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

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INTRODUCTION

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 humans’ 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 vile and heinous, and this persisted across other IPs, some universes established their orc peoples as being more on par with their other ‘noble’ races (e.g. humans, elves and dwarves).

In the present study, a suite of traits that describe the core races of several fictional universes was established and a character state matrix was created to provide a dataset for phylogenetic analysis in order to assess how these races have evolved from Tolkien’s original incarnations. Character traits were categorized into three classifications: physiological traits, behavioral traits, and archetypal traits. For example, comparative physical *strength* of typical members of a given group was categorized as a physiological trait, while *aggression* level was categorized under behavioral traits.

Character state matrix data was used in a set of maximum likelihood analyses in an attempt to address two primary questions: (1) do various incarnations of Tolkien’s fictional races from different IPs form statistically supported phylogenetic clades; (2) in what categorical respects (physiological, behavioral or archetypal) have the original high-fantasy races of Tolkien diverged the most across multiple incarnations?

The former was approached via a maximum likelihood analysis using character state sequence data from all three trait categories concatenated. If the tested IPs exhibit minimal alteration to 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, the fictional peoples of fantasy IPs have substantially deviated in our established character traits across universes, then we can expect the topology of the tree to suggest few if any supported clades, and instead observe a tree characterized by polytomies.

To address the second question, phylogenetic trees were generated using categorical sequence alignments separately, and compared to one another; in other words, trees were estimated using aligned character state sequences from the physiological traits category, others from the behavioral traits and archetypal traits categories. If a category of character traits has experienced less deviation from the original Tolkien descriptions, then we would expect to see distinct clades in the tree topology, were all elves form a group, all dwarves, etc. If, on the other hand, some incarnations of Tolkien’s fictional races have experienced substantial categorical deviation, then we might expect to see more polytomies or a single large polytomy in the tree topology.

METHODS

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.

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.