Phylogenetic assessment of the evolution of the fictional races of Tolkien across multiple fictional universes

Jermaine Mahguib

EEOB 563, ISU Spring 2019

The high fantasy races of J. R. R. Tolkien, as he described them, became the basis for races that inhabit numerous universes in modern fiction. Here the term ‘race’ is used freely to refer to fictional, reproductively independent species of intelligent human-like peoples inhabiting fantastical worlds; the term is used ubiquitously in fantasy and science-fantasy based literature, and commonly employed in open discussions on these intellectual properties (IPs).

Permutations of Tolkien’s elves, dwarves, humans and orcs are found across a broad range of written literature and published video game series, each adding new physical features, behavioral ranges and story roles, while retaining others from the original descriptions. For example, in Tolkien’s fictional works, the elves fill the archetypal role of the ‘old man,’ the ancient first race to inhabit the world. In the contemporary timelines of Tolkien, the elves are a race whose time of prominence has come and gone, and they serve as a fount of wisdom on matters of history and ancient arcana, and are often thrust into the role of providing some form of guidance for younger races. This archetypal role is often maintained in derivatives of the race across fictional universes.

Other examples of retained traits include the dwarves’ affinity for occupying subterranean domains, the human tendency to expand their empires, and the orcs’ green skin and ‘monstrous’ visages. Conversely, a number of traits have seen some drift from Tolkien, such as the role that the orc race plays in stories. While Tolkien’s orcs were portrayed as a vile and heinous, and this

In this study, I propose mapping out a suite of character states that describe the core races of several fictional universes, and creating a dataset for phylogenetic analysis to assess how these races have evolved from Tolkien’s original incarnations. The character states will be categorized into three groups: physiological traits, behavioral traits, and archetypal traits. For example, comparative physical strength of typical members of a given race would be categorized as a physiological trait and have a range of discreet character states such as ‘weak,’ ‘moderate’ and ‘strong.’ Another example of a character would be aggression level, which would be categorized under behavioral traits and have the states ‘reserved,’ ‘provoked’ and ‘aggressive.’ Every character state will be encoded using a numerical value, and a string of character states will be generated for each character category, for each race, from each of six test universes, as well as races from two additional universes that will be used as outgroups. All character states in a given category, for a given race, will be determined relative to other members of the same universe; cross-universe comparisons will not be considered when determining character states.

The archetypal traits category will encompass character states that describe how a race fits into a particular universe in terms of the stories that are told within them. For example, in Tolkien’s stories the orcs fill the role of an irredeemably evil race of vile killers who serve as a persistent villainous army that threatens the noble races of the world. In another universe, the Warcraft universe, the orcs are initially presented as a race occupying a similarly villainous story role, but are later revealed to actually be a noble race themselves who are only pitted against the protagonist races circumstantially. These adjustments to the original archetypes are part of the evolution of these races across fiction, and should be included in the proposed analysis.

Once character-state matrices are constructed and sequences are extracted and aligned, the data will be used in a set of maximum likelihood analyses using a Jukes-Cantor model of evolution, where all possible character state transitions are equally likely so as to reflect the reality that intellectual property creators are essentially free to take these archetypes and make changes to them without any restrictions. Maximum likelihood analyses will be conducted to address two primary questions: in what categorical ways (physiological, behavioral or archetypal) have the original high fantasy races of Tolkien diverged the most across multiple incarnations; do various incarnations of Tolkien’s fictional races from different intellectual properties (IP’s) form supported phylogenetic clades?

The first question will be addressed by comparing phylogenetic trees generated using categorical sequence alignments; in other words, a tree will be estimated using aligned sequences from the physiological traits category, another from the behavioral traits category, etc. If a category of character traits has experienced less deviation from the original Tolkien descriptions, then we would expect to see more polytomies or a single large polytomy in the tree topology. If, on the other hand, some incarnations of Tolkien’s fictional races have experienced substantial categorical deviation, then we might expect to see some distinct clades in the tree topology.

To address the second question, a maximum likelihood analysis will be conducted using all three categorical sequence alignments concatenated. If the tested IP’s have minimally altered categorical character traits describing their fictional races relative to the type races of Tolkien, then we can expect to see, for example, all elven derivatives forming a supported clade in the tree topology. If, however, fantasy IP’s have substantially altered our categorical character traits, then we can expect the topology of the tree to suggest few if any supported clades, even for member races of the same fictional universes since there are likely to be enough inherent character state differences between elves, dwarves and orcs to hinder their clustering.