

Atlantic International University

Bachelors in Legal Sciences

ID: UB92553FO101774

Forensic Sciences and Criminology

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USA

February

2026



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## **1. INTRODUCTION**

One of the greatest contributions of the criminological profile technique to the investigation of law enforcement bodies is related to the fact that it lends itself well to the analysis of links, that is, to establish links between different cases, associating them with a single criminal.

In some police cases, investigators are faced with cases that appear to be unrelated and have no apparent relationship with each other, but which have some characteristics that may suggest that relationship. For others, a suspect is arrested for a crime that reminds in some of its elements of a previous case that remains unsolved. In these situations, it is very useful to carry out a link analysis to determine the possible link between different cases.

It is usually a frequently used tool in serial crime cases. One of the main characteristics of serial crimes, especially serial homicide, is that the criminal is a stranger to the victim, not part of their social circle, which means that detecting, linking and identifying a suspect is extremely difficult, especially if there is a lack of evidence pointing to a specific direction of investigation. In most homicide and murder cases, the offender has some degree of closeness to the victim, which means that investigators will usually start investigating the victim's direct circle and gradually walk away. If the victim's direct and indirect circles are exhausted without finding a potential suspect, the number of possible criminals explodes enormously, complicating the investigation and the chances of solving it. On some occasions, investigators are faced with these types of cases, and one of the strategies they can use is to try to find other similar crimes and see if the link provides new ideas and productive investigative ideas.

## 2. LINKING SERIAL CASES

One of the biggest challenges a police investigator can face is a serial crime case, especially if it is a serial homicide. These types of cases, although obviously rare, when they happen, give rise to a complicated investigation because its characteristics separate it from the common crime: the methodology, strategies, resources and efforts are completely different from those for a non-serial crime.

The first problem faced by the law enforcement bodies in these cases is precisely the identification of the series, that is, the ascertainment of the crimes that are linked to each other, forming a series of crimes that are committed by the same offender or criminals.

This situation is not reached immediately, rather several cases usually occur during an ongoing investigation and, for some reason, are associated and then links are found. Sometimes cases occur in a short time frame, while in other cases they occur at different times.

This first step, identifying the crime as serial, is usually the most difficult for law enforcement. Rossmo (2000) identified a number of variables that influence and complicate efforts when linking a series:

— Societal fear about the existence of serial crimes. This fear is especially present in the case of serial murders, when it turns out that there is a person who takes pleasure in killing others and anyone who could be their next victim. Leyton, in his book *Human Hunters*, talks about the hysteria that engulfed American society when, in the 1980s, the Department of Justice reported the existence of no less than a hundred multiple killers in the United States, ready to act at any moment.

—Lack of experience of law enforcement bodies in serial cases. As mentioned earlier, investigating a serial case is complicated and does not resemble the way law enforcement typically operates and handles cases, which causes investigators themselves to sometimes deny the existence of serial crimes. Usually, normal investigation strategies do not work in these types of cases, it requires hard, coordinated teamwork, as well as many professionals, which is why sometimes the intervention of teams or units specialized in these types of investigations is needed.

The jurisdictional issues, internal disputes, and political and media pressure that usually surround these cases complicate the situation. This issue was clearly visible in the case of the "Card Deck Killer". Investigators followed several lines of investigation without asking about the possibility of a serial killer until almost the end, when the killer himself entered the premises. The lack of experience in these types of cases makes the evidence related to the links imperceptible to investigators and all possible lines of investigation are exhausted before admitting the existence of a serial killer.

—In relation to the previous point, coordination efforts between the different law enforcement agencies are required in these types of cases. It is quite possible that each case, before being linked, will be assigned to different investigators, each with their own teams, resources...

When cases are finally linked and the existence of a single offender is confirmed, the case manager must be reassigned, information must be shared between the different teams, resource coordinates, work must not be duplicated, and cooperation must be sought, not interference. .

—Criminals learn over time and change their method of operation, which can lead to many cases committed by the same criminal not being linked just because they do not resemble each other at all. In these cases, a good analysis of the link to unsolved crimes can be very useful.

—The phenomenon known as "copy-cat", criminals who copy the MO of other criminals.

—False confessions from people who, due to the media frenzy and notoriety that usually surrounds serial murders, incriminate themselves in order to become famous or to benefit from some other benefit.

