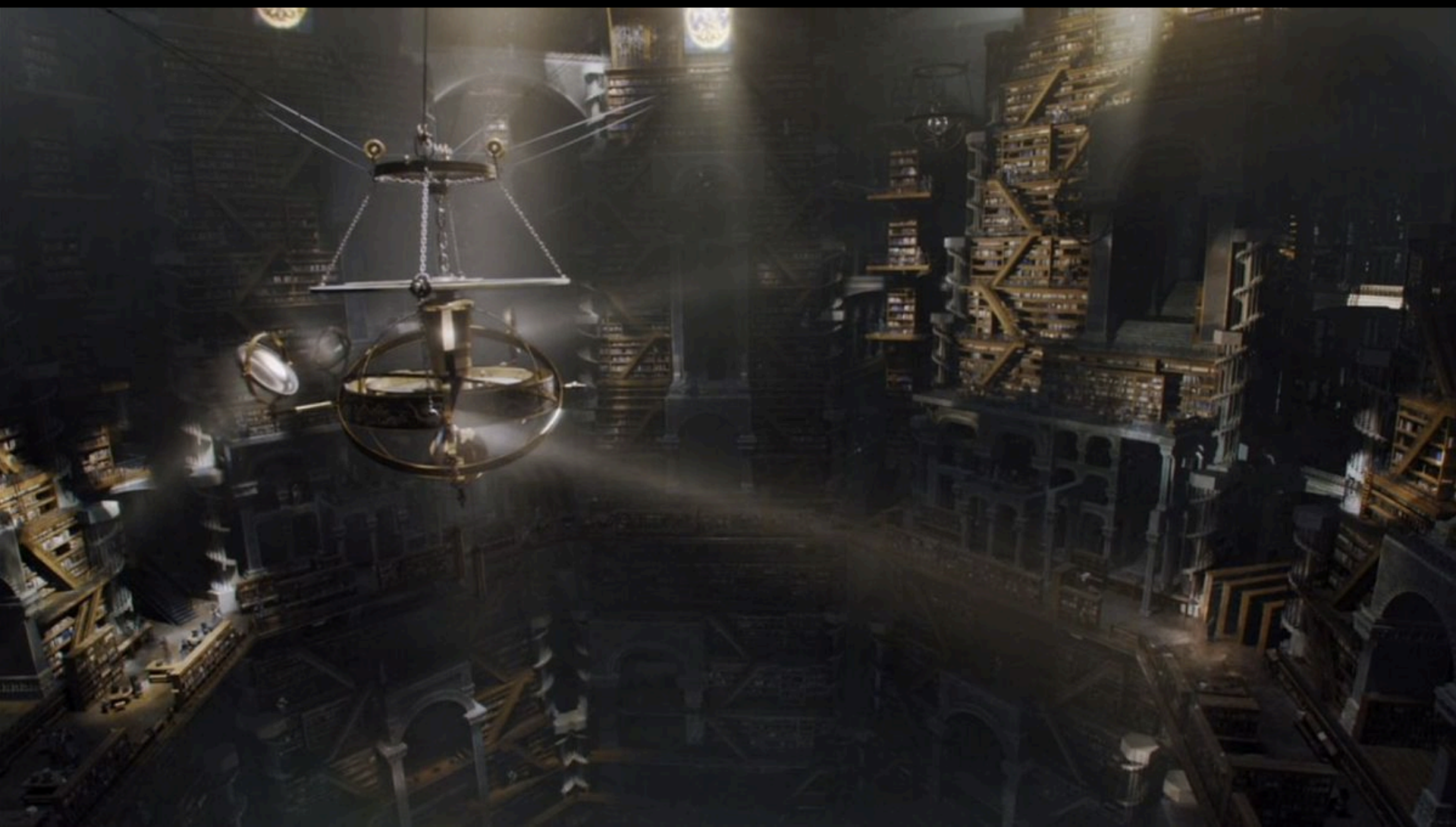






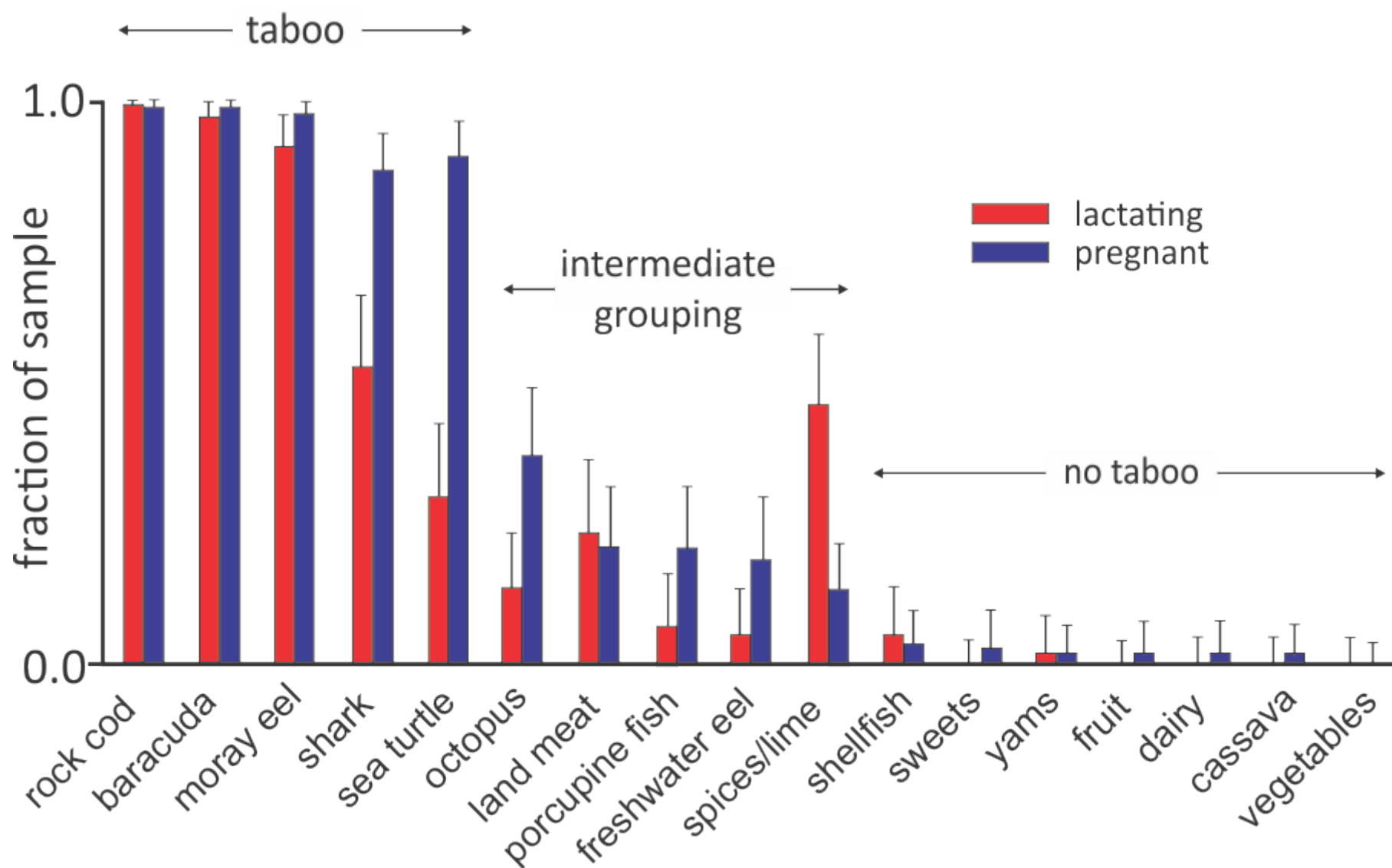


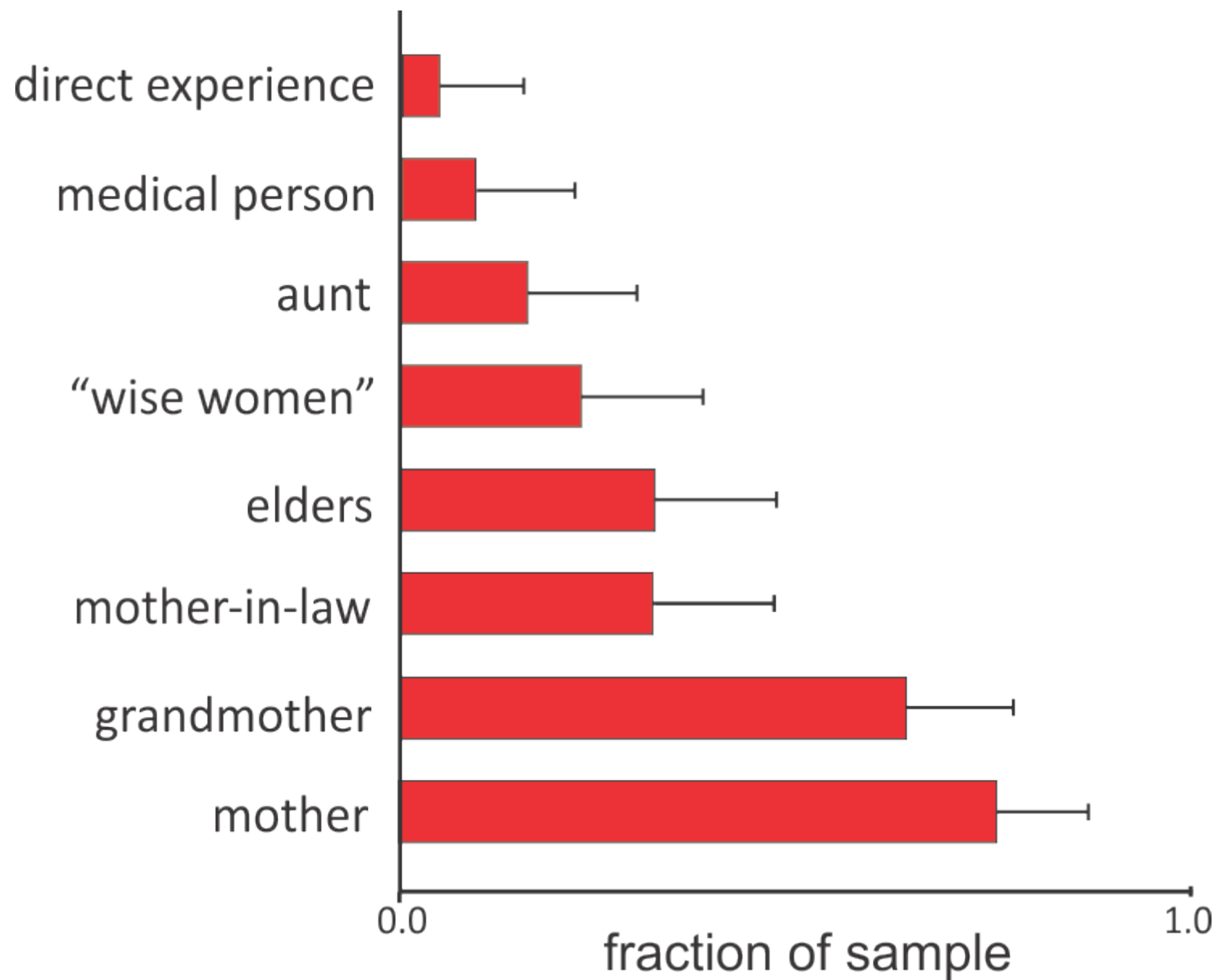
Why is cultural
information any good?











Why believe the wise women?

