

Tomography question for 227a. Most of this can be answered by reading Guy's supplemental notes to chapter 5.

- a) What is Fermat's principle and why is it useful in seismic tomography?
- b) Why do tomographers "parameterize" their problems? What parameterizations have tomographers used and what are their pros and cons?
- c) When tomographers make a model, they worry about "resolution" and "error". What do these concepts mean and how are they related?
- d) How are tomographic problems solved in practice. What does this mean for assessing "resolution" and "error"? How is this assessment done in practice?
- e) In tomography, uncertainty arises because of uncertainty in earthquake location. Why is location uncertainty an issue and how is it handled in tomographic problems?
- f) Near-surface (crustal) structure can have a disproportionate effect on seismic signals and mask the effects of deeper structure. How is this effect handled in tomographic inversions?
- g) What is the single most important thing in the success of a tomographic inversion?