

# Geographical offender profiling

## What is geographical profiling?

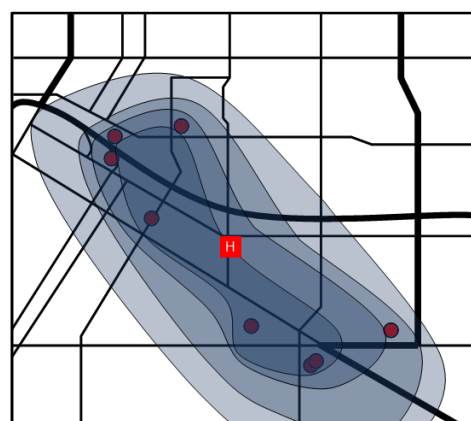
Crime is not randomly distributed, either temporally or geographically. It is obvious that offences happen more often in certain places and at certain times. Geographical profiling is a term which covers attempts to make predictions about offenders based on information about the location and the timing of offences. Geographical profiling can be used to:

- Identify which a number of offences are linked (e.g. carried out by the same offender or offenders) and which are not, which helps to focus investigations.
- Predict characteristics of the offender(s) responsible for a series of offences (e.g. where they are likely to live; what sort of knowledge they have of a particular area) to help target investigative efforts and prioritise suspects.
- Understand the link between offending and location such as why certain places attract more crime than others and why, even in 'high crime' neighbourhoods, some addresses are repeatedly victimized and some are left alone.
- Help police and other official bodies target crime prevention resources in the right areas and in the right sorts of ways.

## Crime mapping and routine activity theory

Routine activity theory (RAT) is an approach to understanding offending that starts from the principle that any crime requires three circumstances to coincide: (1) a motivated offender; (2) a suitable victim; and (3) the absence of a capable guardian. RAT does not address the question of *why* offenders commit crimes, it just assumes that in any area there are a certain number of people who are motivated to do so. RAT sees offending as little different from any of the other things a person might regularly do. This is significant, since most of a person's activities are confined to a few fairly limited areas: where they live; where they work; where they socialize and so on. It might be expected, then, that a person's offences will also be limited in the geographical area in which they occur.

An example of geographical profiling of this sort comes from Canter (2003), describing a computerized system called Dagnet, which uses information about the location of offences to predict where an offender is likely to live. Dagnet was fed information about a number of linked rapes in Las Vegas. The map produced by Dagnet suggested probabilities that the offender responsible was based in different regions. An investigating officer was able to use his knowledge of the local area to narrow the focus of the investigation to a single apartment block, where the offender was subsequently arrested (Canter, 2003).



Based on Canter (2003) p. 151. Not to scale.

## Circle theory of environmental range

Based on the finding that in many cases they examined, offenders lived fairly close to where they committed their offences, Canter and Larkin (1993) put forward the circle theory of environmental range. Basically, this proposes that the majority of the time, if a circle is drawn that encompasses all of a series of linked crimes, the offender will be based somewhere within the circle. Rossmo (2000) suggests that in general, criminals offend close to their homes (or other base) and the number of offences drops off with increasing distance from the base.

There is a fair amount of support for this view. Godwin and Canter (1997) found that 85 per cent of the offenders they studied lived inside the circle encompassing their offences. Koscis and Irwin

(1997) confirmed this looking at serial rapes and arson attacks in Australia. However, Kosciis and Irwin also found that the same finding did not appear to hold for burglary; only about half the time did burglars live in the circle defined by their offences. Snook et al (2005) examined the offence locations of 53 serial murderers in Germany. In 63% of cases the killer lived within 6 miles of where the bodies were found. Younger offenders travelled shorter distances and killers with higher IQs travelled further, suggesting that experience and intelligence influence killers' attempts to disguise their crimes. This finding suggests that information about the dispersal of offences may indicate some general characteristics of the offender responsible.

### **Mental maps**

People develop internal representations of the world they live in, especially the areas they make frequent use of. What is particularly interesting about these mental maps is that they do not accurately represent reality; they represent the perspective and experience of the individual. So, for example, a car driver might have a rather different mental map of Birmingham than a bus user or a pedestrian. Similarly, a Londoner's mental map of their city centre may be very different depending on whether they walk or use the underground. Because a criminal's offences are likely to be influenced by their mental map of an area, the distribution of their offences can be used to make inferences about them. For example, Canter used the locations of John Duffy's attacks to predict that he would be someone with more knowledge of the railway network than a casual rail user. It turned out that Duffy was employed as a carpenter by British Rail.

### **Timing of offences**

Ainsworth (2001) stresses that geographical information about offending becomes much more useful when it is combined with temporal information. For example, a spate of burglaries that occur between 3pm and 4pm might be carried out by teenaged offenders, since this is the time when the typical British school day finishes, and teenagers will be travelling home. Similarly, there tend to be clusters of crime centred on universities or areas with high levels of student residence. This is what routine activity theory might predict, as university students present an opportunity for offenders. However, the prevailing type of crime varies over the course of the year. Street robberies increase in September and October, when large numbers of new students arrive. Burglaries, however, peak at Christmas, Easter and over the summer, as this is when large numbers of student-occupied properties are left empty.

### **Geographical profiling: general issues**

Geographical profiling has much to offer the police. It is of considerable value in helping them determine how to deploy resources, allows informed judgements to be made about which crimes are linked and can contribute significantly to the task of narrowing down a list of suspects. In the form pioneered by Canter and his colleagues, it is also based on well-established psychological principles and conducted in a scientific manner: hypotheses are developed which can be tested against evidence and modified or rejected as the evidence dictates.

Geographical profiling is not without its problems, however. In order to work, it requires accurate data on the offences that have been committed in an area. As we have previously seen, police data on crime is limited by a number of factors that lead to under-reporting, so the data from which crime maps are generated is likely to be incomplete. Additional problems can arise from inconsistencies in how the locations of crimes may be recorded by the police. There are also problems that arise from the vast amount of data that the police might have available – it can be difficult to know what to leave out when attempting to construct a crime map. Canter (2003) suggests that it is of most potential use in countries like the United States where there are many different law enforcement agencies, possibly with little data sharing between them. There, geographical profiling using data from different sources can link crimes that otherwise might not have been linked.