MULTIPLE STARS

This test is to show how `MESA` can evolve multiple stars with separate inlists simultaneously. Each star is evolved for the same amount of time, 1.5×10^8 years. Therefore, if everything ran succesfully, the terminal output at the end of the run should read ''`all stars have reached stopping age`''.

Each star being computed in this test case has its own inlist. The number of stars and the filenames of their inlists are set in `inlist_multi_stars_job`, along with their stopping age (`stopping_age = 1.5e8`). The three inlists for this test are very similar. The first inlist, `inlist1`, loads a pre-saved model, `m3ms.mod`, while the other two inlists load $Z = Z_\odot$ ZAMS models. The only other difference is in the masses; inlists 1, 2, and 3 have masses 3 $M_\odot$, 3.1 $M_\odot$, and 3.2 $M_\odot$, respectively. This setup allows users to evolve and compare similar stars simultaneously while still being able to change a wide set of parameters and controls for each star individually.

Below is an HR-diagram showing the evolutionary tracks of all three stars (figure 1).
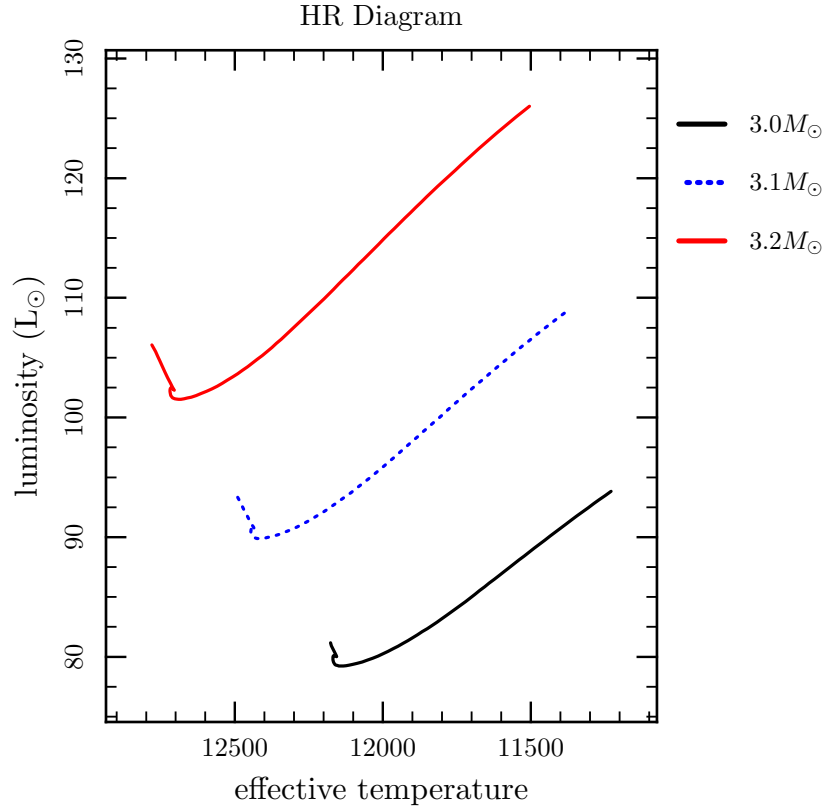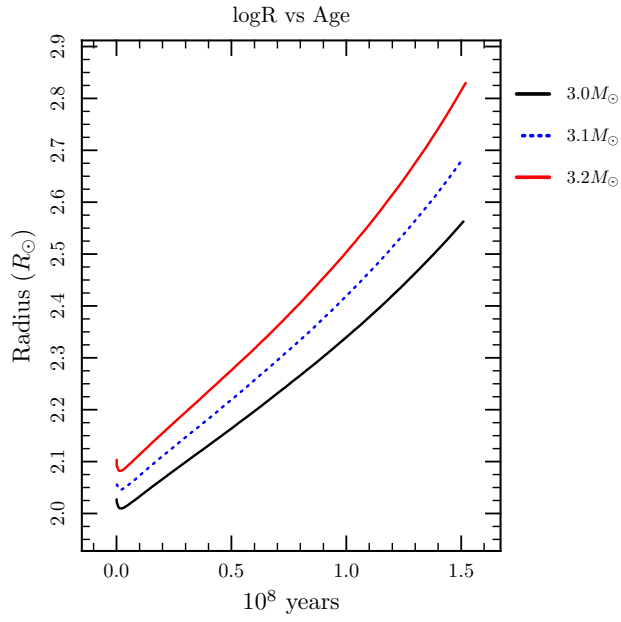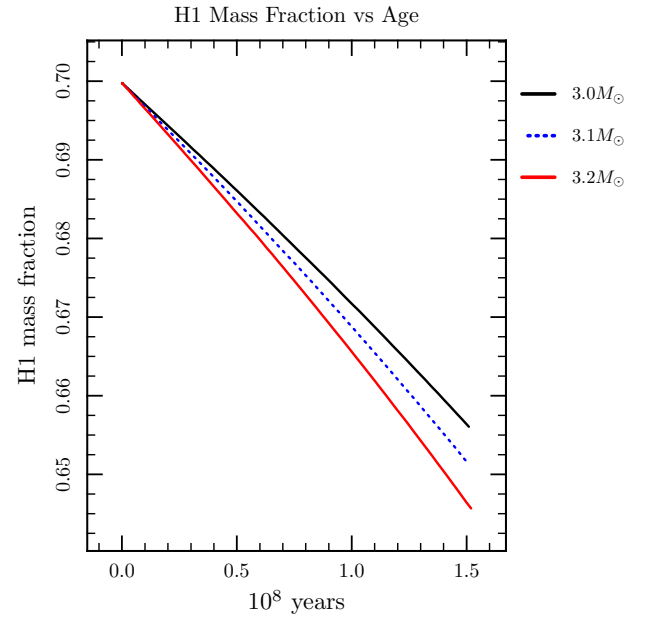

Figure 1

The growth of the radius on the main sequence depends on the mass (Figure 2), as does the rate of hydrogen consumption (Figure 3).

Figure 2: Radius evolution depends on mass

Figure 3: Burning rate of Hydrogen depends on mass