

Xenomorphs_OG outgroup taxa were also strongly supported. In the first two trees shown in Figures 1 and 2, the clade containing all the elves, dwarves and humans was moderately supported at 65 percent bootstrap support. All other nodes were poorly of very poorly supported.

Analyses of Categorical Alignments

The categorical character state alignments were problematic to assess. Of the six ML analyses attempted on these datasets (see Table 6), two of them (both behavioral alignment analyses) failed to complete the tree search due to persistent errors encountered in *RaxML* that were unable to be resolved. A third analysis (of the physiological alignment with the Zerg_OG taxon as outgroup) persistently failed to complete the bootstrap assessment due to an error terminating the process as well. No issues running the program were encountered throughout assessment of the concatenated sequence alignment, so the issue may have been related to the small sequence size of the categorical alignments. Nonetheless, analysis of some of the categorical alignments was completed and the results of two of them are described here.

Since both runs of the archetypal sequence alignment were completed successfully, their resulting trees are described and can be seen in Figure 4. In general, the tree topologies were affected similarly by their respective designated outgroups as in the analyses described for the concatenated alignment. In the archetypal alignment where the Zerg_OG taxa was set as the outgroup, the orc taxa were more basal and the elves more derived, with the opposite being the case when the Protoss_OG taxon was made to be the outgroup. Other than that, limiting the dataset to just the archetypal alignment did affect the tree topology somewhat compared to the concatenated dataset. In the tree from the Zerg_OG alignment, the elven and dwarven taxa formed an inter-mixed clade, which placed as sister to a clade that this time contained all the human taxa; although humans all grouped together archetypally, they were still paraphyletic as one of the orc taxa (orcs from the *Warcraft* universe) nested within that clade as well.

Similarly, the humans all grouped together in the topology for the tree built from the archetypal alignment with Protoss_OG set as outgroup. The elf-dwarf clade was broken up however by the outgroup assignment, the two sets of taxa spread out across the basal half of the tree.

Bootstrap support values for nodes of these trees were even lower than in the trees for the concatenated alignment; nearly all nodes had less than 70 percent support.

DISCUSSION

The tree topologies resulting from the analyses of the concatenated sequence alignment suggest that despite alterations creators have made to their versions of Tolkien's iconic fantasy races, most of these fictional peoples have not changed