The evolution of imitation

Large population of organisms

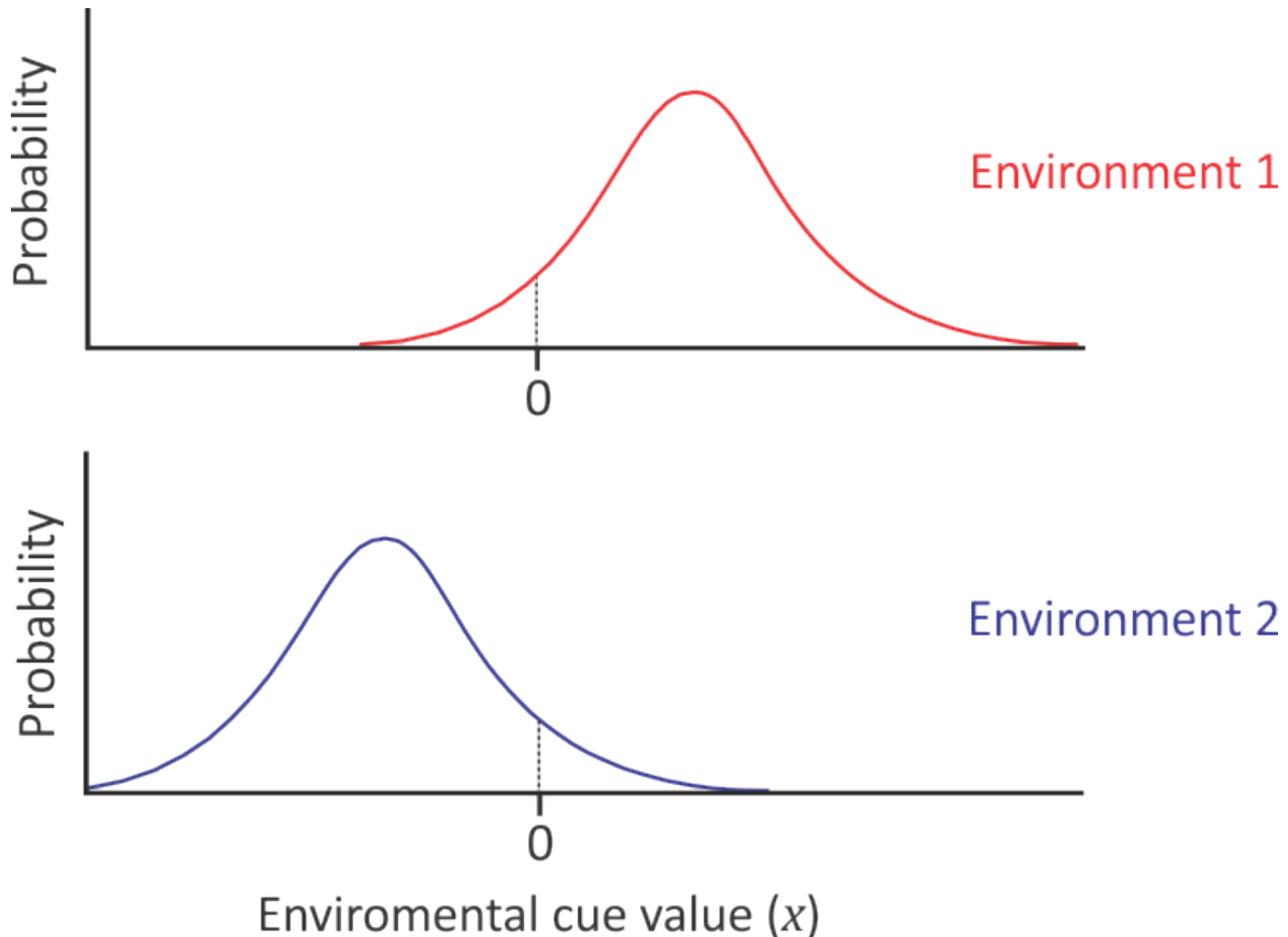
Environment has two states 1 & 2

Switches states with constant probability γ each time period

Two behaviors, each favored in one environment

Two sources of information about state of environment

1. An environmental cue value (x)



Two sources of information about state of environment

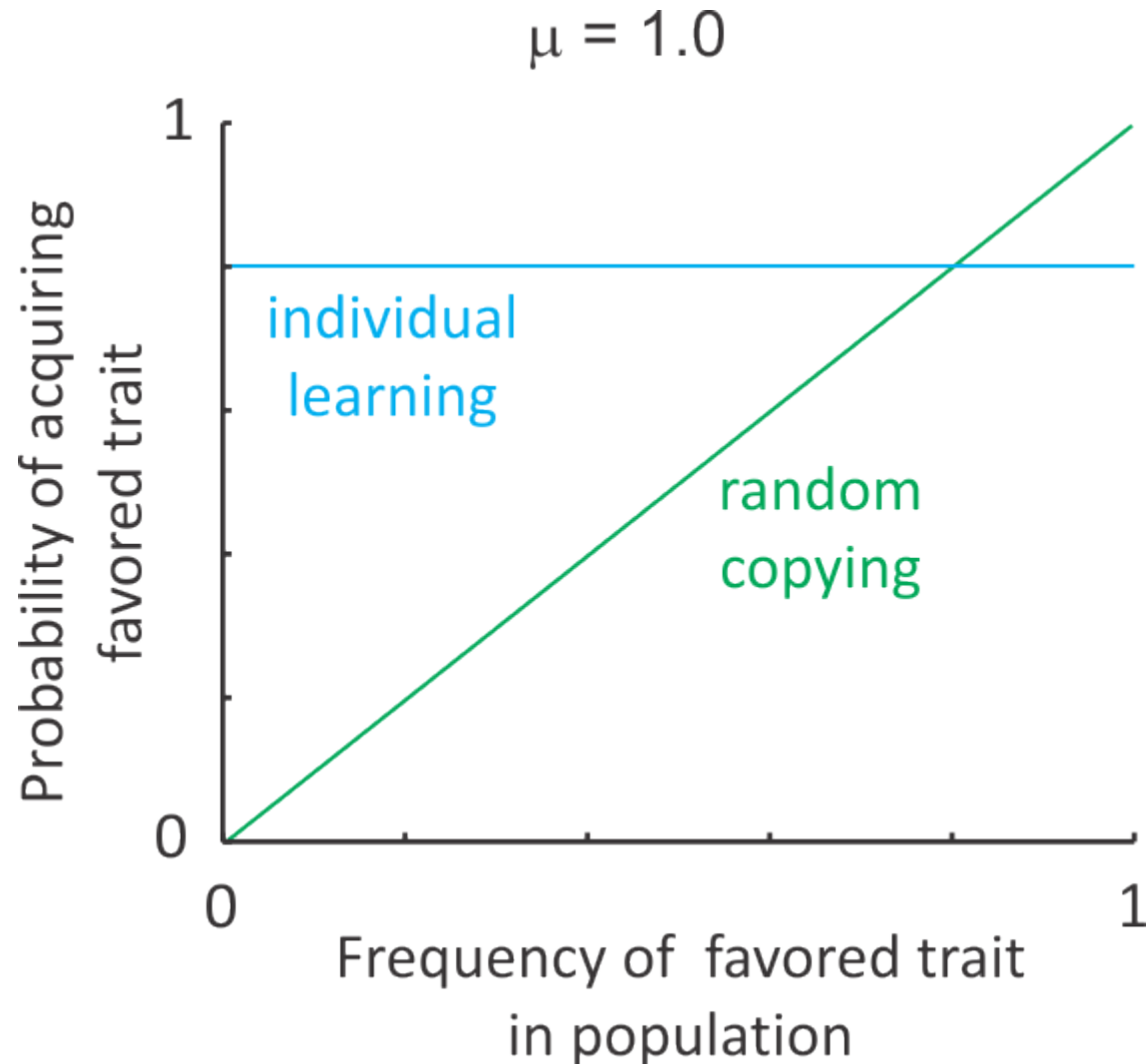
1. An environmental cue value (x)
2. The behavior of n individuals from the previous generation

