Statistical consulting
My experiences

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My situtation

- ► Applied statistician at a university
  - – No formal consulting role
  - – Do my best to answer colleagues' questions
  - – Can always say no

- ► Almost no experience with industry

- ► Almost no experience with consulting companies

Consulting vs. collaboration

- ► **Consulting**: short-term
    - – Try to answer a specific question within a week or two

- ► **Collaboration**: long-term
    - – Get to know the scientist's grander schemes

My experience

- Consulting class in graduate school at UC-Berkeley
  - Three times, with Andrew Gelman, Terry Speed, and David Freedman

- Postdoc with a geneticist
  - Relatively isolated from other statisticians

- Postdoc to faculty member
  - Steady stream of consulting experiences
  - From courses taught, referred by dept chair, other friends, software/papers

Why do it?

- ► Learn more biology

- ► See new data

- ► Think about new problems
  - – And it's nice to get an easy one, sometimes

- ► Be useful (help people)

- ► Publications

- ► Leads to long-term collaboration
  - – Find out if you like the person

- ► Could lead to new statistical methods research
  - – But that's more often from longer-term collaborations

The initial meeting

- ▸ Listen

- ▸ Verify that you're following

- ▸ Don't be embarrassed to admit ignorance

- ▸ Focus particularly on:
  - – Scientific questions
  - – Form of the data
  - – Where the data came from

- ▸ I'll usually delay giving specific advice to a second session

Key difficulties

- Admitting ignorance

- Getting the scientist to back way up

- ``I have a quick question…''

- You don't have time

- You see a big problem

- Co-authorship on publications

- They don't want anything fancy, and you think it's needed

How to say no

- ▸ Can you find someone to take over?

- ▸ Give at least a rough guide

- ▸ My two-week rule

Disadvantages

- ▸ You don't have time to do things properly

- ▸ You don't know what you're getting into

- ▸ You don't see long-term results

- ▸ I hate power/sample size calculations

Be self-sufficient

- Learn multiple programming languages
    - R
    - C/C++
    - Perl/Ruby/Python

- ``How would you like to receive the data?''

    ``In its current form.''

Time management

- ▶ Don't let short-term things crowd out your long-term projects

- ▶ Save big blocks of time for yourself.
  - – I reserve a full day each week for my own work

Summary

- ▶ Statistical consulting is fabulous
  - – Lots of new problems
  - – Learn a lot of science
  - – Help people

- ▶ Don't need to know the answer
  - – You just need to connect the scientist to the answer