



Chapter 1: Probability – The Underlying Principles

Assignment

This is an interesting exercise in a number of ways. This type of traffic census is very common, but it can lead to many difficulties if used for predictive purposes. Taking the survey you have been asked to carry out, the difficulty is that the two events are snapshot views. Therefore:

1. Did the same total number of vehicles pass the census point each day?
2. Did the same number of each type of vehicle pass the census point each day?

The likely answer to both questions is 'no'. The numbers may be similar, but it would be extraordinary if they were identical. There are so many factors that will have influenced the starting and finishing of people's journeys. The time of day was one that the assignment wanted you to control and you would expect to record the journeys of people who are normally on the road at the same time each day, but there will almost certainly be others who are not. A different kind of question may be able to be answered on the basis of these two snapshots.

1. Were the numbers of vehicles counted each day of a similar order (e.g. 250 and 300, say)?
2. Were the proportions of each type of vehicles similar on both days (e.g. there were more vans than cars, or 25% and 30% each day respectively were vans, 10% and 15% were cars, and 1% and 1.5% were bicycles)?

In other words, the questions are more concerned with patterns than absolute values. However, after two surveys of this kind, the best you are likely to be able to say will be by using general statements like: there will probably be more vans than cars on the third day. Even that is a bit of a gamble because Monday and Tuesday may have very different characteristics to Wednesday. This was alluded to when you were asked to carry out your survey on a wee day rather than a weekend. Experience will lead us to the conclusion that Saturday and Sunday traffic will be different in character.

Patterns are important in survey work – including social survey work – but you can only begin to create useful predictive statements after you have made many measurements. Once you have a large bank of data, you can begin to examine it for patterns and to calculate summary statistics. These are discussed in chapters 7 and 8. Only then can you predict likely traffic flow (e.g. based on means, standard deviations). Only then can you begin to develop hypotheses about causes of patterns (based on the work set out in chapter 9) – e.g. time of day, day of the week, month of the year.