j individuals use behavior 1

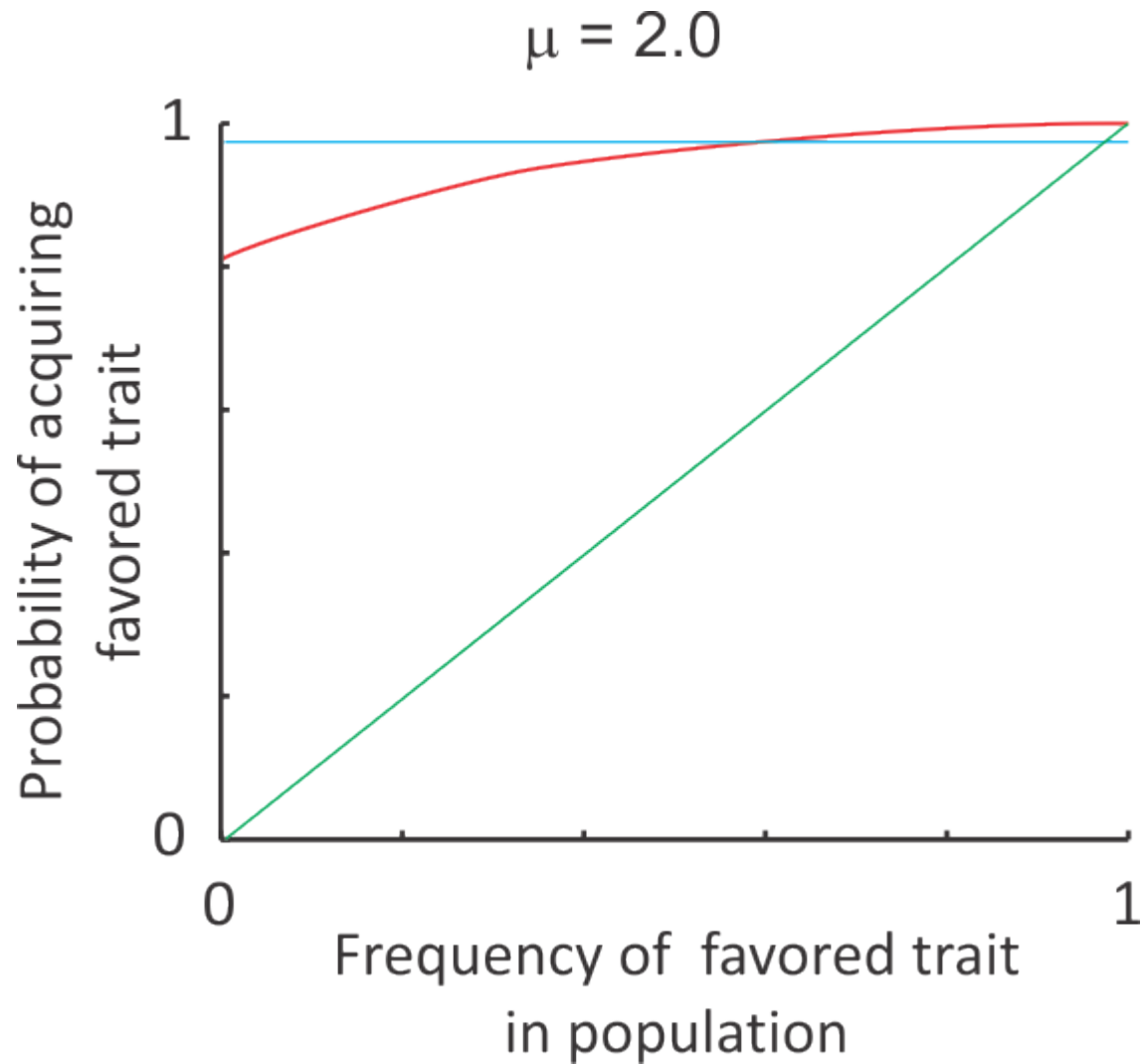
$n - j$ individuals use behavior 2

To maximize expected fitness, choose behavior 1 if

