1. The Sith Lords are concerned that their recruiting slogan, "Give In to Your Anger," isn't very effective. Darth Vader develops an alternative slogan, "Together We Can Rule the Galaxy." They compare the slogans on two groups of 50 captured droids each.  
   In one group, Emperor Palpatine delivers the "Anger" slogan. In the other, Darth Vader presents the "Together" slogan. 20 droids convert to the Dark Side after hearing Palpatine's slogan, while only 5 droids convert after hearing Vader's. The Sith's data scientist concludes that "Anger" is a more effective slogan and should continue to be used.

Flaws: Two variables exist: message and presenter. However, the experiment does not control the for influence of who delivers the message.

Correction: The study should be split up where 4 groups 25 droids are treated with either: “Anger” by Vader, “Anger” by Uncle Empy, “Together” by Vader, and “Together” by Uncle Empy.

In the past, the Jedi have had difficulty with public relations. They send two envoys, Jar Jar Binks and Mace Windu, to four friendly and four unfriendly planets respectively, with the goal of promoting favorable feelings toward the Jedi.  
Upon their return, the envoys learn that Jar Jar was much more effective than Windu: Over 75% of the people surveyed said their attitudes had become more favorable after speaking with Jar Jar, while only 65% said their attitudes had become more favorable after speaking with Windu. This makes Windu angry, because he is sure that he had a better success rate than Jar Jar on every planet. The Jedi choose Jar Jar to be their representative in the future.

Flaws: The samples in the two groups are not equal representations of the population.

Correction: Both envoys should be sent to equal number of friendly and unfriendly planets each.

1. A company with work sites in five different countries has sent you data on employee satisfaction rates for workers in Human Resources and workers in Information Technology. Most HR workers are concentrated in three of the countries, while IT workers are equally distributed across worksites. The company requests a report on satisfaction for each job type. You calculate average job satisfaction for HR and for IT and present the report.

Flaws: The dissatisfaction in the more concentrated group (HR) may be biased due to external variables of location or even within the office location if even one of them are toxic and this sample can affect the overall satisfaction. This would be an example simpsons paradox.

Correction: Compare surveys of IT workers that are in the same countries as the HR workers.

1. When people install the Happy Days Fitness Tracker app, they are asked to "opt in" to a data collection scheme where their level of physical activity data is automatically sent to the company for product research purposes. During your interview with the company, they tell you that the app is very effective because after installing the app, the data show that people's activity levels rise steadily.

Flaws: People who opt in may be more fit and more and wanting to track their fitness whereas unfit people may not

Correction: The opt in could be made the default where people would have to opt out instead. This might make it more likely to have more people passively join the experiment.

1. To prevent cheating, a teacher writes three versions of a test. She stacks the three versions together, first all copies of Version A, then all copies of Version B, then all copies of Version C. As students arrive for the exam, each student takes a test. When grading the test, the teacher finds that students who took Version B scored higher than students who took either Version A or Version C. She concludes from this that Version B is easier, and discards it.

Flaw: The order in which students arrive might influence what types of students there are and where they sit. Also, the outcomes are not testing the hypothesis. This method is meant to reduce cheating, yet teacher concludes one version of the test is easier than the others.

Correct: Stack exams in an ABC repeated order so that people that arrive early, time or late is controlled. Or wait until everyone arrives and then administer test in an ABC order across seat rows to control for seating and to ensure that similar tests are separated far apart among students.