

Homology & Analogy

Biology

Shared ancestry against shared pressure — two ways structures look alike.

Homologous — divergent

- Same underlying structure, different function
- Vertebrate forelimb: human, bat, whale
- Evidence of common ancestry
- Produced by divergent evolution

Analogous — convergent

- Different structure, same function
- Bird, bat and insect wings
- No common ancestry for the feature
- Produced by convergent evolution

THE DIFFERENCE THAT MATTERS

Only homologous structures indicate relatedness. Building a phylogeny from analogous traits produces a wrong tree.

The eye has evolved independently many times. It is a textbook case of convergence, not of shared ancestry.