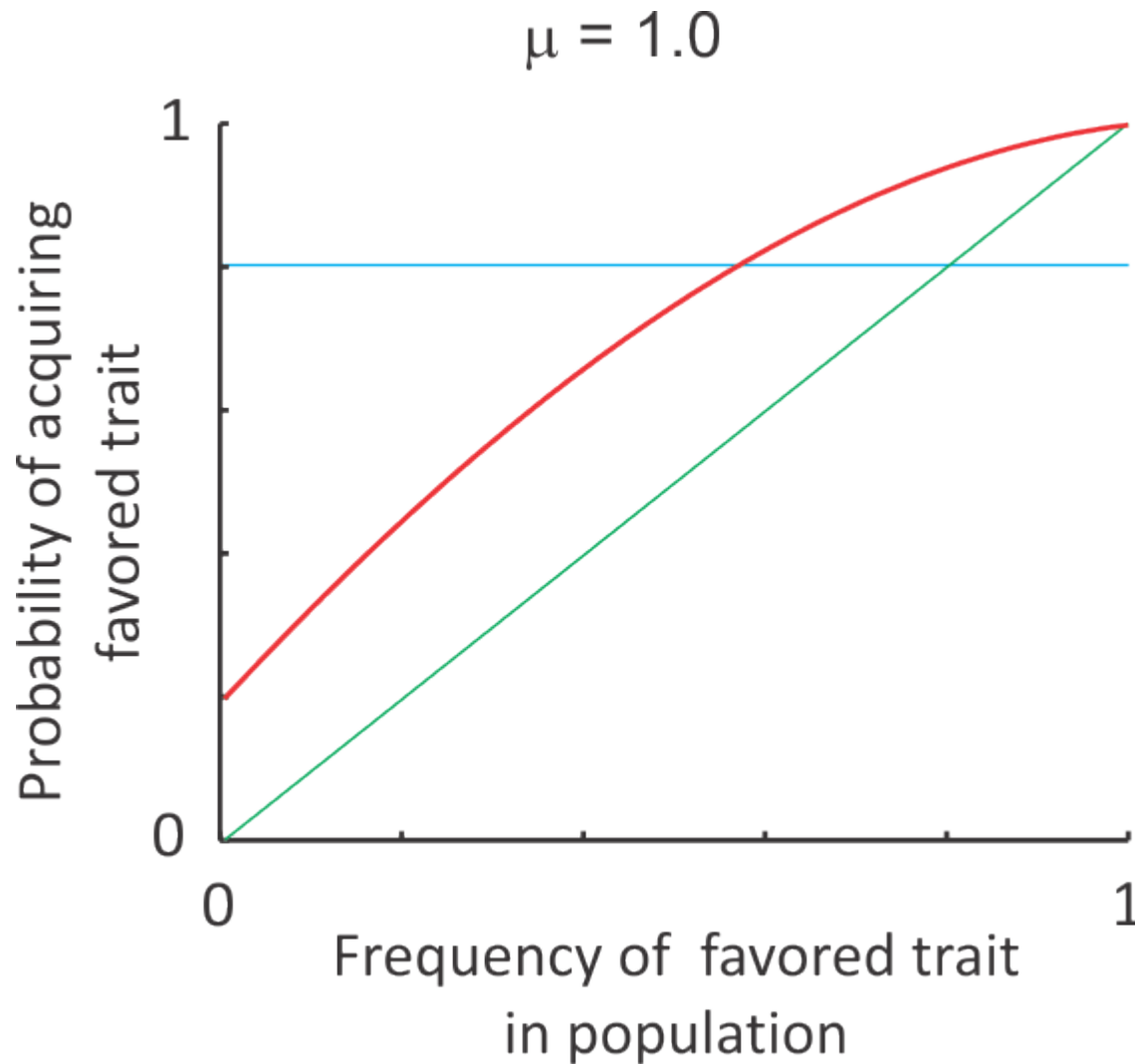
Plot equilibrium results in this space



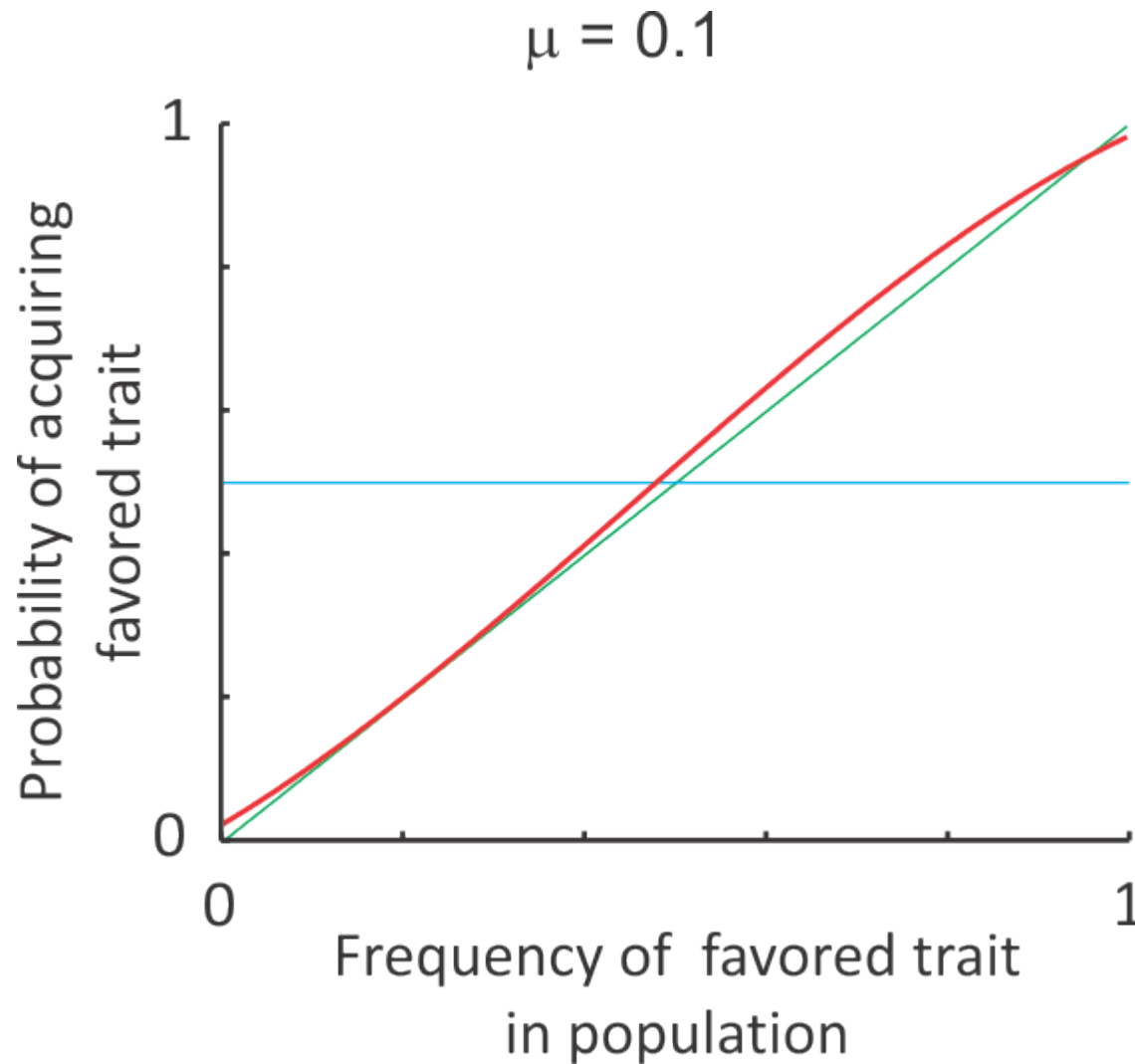
Accurate cues \Rightarrow little social learning