An example of this was seen in the case called "The Crime Thief".  
[http://internacional.elpais.com/internacional/2012/11/23/actualidad/1353699763\\_314441.html?rel=rosEP](http://internacional.elpais.com/internacional/2012/11/23/actualidad/1353699763_314441.html?rel=rosEP)

### 3. **BINDING METHODS.**

As we have seen, both in serial crimes and in other types of crimes, link analysis is a good tool both in the initial phases of an investigation, to identify a series, and for more advanced phases, in which other unsolved cases may be linked or suspects may be associated with events that apparently had no connection. The three main methods used by law enforcement bodies to deal with liaison crimes are:

- Physical evidence.
- Description of the offender.
- Behaviors at the scene of the crime.

#### **Physical evidence:**

Some physical evidence, especially those that are capable of particularly strong individualization, such as DNA or fingerprints, have great value in connection with cases. In fact, this evidence can be considered the central element of the connection due to its strong ability to connect and associate criminals with crime scenes. The enormous development that fingerprint analysis has gone through in recent decades, as well as genetic identification and analysis techniques in recent years, have increased the percentage of cases solved, including some that have remained closed due to a lack of information to continue their investigation. .

These advances have served to develop computerized databases that store genetic and fingerprint information from solved and pending cases and that can be used by investigators to link cases (examples of such databases are CODIS and AFIS).

Other evidence, such as those related to ballistics, does not directly link people, but in this case they can link the weapon used in different scenes and, occasionally, by extension, their user.

When this physical evidence is not found at the crime scene, it can be helpful to carry it out a link analysis based on the criminological profiling technique.

#### **Description of the offender:**

This option is only viable when we can rely on a description provided in a statement by a witness or victim. In this sense, the victim or witness should be able to verbalize a description based on the memory he has of the offender, while, on the other hand, the artist responsible for creating the identikit image of the offender must be able to interpret what the witness does. Or the victim says it and turns it into an image or drawing.

Although we will not go into detail in this regard, the memory of a face, especially in the context of a crime, can be affected by a variety of variables such as lighting, victim stress, level of victim injury, drug use, sweaty time, false memory.

Currently, the proliferation of security systems and photographic and video recording devices that are distributed around public and private spaces or even in the hands of citizens, helps to collect images of criminal acts and their perpetrators. In some cases, we may identify

an offender directly in front of them or other physical characteristics; On other occasions, identification can be done through other elements such as their vehicle.

In the case of the killer in the parking lot, one of the most notorious serial killer cases in Spain, the case was solved after watching hundreds of hours of video in which the killer was recognized thanks to the recordings of the security system of several financial institutions from which he tried to withdraw money with the cards he had stolen from his victims, as well as several subway stations where the killer entered and exited. Retracing his steps in locations and moments related to events made it possible to link Juan José Pérez Rangel as the author of those crimes very conclusively.

### **Crime scene behaviors:**

Typically, what has been used as elements to find similarities between different crimes, and therefore link them, are the description and comparison of the modus operandi of the offender. As mentioned in the lesson on MO, it is made up of behaviors displayed by the offender to achieve three goals:

- It allows the crime to be committed.
- Hide the identity of the offender.
- It makes it easy to escape.

As we've discussed in other lessons, MO constantly changes and evolves (or transfers, if applicable) throughout a series of murders and the offender's career. OM and its behaviors are not static, they change due to the offender's learning, evolve due to drug use or mental or physical deterioration, and are affected by the influence of the victim and the environment in which the crime is committed.

Sometimes, some MO behaviors are not displayed in a certain crime, and in another new behaviors appear, without this meaning that they are crimes committed by different criminals. Connecting cases through MO analysis is complicated and very risky, other elements are required.

The use of MO makes more sense when we are faced with behaviors that have a particularly distinctive element because they are bizarre or unusual in terms of other cases (examples of this

it can be the use of a special ligation or specific communication, interaction or verbalization directed from the offender to the victim).

Although we will talk about the consistency of criminal behavior later, we must mention that the link stems from the identification and comparison of behaviors between crimes, which have sufficient discriminatory and distinctive value to make that link between crimes reliably. In some cases we could identify behaviors that have that discriminatory behavior; In other cases, we may need to replace that quality with a behavioral link that, while not as strong in their distinctive capacity, correlates in a statistically significant way with other behaviors in different cases.

Examples of this could be the technique Godwin used to conduct an analysis of several unsolved murders in Raleigh. To do this, he identified a number of traits after analyzing the information provided by crime scenes and forensic reports:

- Using the link.
- Sperm found at the scene of the crime.
- Using blunt objects as a weapon.
- Restricting the movement of victims.
- Hands and feet as weapons.
- Anal penetration.
- vaginal penetration.
- Scattered clothing.
- Naked victim.

