# MULTIMASS

This test is to show how `MESA` can consecutively run multiple stars described the same inlist, but with a set of different masses. The test should be cut off when the center hydrogen falls below a mass fraction of 0.6 (`xa_central_lower_limit_species(1) = 'h1' ; xa_central_lower_limit(1) = 0.6`).

In the directory there is a regular inlist, `inlist_multimass`, and an extra inlist, `inlist_job`, that contains the list of masses to be run. This test case starts with two masses, $9M_\odot$ and $1.85M_\odot$. Each one is run consecutively in the order listed in `inlist_job`, and all the log files from each run are stored in the same `LOGS/` directory. To differentiate the log files from each run, they are named with prefixes, such as `i001_star.log` and `i001_log1.data` for the first run, `i002_star.log` and `i002_log1.data` for the second run, etc. The point of this test is to experiment with a range of masses for a given star in one go, instead of enduring a tedious back-and-forth of running a model, changing its mass, and running again.

Below is an HR-diagram showing the evolutionary tracks of both stars in separate corners (figure 1).

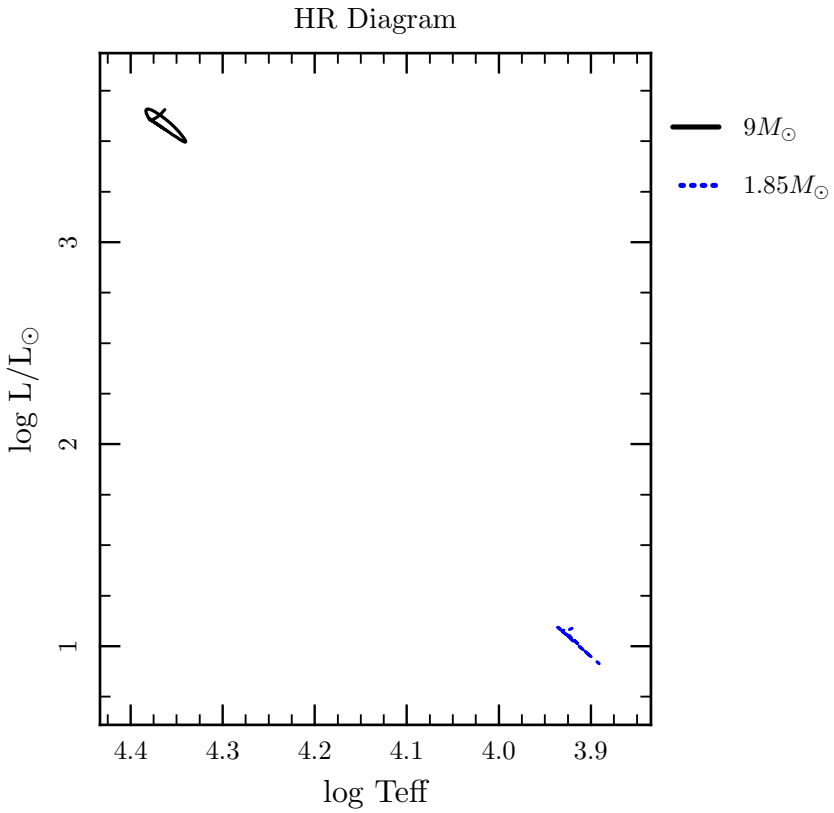


**Figure 1**

The different masses lead to different evolution times (Figure 2) and offset temperature-density relations, shown in Figure 3 for the end of the run.

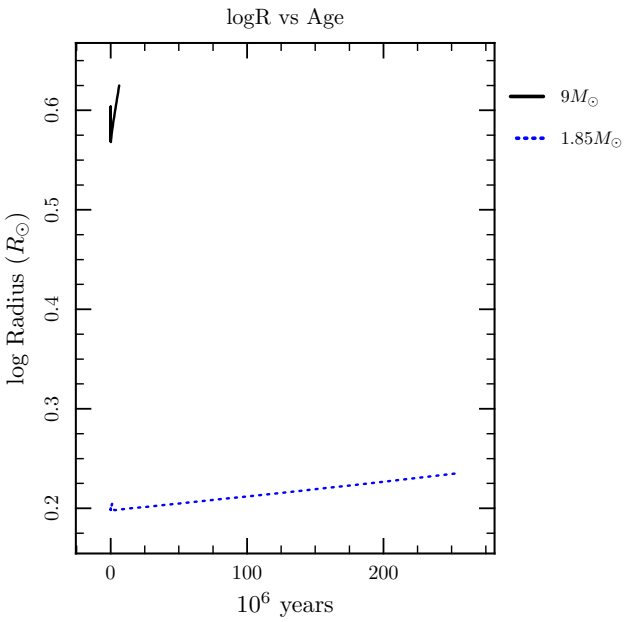


**Figure 2:** Mass affects growth rate

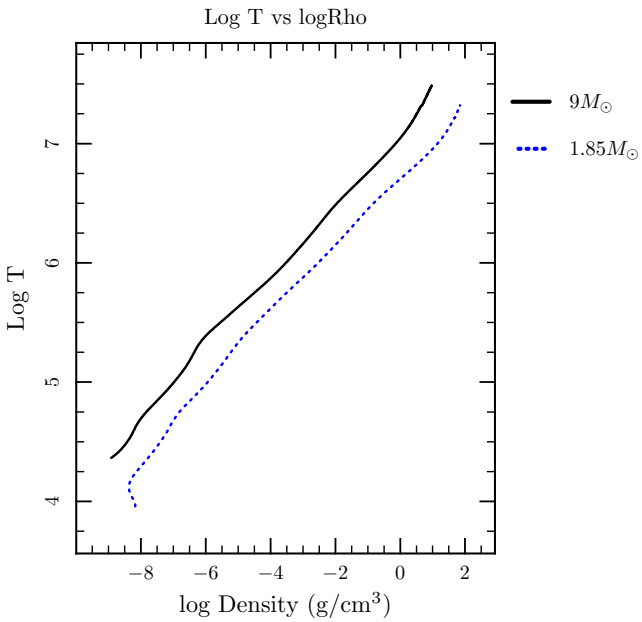


**Figure 3:** Temperature-denisty profiles from end of runs