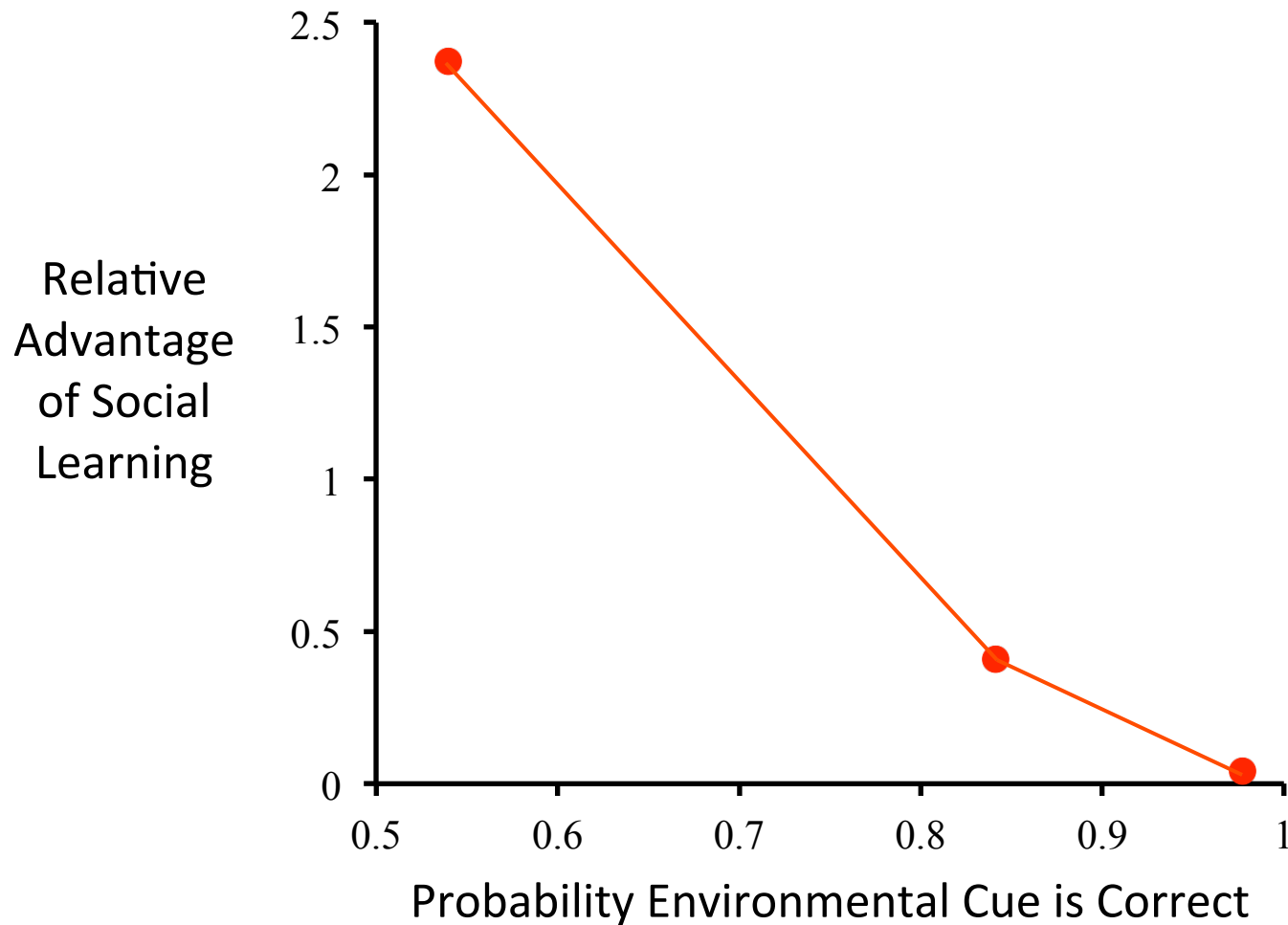
Medium quality cue \Rightarrow more copying