On these elements he performed a statistical scaling analysis that studied the correlations between the different variables in 15 cases of serial murder (10 of them solved and used as control data, to provide statistical reliability to the analysis, and the 5 Raleigh cases). The results showed that the resolved cases that were linked had a high correlation, that is, they shared the aforementioned traits and were differentiated from all other cases. In this sense, the 5 unsolved cases showed a correlation of 1.00, that is, they shared 100% of the identified traits, which meant that it was very likely that they had been committed in the same way and therefore by the same criminal.

Despite the methodological and statistical criticisms that can be directed at this methodology, it can sometimes be useful in link analyses and are obviously more reliable than mere intuition or speculation.

Kocsis did something similar in his studies, using cluster analysis. In this case, he analyzed the characteristics of the crime scene and looked for correlations between them on a two-dimensional plane.

The behaviors or characteristics that were more frequently found together at the crime scene would occupy that plane in groups or tight groups and could therefore be considered elements belonging to a pattern of criminal behavior. One of the consequences of this result is that it shows us a whole collection of behaviors and characteristics of the crime scene that have a high correlation with all identifiable behavioral patterns and that occur frequently, in most scenes.

Therefore, these are behaviors that cannot be used to link cases, since they occur in almost every place of the crime and therefore have no discriminatory value. Some of these variables that he found in his analysis of serial sex killers are: the use of gloves, the use of the knife during the attack, the hiding of the corpse, the sexual activity with the victim, the weapon found at the scene... (Kocsis, 2006).

## Cluster analysis example

One element that we can analyze together with the MO is the signature. This is considered more static than MO, since it refers to behaviors related to the motivation of the offender and his psychological needs, which the offender tries to cover through his actions. If we understand that the motivation and needs that determine an individual to commit a crime are relatively stable, so will the behaviors that reflect this, necessarily making them present in each of the crimes they commit.

As noted in the lesson on signature, Turvey (2008) disagrees with the supposed static nature of the signature, pointing out a variety of issues that can make identifying signature behaviors problematic:

- Confusing MO behaviors with signature behaviors. Hazelwood and Burgess (1995) pointed out how, in general, the method of approaching the victim is usually considered part of OM. However, in the case of a serial rapist, these authors talk about how, after catching him, the rapist stated that his motivation focused on the power he felt when he managed to convince an intelligent woman to go with him, a foreigner, without having to resort to physical violence. In this case, the approach strategy was part of his signature.

In another case, which we have already talked about, a serial rapist who entered the houses rapes women, forced them to immobilize their male partners, who were with them. This can be seen as part of OM, as it allows the rapist to commit sexual assault without hindrance; However, the in-depth analysis leads us to realize that one of the motivations of the rapist was to present the way in which the woman neutralized her protector, her significant other, made them powerless and replaced that significant other in a sexual relationship.

- Behind the same behavior there may be different motivations.
- The same psychological need can be covered by several behaviors.
- Sometimes, signature behaviors are not present at the scene because they could not be carried out (the offender did not have enough time to go through them, was interrupted...) or because the evidence shows that their presence has disappeared, is not noticeable or has been destroyed during the processing of the crime scene. In general, a crime scene analyst will find more MO than signature elements, since the elements that compose it are much easier to identify: the day and time of the crime, the weapon used, the gender, the age of the victim... The signature on the other hand. The hand is much more specific, it includes documents

designed specifically to complement the motivation of the crime and to meet the psychological needs of the offender (Hazelwood and Burgess, 1995). A good analysis of the crime is necessary to identify the signature of the offender, the simple repetition of a behavior in different crimes is not enough to be considered a signature, we must dig deep and interpret what the offender is looking for in his crimes, what he feels and what he wants, what drives him to do what he does and what he achieves when he does it. To do this, we should not look for specific behaviors as much as behaviors that have the same meaning, that work towards the same outcome, although they are operationally different, are similar in content. For example, a sex offender may try to control his victims; He may find that a victim puts up great resistance in an attack, which forces him to gain that control through physical force. In another attack,

however, the victim may be very submissive and control is gained simply by ordering the victim to tell them what they want. The offender achieves his goal in both aggressions, but the behaviors by which he achieves it are completely different. If we are only looking for many wounds and traumas to the victim or only verbal orders, we will not connect both cases.

Therefore, link analysis should not be based solely on looking for repeated behaviors from one crime to another. The characteristics of the MO and the signature, as we have seen, do not allow the simple repetition of actions and behaviors on the part of the offender, we must identify the meaning, content, fantasies and consequences, analyzing them not from their frequency during the crimes, but through their correlations based on the consistency of the offender's behavior.

