

### Example 6.2

Scott Lasser is a statistician at a biostatistical consulting unit. For three years, part of his salary support came from a research grant awarded to Dr. Satya Sethuramen, a scientist in the field of nutrition. She was preparing to conduct a

clinical trial of the effects of a specific vitamin on the health of nursing mothers and their infants. This study required that the study subjects be randomized into three groups that differed in the dosage of the vitamin to be given to the mother. The effect of the vitamin would be determined from periodic blood and milk samples from the mother, and blood samples from the infant, and other health measures. The study was expensive to conduct and the research budget was very limited. Based on some previous data in the literature, Scott estimated that Dr. Sethuramen would need about 30 mother-infant pairs in each of the three groups in order to detect a clinically important effect. Because of the limited budget and the cost of recruiting and enrolling mother-infant pairs, Dr. Sethuramen wanted Scott to analyze the data repeatedly as it accrued. She would then stop the study at the point at which statistical significance was obtained. Scott was very concerned about this request. The proposal to test data repeatedly while information was accruing violated his sense of what was good statistical practice. To back up his position, Scott did a literature review on the topic of interim analysis of data, and spoke with several experts. He was able to persuade Dr. Sethuramen that there were problems associated with this proposed strategy. They agreed instead that Scott would conduct a formal interim analysis at two intermediate stages of the trial.

### Example 6.3

Michael Gregoriou works for the statistical support unit of a large engineering firm. One day he received a telephone call from Lawrence Nelson, an engineer who had what he believed to be a quick question about some data analysis on a statistical software package. Dr. Gregoriou was busy working on a project, but he provided a brief answer to the question. An hour later, Dr. Nelson called again with another question. Somewhat reluctantly, Michael provided another answer. A half-hour later, the engineer called again. This time Dr. Gregoriou answered very briefly with his annoyance clearly apparent in his voice. The engineer did not call again.

### Example 6.4

Valerie Scranton is a statistician at an academic consulting unit. Dr. Ramon Guitterez, a professor at the university, asked her to help with a research study that had already been conducted. During the course of the experiment, a serious flaw had developed with the design, due to circumstances that were beyond anybody's control. It was far too expensive to repeat the experiment, which involved exposing animals to the zero gravity conditions of space flight. Dr. Scranton worked out a method that could be used to accommodate the flaw, and carried out the appropriate analyses. Dr. Guitterez developed a manuscript and

rate for her time. The publication was accepted for publication, but Guitterez did not include Valerie as a co-author. She did not work with this professor again.

### Example 6.1

Nathan Thomas<sup>†</sup> works as a statistician in a medical center. He met with Josef Martin, the "go-between" for a physician. The physician, Dr. Frances Picardo, needed some analysis done for a research proposal. Josef was not entirely clear on what Nathan was supposed to do. He had to guess about some of the analyses. The result of having this go-between was that Nathan did a lot of analyses that were probably not necessary, and he was left wondering whether he answered the questions that Dr. Picardo really had. In the end, Nathan only billed for about half the time that he had worked on the project.

### Example 6.5

In this example, we return to the story from Chapter 2, involving Neil Snowball, the statistician with his own consulting business. When we left the story in Chapter 2, Neil had been discussing a possible consulting contract with Jack Frost, a representative of the state's Internal Revenue System. In this episode, Neil has signed the contract to develop a statistical program to forecast certain tax revenues. In this contract, he has agreed to develop a forecasting model from data to be provided by the agency. He will then write a computer program to implement the model on the agency's computing system. The contract stipulates a deadline for the delivery and successful implementation of the program. Neil's payment will be a fixed amount of money to be paid over a period of three months. The contract also stipulates that he may publish the results of his statistical work only with permission of the state agency. Jack suggested informally that this permission would be forthcoming, as long as Neil masks the data appropriately.

We pick up the story again at the end of the project. The project took much more time than Neil expected because of the computer programming. He did not realize when he estimated his time that he would have to develop the forecasting program on the out of date programming language of the agency's computing system. The agency provided Neil with a "no-cost" extension of the deadline in order to complete the computer program. Neil found the process of building a forecasting model with the agency's data to be very interesting and rewarding, and he wrote up a manuscript for publication. The agency refused permission for him to submit this manuscript. For several years afterwards Neil consulted annually with this agency, helping them to update the program and interpret the forecasts. He charged the agency an hourly rate for this consulting. He also continued to press for permission to publish, but was not successful. Eventually Neil stopped consulting with the agency. He doubts that they can continue to implement the forecasting program without regular statistical support.

### Example 6.6

Brenda Hollis is a statistician working in a government research unit. Brenda was asked to analyze some data from a research project that was a high priority for the agency. The agency scientist in charge of the project, Dr. Magda Landovska, was planning to present a paper on the results at a professional society meeting. Dr. Landovska was also going to be promoted soon to a position that had oversight over the statistics unit. Brenda's supervisor, Louis Chen, asked Brenda to set aside her other projects and make sure that the

analysis was finished in time for the presentation. The data from the project was extensive and required a lot of manipulation prior to analysis.

Brenda met with Dr. Landovska and they identified the highest priority tasks that were needed for the presentation. They agreed to defer the remaining tasks to be done with lower priority after the presentation. Brenda enjoyed developing the statistical models for the analysis and felt comfortable with the judgment required to implement them. The rest of the work was fairly tedious, requiring considerable effort to produce a large number of graphs from which the Dr. Landovska would select the final graphs for the presentation. They agreed that after the presentation, Brenda would analyze the remainder of the data and then show Dr. Landovska how to develop the graphs from that point. Dr. Chen expressed his appreciation to Brenda for enabling Dr. Landovska to meet her deadline, and reassured Brenda that usually the agency scientists are expected to produce their own graphs. Dr. Landovska also expressed her appreciation and invited Dr. Chen to discuss the needs of the statistics unit with her.