Low quality cue \Rightarrow emphasis on copying

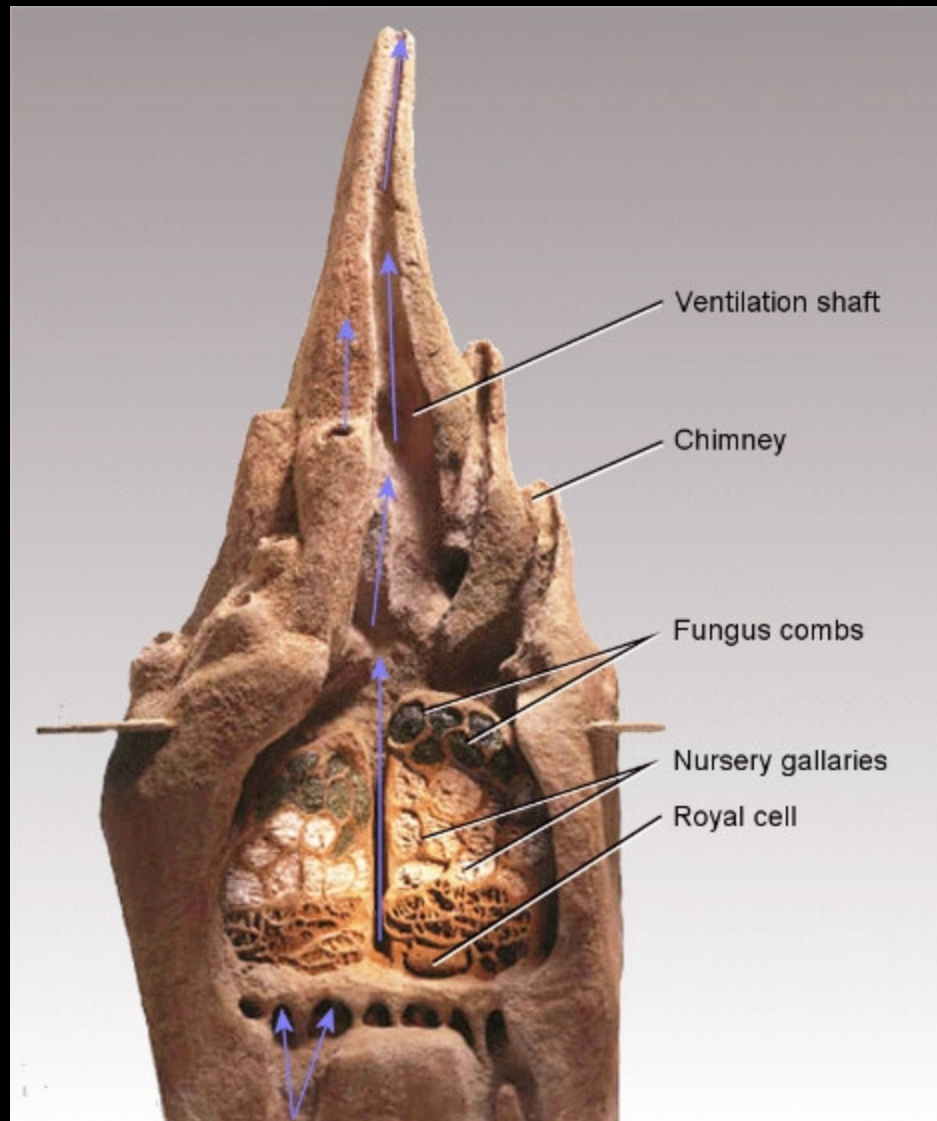


Social learning leads to higher payoffs

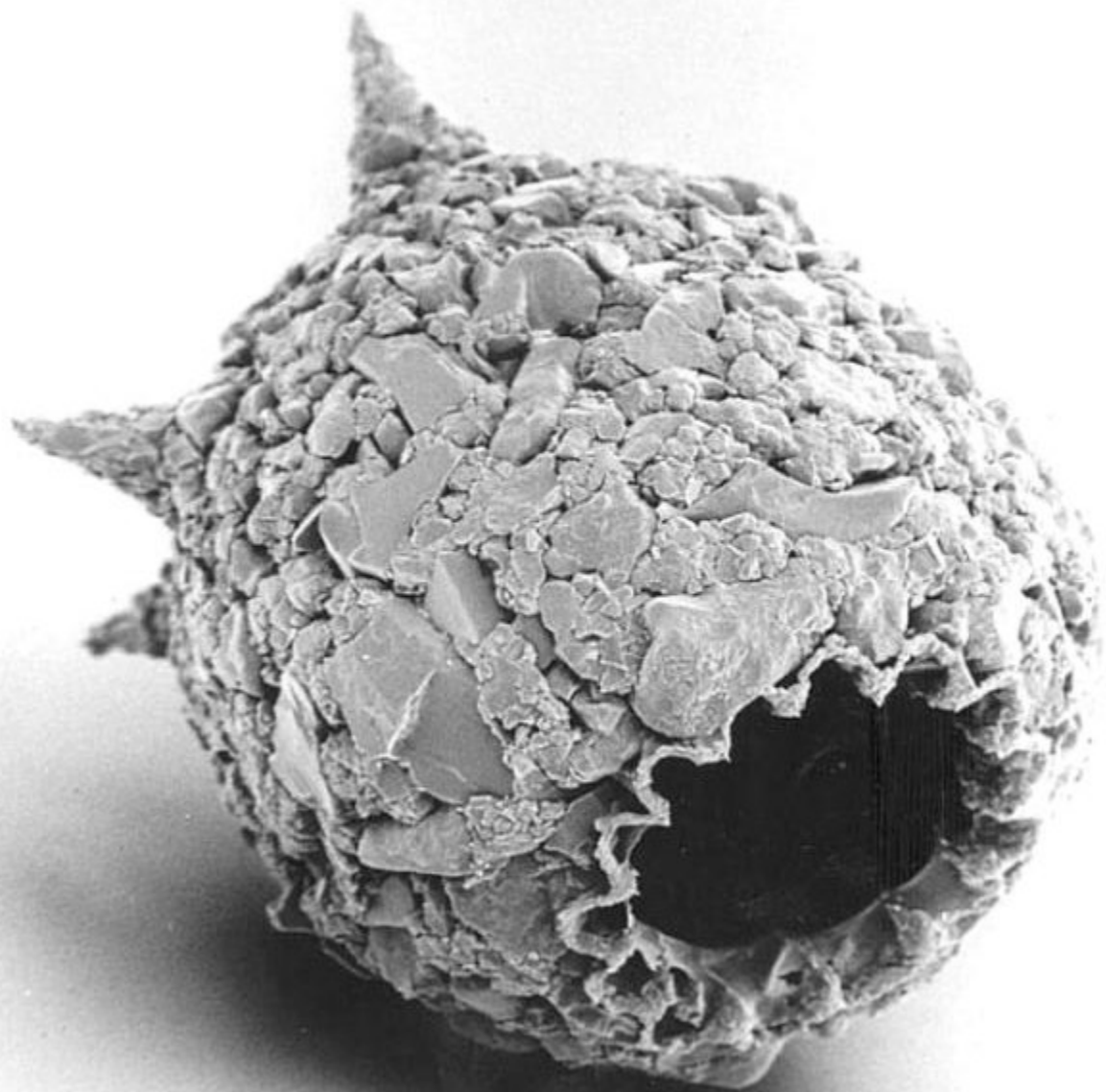


Can complex adaptations result
from such a dumb process?





4





< **BUFFALO WEAVER**
Stick nests in large trees. Small colonies.

> **YELLOW WEAVER**
Suspended from reeds or trees. Large colonies.



< **THICKBILLED WEAVER**
Roosting nest.

> Same nest modified for breeding.

Suspended in reeds or bushes. Solitary.



> **BROWNTHOATED WEAVER**
Suspended from reeds or bushes. Solitary.



< **LESSER MASKED WEAVER**
Suspended from reeds or trees. Large colonies.



> **CAPE WEAVER**
Hanging from trees or in reeds over water or from trees away from water. Small colonies.

> **MASKED WEAVER**
Suspended from reeds or trees. Large colonies.



> **FOREST WEAVER**
Hanging from low branches in forest or dense bush. Solitary breeders but several nests often present.



< **SPECTACLED WEAVER**
Suspended from bushes or trees. Spout often longer. Small colonies.



> **GOLDEN WEAVER**
Suspended from bushes, trees or reeds. Solitary.