#### 4. BEHAVIORAL CONSISTENCY.

The key to the connection is conditioned by two factors. On the one hand, the consistency of the offender's behavior and the level of discrimination that this behavior has against other offenders.

The problem of behavioral coherence has been present in psychology since its dawn. Can we predict behavior? Do we always act the same, in different situations and over time? These are questions to which answers have been attempted throughout the entire development of psychological science. We can summarize by saying that the problem has gone through several phases, in the first of which the trait or internalist theory was developed, in which individual behavior is shown to be consistent throughout situations and stable over time. Such consistency and stability are the result of internal characteristics of the individual, generally called traits, which configure the unique personality of each individual. From this perspective, the subject always behaves and acts in the same manner, since thanks to his features, it is the only way he can.

Contrary to this perspective, situationism has grown, a current whose fundamental idea is that behavior is learned, and therefore the environment has a lot to say about how a subject behaves. The situation is essential when it comes to determining appropriate behavior, therefore, the behavior is very specific and does not present a significant transitional consistency, that is, the person acts in one way or another depending on the situation and a variety of variables related to it.

As is usually the case, sooner or later a current appears that opts for an intermediate point; This would be the interactionist current, which basically states that behavior depends on the interaction of personal variables, situational variables, and behavior itself. Subject behavior is seen as a dynamic process of multidirectional interactions of mutual causality. From this perspective, it is understood that both the subject and the context have active roles, in the sense that one is an agent of the action, and the other is capable of modifying the subject's behavior.

Variables such as cognitive factors, emotional aspects, situational perception, and unique situational characteristics ultimately affect the subject's behavior in that situation.

From any perspective, the experimental results and field studies that used each theory to defend their arguments were less clear than our own logic and intuition, inherent in all of us, regarding the idea that the person will usually manifest some degree of consistency in their way of being and behaving. It seems reasonable to believe that the absolute specificity of behavior is not possible, each of us could think of someone we think we know well and try to predict his behavior in certain situations, with a high probability of doing good. What we may not understand so well is the description of specific behaviors, but at least we will guess the end result and the meaning of those behaviors. We can do this basically because we have identified the transitional consistency in that person and because they tend to repeat their behavioral pattern (we can call this personality, if we want) in different situations. Now, it is also logical to think that the behavioral pattern of a subject can change over time and in different situations,

which means that the consistency must be nuanced (remember the evolution of MO). The situation, the environment with which the subject interacts and variables such as learning, rules, group behavior, models... influence behavior and must be taken into account, as well as cognitive variables such as perceptions, motivation, fantasies, evaluations and emotional-affective states of the subject.

It seems that the interactionist approach, although more complex, covers all the variables that must be taken into account when analyzing the consistency of human behavior. In this sense, interactionists speak of behavior as situational and general trans-situational, that is, the subject behaves in a certain way according to the characteristics of the situation, but if we look at the big picture, over time and situations, the subject manifests a certain degree of consistency in his behavior, in such a way that we can identify him and to some extent foresee it.

In terms of criminal behavior, in general, consistency studies have been based mainly on the analysis of serial crime, trying to identify behavioral patterns and variables of behavioral change. In this book, attempts were seen to identify and classify different patterns of behavior, looking not only for the transitional consistency of the offender, but also for intragroup consistency.

In terms of change factors, some authors have highlighted those caused by learning and unique situational characteristics, while others explain the offender's behavior as a loss of control due to the inability to sufficiently activate their cognitive patterns and achieve the goals they are pursuing. In any case, the goal is to identify the variables that explain the change, to be aware of them and to find consistency.

Harbourt and Mokros (in Sorochinski and Salfati, 2010) found in their studies that many criminals change their behavior from the first to the second of their serial murders.

Looking at these changes, they have occurred in particular due to a criminal learning process that has led to the choice of a better weapon, a better time or day for committing crimes, or better targeting of victims to reduce risk.

These authors also analyzed German serial killers, finding that there was no particular consistency in the killers' modus operandi, while signature behaviors showed greater consistency, although these behaviors were only evident in a small number of murders.

Hazelwood, Reboussin, and Warren (in Sorochinski and Salfati, 2010) studied 41 incarcerated serial rapists.

