

The Tree of Life

Thesis Statement: Darwin's visualization of the evolutionary process, as the Tree of Life, illustrates the revolutionary idea that design can emerge without a designer but with time, from the mindless processes of descent with modification and natural selection.

Topic Outline:

- I. Summary of Tree of Life
 - A. Description of Tree of Life
 1. Axis: time & design space
 2. Bottom-up process
 3. Micro-changes + time = macro-changes
 4. Natural Selection acting on every time increment
 - B. Observations explained by Tree of Life
 1. Fossil records \Leftrightarrow slices of time
 2. Clusters of similar species \Leftrightarrow common ancestors
 3. Hierarchical organization of organisms \Leftrightarrow branching
 4. Fuzzy boundaries of species \Leftrightarrow micro-changes, retrospective coronation
- II. Revolutionary implications of Tree of Life
 - A. No "Argument from Design"
 1. Design \rightarrow designer (Paley / Hume's Cleanthes)
 2. Counter-arguments showing flaws of \rightarrow but not seriously believed (Hume's Philo's)
 3. Counterexample to \rightarrow (Darwin)
 - B. No "Mind first"
 1. Mind must come first (Locke)
 2. No use of pre-existing Mind in Tree of Life
 - C. // Artificial Intelligence (AI)
 1. Tree as the shape of the algorithmic process of searching
 2. Evolution as a generate-and-test algorithm
 3. Strong AI inspired by evolution
- III. Reflections (*Omitted for now*)
 - A. Tree of Life starting in the middle (Darwin's cautiousness)
 1. Inductive case: old designs \rightarrow new designs
 2. Base case: How did life get started?
 - B. Value of axis:
 1. Time: Is evolution directed?
 2. Design space: Can living organisms be ranked?
 3. Feedback loop: species change environment, environment determines which fitness of species

Rejected from Topic Outline:

II. A No “Great chain of being”

1. Static vs. dynamic
2. Eternal vs. historical
3. Living organisms ranked vs. Living organisms successful descendants

III. A. Modern Tree(s) of Life

1. Phylogenetic trees
 - a. Selfish gene
 - b. Duplication vs. speciation
2. Sexual reproduction
 - a. In Tree of Life: microscopic joining of two ancestors in descendant
 - b. Shuffling the gene pool
3. Shared evolutionary fate
 - a. Symbiosis
 - b. Cells in an organism
 - c. Organisms in a colony