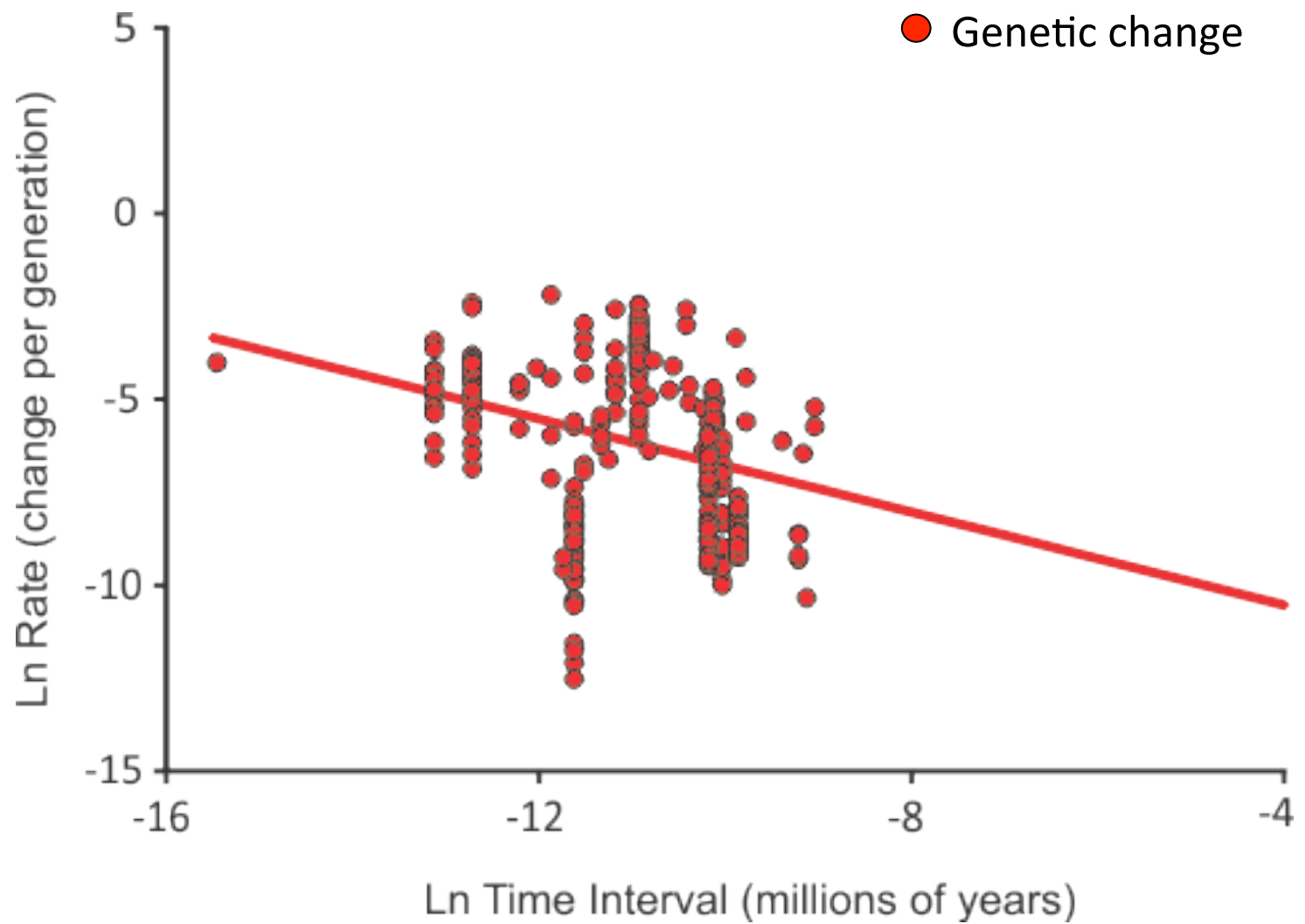


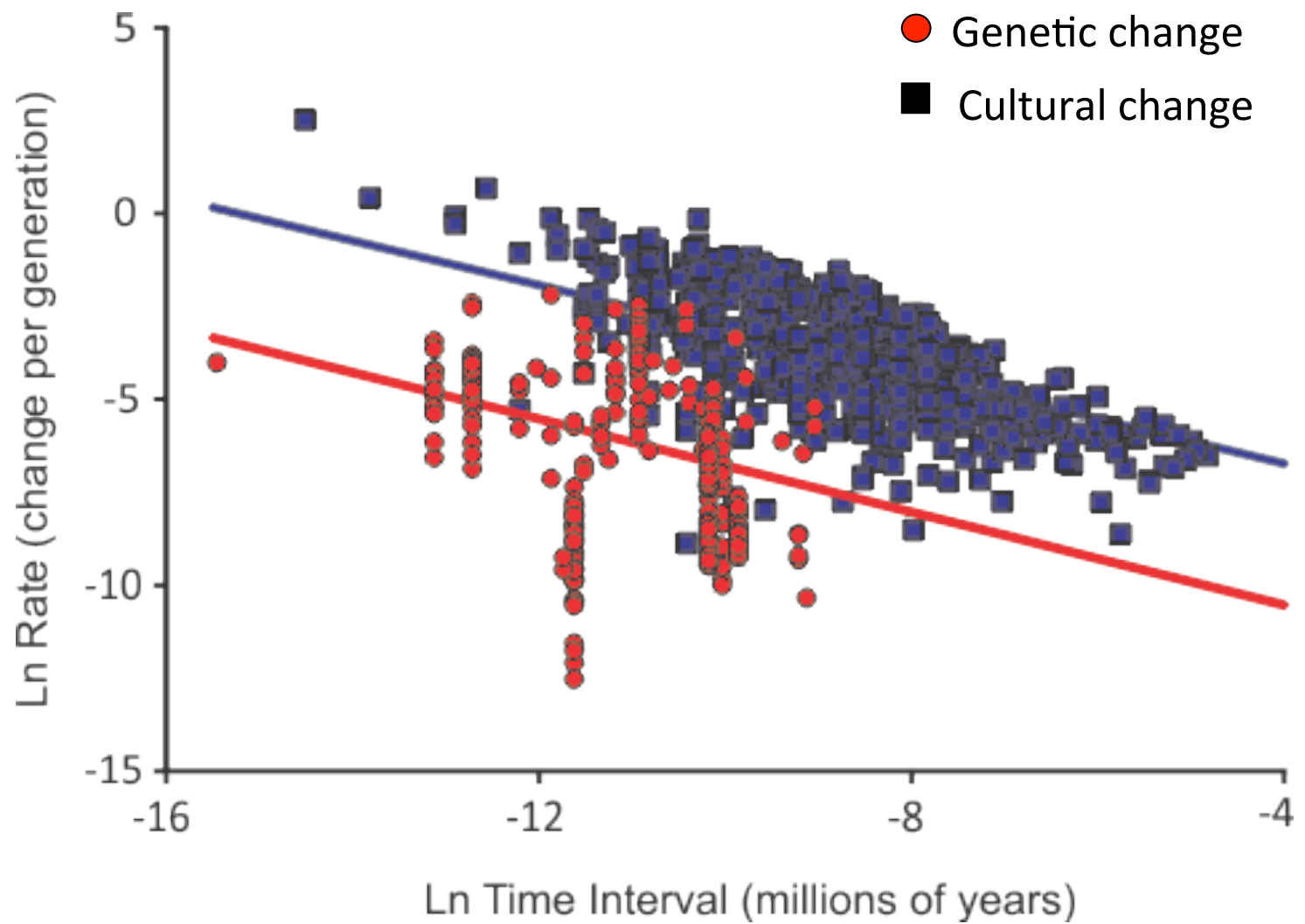
< **REDHEADED WEAVER**
Built of sticks and hung from trees. Solitary.

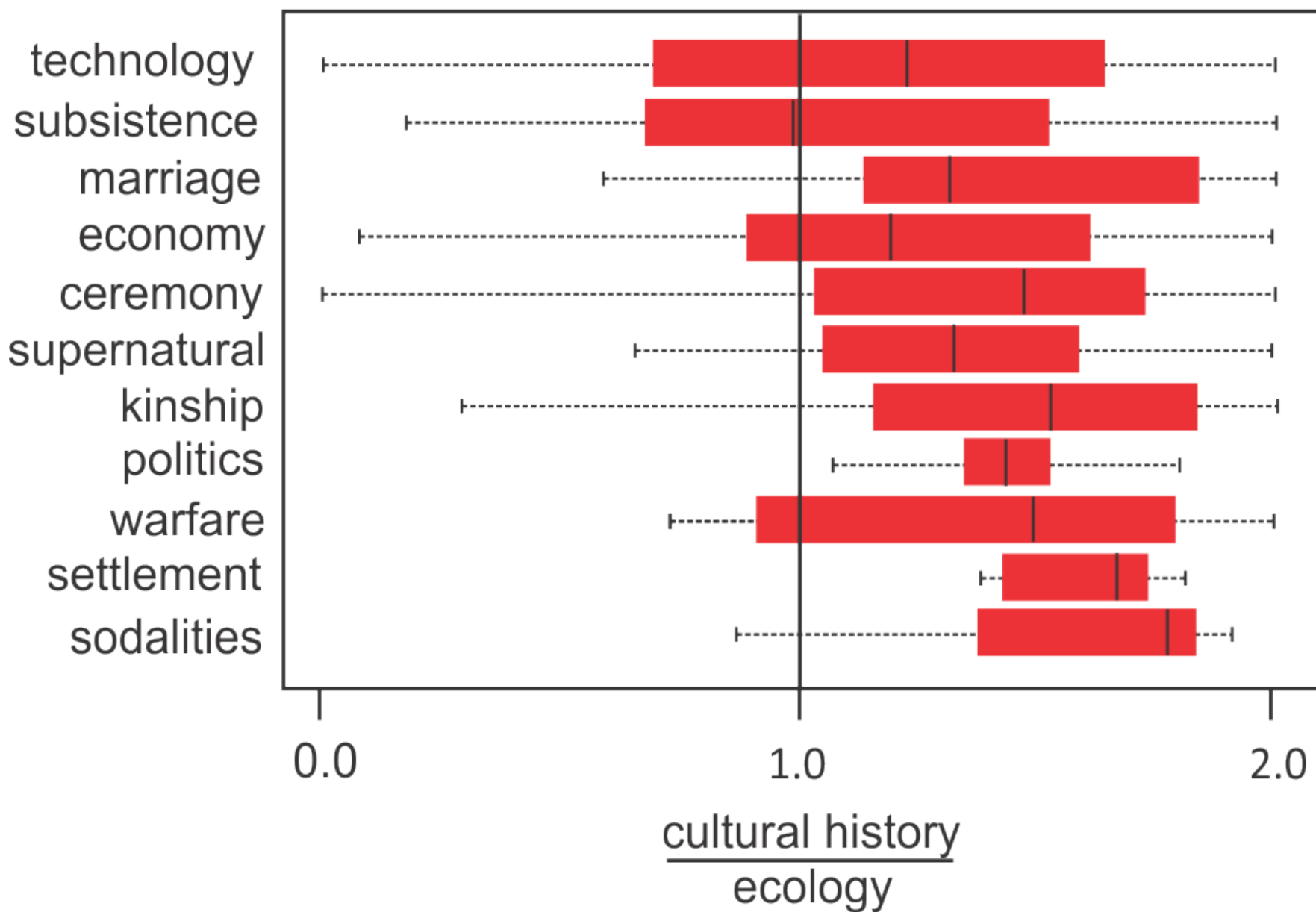
> **SPOTTEDBACKED WEAVER**
Suspended from bushes and trees over water. Spout may be longer or absent. Large colonies.











