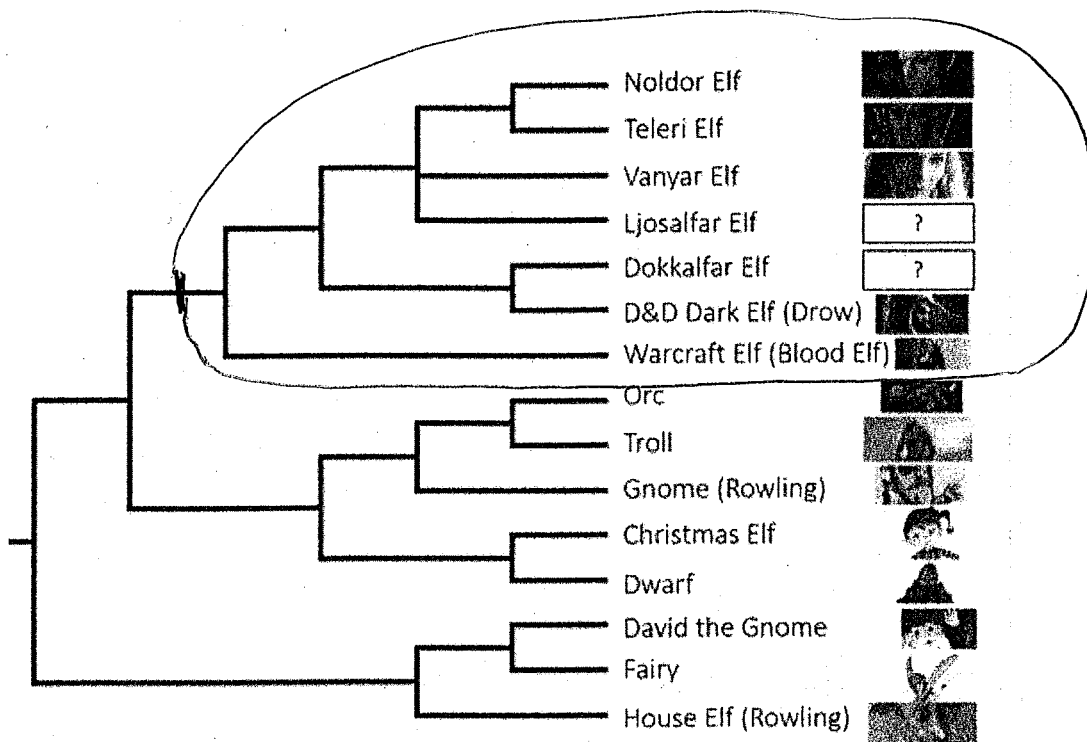


Initial attempts to obtain genomic data from elfen tissue was unsuccessful. Due to funding restrictions we could not obtain a lysis buffer that would digest an energy field of pure starlight. This was greatly disheartening considering how difficult it was for us to get permits to destructively sample living elf populations. In the software Mesquite, we assembled a matrix of 26 categorical characters (Table 1 – see the bottom of the page) from various literature sources. This character matrix was used to construct a strict consensus of the 100 most parsimonious trees (SPR rearrangement algorithm). The tree was rooted such that gnomes, fairies, dwarves, trolls, and orcs were all contained in the outgroup.

## Phylogenetic Tree



## Please answer the following questions.....

\*\*\*First note that a monophyletic or "good evolutionary group" is a group that includes an ancestor and ALL descendent lineages.

1. Given the tree above are all Elves grouped together as a true or good evolutionary group (aka a monophyletic group)? Why or why not?

*No because the Christmas Elf and House Elf are not in the same clade as all the others.*

2. Circle the Elves which DO make up a monophyletic or good evolutionary group?

*See circle above.*

3. The three Tolkien Elf species (three with photos at top) are most closely related to (share a recent common ancestor with) what Elf of Nordic mythology? Ljosalfar

4. The other Elf from Nordic mythology (Dokkalfar) was found in this phylogeny to be more closely related to Dungeons + Dragons Dark Elf

5. All the Elves mentioned in the questions above are a sister group to which kind of elf?

Warcraft Elf

6. The Drow elves of the Dungeons and Dragons universe were proposed to be related to the Tolkein elves. Is this relationship supported in the phylogeny above? Why or why not?

They do share a common ancestor BUT they share a MORE RECENT common ancestor with the Dokkalfar Elf.

7. Some researchers have theorized that Elves were the origin of Orcs. This phylogeny clearly shows that Orcs are more closely related to TROLLS (and the Gnome (Rowling)) and not Elves.

8. Are Gnomes a monophyletic group? Why or why not?

No because they are found in 2 "places" on the tree and do not share a recent common ancestor. You cannot do the <sup>clip test + cut</sup>

9. The phylogeny shows Fairies and Gnomes are closely related. Does this surprise you given what you know about the morphology (physical appearance/structure) of these two?

Yes it does because they look very different. (wings etc) <sup>only</sup> gnomes off this tree.

The authors conclude by pointing out the points below... Do these conclusions make sense? Check your understanding of their conclusions.

Although more extensive taxonomic revisions are necessary we propose a number of new classifications.

————— This is a little unclear to me.

1. (House elves (Rowling) should be considered house gnomes) and fairies are a highly evolved form of gnome that have achieved flight. We use new gnomelature to refer to the Gnome+Fairie clade as Pixies.
2. Christmas elves are in fact a type of dwarf, whose skills in stone craft have been adopted for toy making. Ancient Christmas elves probably made primitive stone toys. ✓
3. J.K. Rowlings gnomes, although having affinities for gardens, may in fact be distant relatives of orcs and trolls. We hesitantly suggest this, however, since this species has a large number of highly derived traits and secondary losses, which could potentially confound the analysis.