

Conclusion

- ▶ starting with what didn't work
- ▶ 5x5 grids tended to converge to the wrong answers in all but a handful of cases
- ▶ since our mixture model is not the true generative model, we can consistently converge on estimates of the mixing proportions that are incorrect.
- ▶ this is also likely the reason that parametric bootstrapping didn't work—the observed points are not actually generated from a set of mixing components, and so when we make the grid too granular, we find patterns that are not found in the simulated data.
- ▶ we did have success with 2x2 grids
- ▶ the EM algorithm converged, and we did not see any degeneracies—we always converged on the same answers, even if they weren't the "true" values.
- ▶ in some cases, the 5x5 grids were fit quite well
- ▶ m-out-of-n bootstrapping confirmed confidence intervals and covariance matrices derived from observed Fisher information
- ▶ we have done some work on adaptive gridding, based on finding the partitions of mass and time since accretion that maximize the difference between the mixing components, and the underlying metallicity curves
- ▶ adaptive gridding looks promising, but is still in the early stages
- ▶ since we have 1,500 metallicity curves, we have also investigated smoothing the curves to create 1,500 mixture components
- ▶ this might increase sensitivity of the algorithm
- ▶ this approach is also compatible with adaptive gridding