Time depth 8
(language)

Time depth 7

Time depth 6

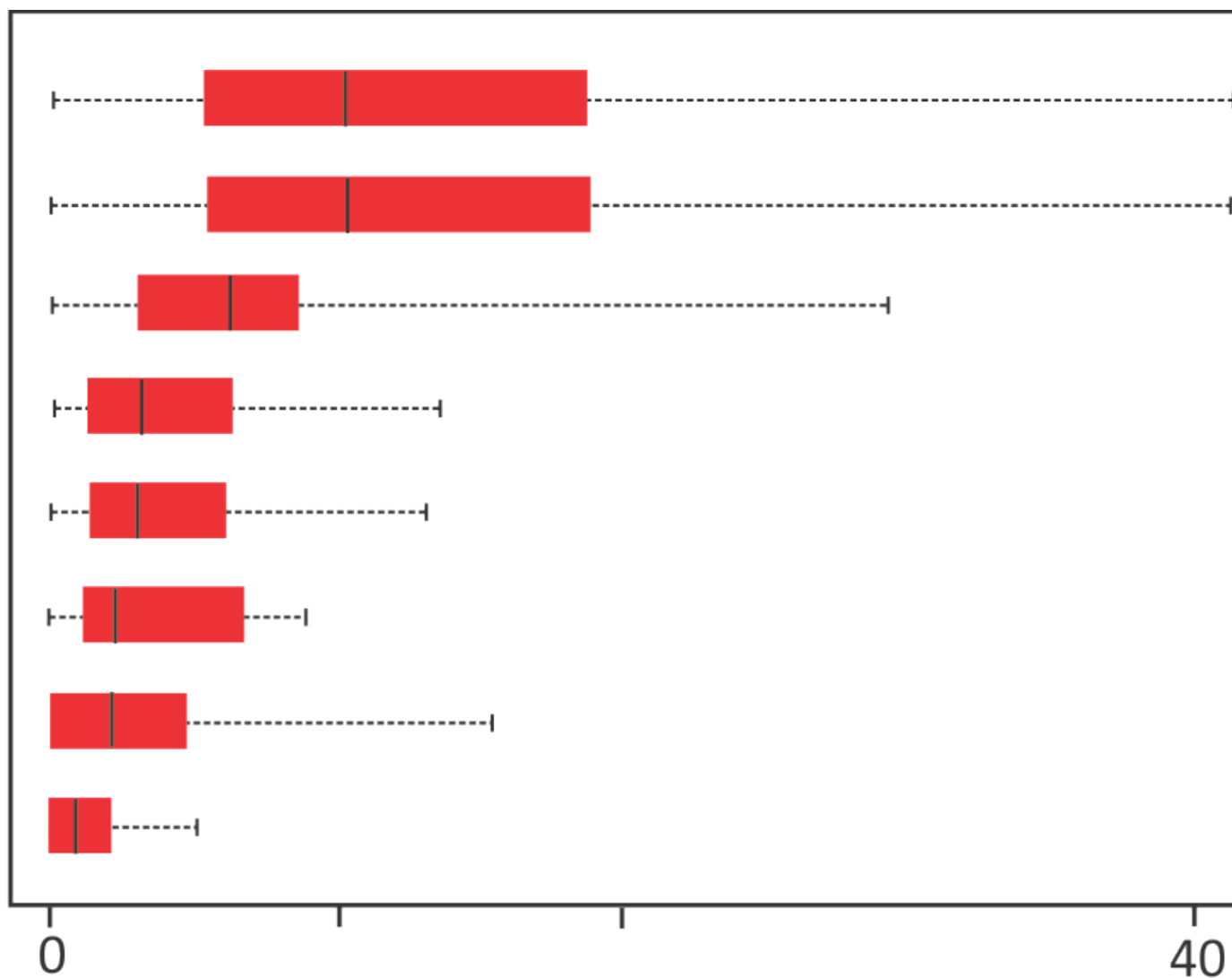
Time depth 5

Time depth 4

Time depth 3

Time depth 2

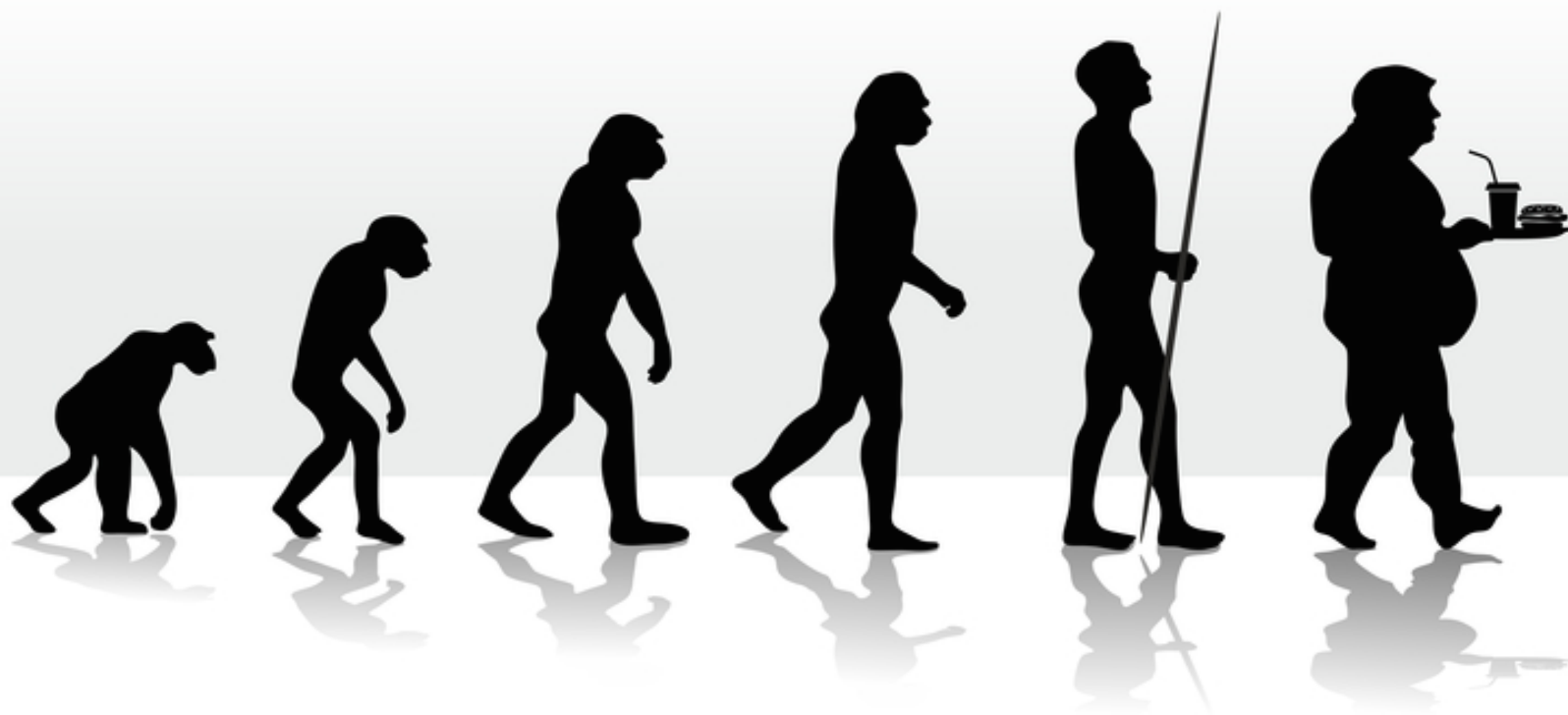
Time depth 1
(phylum)



Sum absolute value cultural
phylogenybeta coefficients

This changes everything





Cultural adaptation involves a tradeoff

Benefit: low cost information.

Cost: have to be credulous

Result: “Maladaptive” ideas can spread



What about rodents?



Many habitats = many species



Many habitats = one species