The objective of the study was to analyze the escalation of aggression manifested by rapists during their series of attacks. These authors found that those who increased their aggression (a quarter of the sample) were no different from those who did not in their first murders; However, in their latest attacks, these rapists have exercised much more violence and aggression, differing significantly from those used in their first ones. This escalation of violence is explained by the authors as a consequence of the development of sadistic fantasies that have developed over time.

**SALFATI AND BATEMAN (2005)** STUDIED 23 SERIAL KILLERS IN THE US, RESPONSIBLE FOR 69 VICTIMS. THEY EVALUATED 94 VARIABLES, 61 BEHAVIORS IN THE CRIME SCENE AND 33 RELATED TO THE CHARACTERISTICS OF THE OFFENDER.

THE RESULTS SHOWED A GREAT BEHAVIORAL CONSISTENCY OF SERIAL KILLERS WHEN THEY ARE CLASSIFIED

ACCORDING TO THE EXPRESSIVE-INSTRUMENTAL TYPOLOGY USED BY CANTER. THE SUBJECTS OWED CONSEQUENCE IN BEHAVIORS THAT CLASSIFIED THEM AS EXPRESSIVE OR INSTRUMENTAL CRIMES.

**LUNDRIGAN, CZARNOMSKI, AND WILSON (2010)** STUDIED 76 SERIAL SEXUAL DEFINERS RESPONSIBLE FOR 270 ATALS, ATTEMPTING TO ANALYZE INTRA- AND EXTRASERIAL CONSISTENCY. RATED

THE CONSISTENCY OF 8 VARIABLES: THE LOCALITY OF CONTACT WITH THE VICTIM, THE METHOD OF TRANSPORT TO THE VICTIM, THE DAY OF THE WEEK CHOSEN FOR THE COMMISSION OF CRIMES, THE TIME CHOSEN, THE DISTANCE TRAVELED BY THE OFFENDER,

THE TYPE OF LOCATION WHERE THE CRIME OCCURRED, USE OF THE AREA WHERE THE CRIME OCCURRED (COMMERCIAL, LEISURE, URBAN...) AND AN ASSESSMENT OF THE EXCLUSIVITY OF THE AREA (TO ANALYZE THE SOCIO-ECONOMIC LEVEL). THE RESULTS SHOWED HOW, ALTHOUGH THE CRIMINALS WERE NOT KNOWN TO EACH OTHER, THEY REGULATED A CERTAIN CONSISTENCY IN THEIR OWN SERIES REGARDING OTHER CRIMES. IT SEEMS THAT ALTHOUGH CHANGING THE BEHAVIOR OF THE KILLERS CAN BE IDENTIFIED IN THEIR SERIES.

The study of coherence is complicated if we stick to theory, we should not only identify the behaviors of the offender, as has been done so far, we should also pay attention to the situation, the place of the crime and the characteristics of the victim, since as well as the cognitive and psychological variables of the criminals who intervene in the crime in question. This means that we cannot only look for the behavior X of the offender in different crimes, rather we must bear in mind that in front of a victim who acts in mode Y, the behavior will be X, but if the victim acts in manner Z, the behavior will be K. Moreover, behaviors X or K can be altered by the fact that the situation presents itself as A or B.

The large number of variables that are involved complicates an exhaustive analysis, not only for the statistical methodology, but also for the identification of variables that are particularly influential on consistency or specificity. New studies should use multivariate analysis techniques, introducing new factors that are necessary apart from the offender's behavior.

From the point of view of coherence, we could conclude that, it is reasonable to consider it a trait in itself, that is, there may be consistent and constant offenders and others who are not, which can lead us to redefine our dependent and independent variables.

So far, we have seen how the analysis of the link, as a technique derived from the criminological profile, must take into account the MO and the signature of the offender, identifying the characteristics and properties of each element, looking for correlations that show a degree of uniqueness and a sufficiently high discrimination. so that different cases are associated with a single offender.

Two other elements that can be analyzed to link are time and space. Time, even though it is less certain and more uncertain, must be taken into account in those cases in which a temporal relationship can be established between the various offences.

We say that time is uncertain and uncertain because there is no contrasting data showing a specific period of action for each type of offender. The casuistry regarding these variables is quite extensive and it is simply not possible to establish fixed models, since it is also a factor that is conditioned by several variables.

However, as in space, when a crime occurs appears to be a variable from which the offender has a great measure of choice, which means that we should not ignore it as an element link.

There is no consensus among professionals regarding the specification of a cooling period that is typical of serial killers. For some, their homicidal impulses can be more or less controlled; For others, sooner or later, phases of pre-homicide stress and suffering appear.

If we add to this all the variables that can affect a criminal's choice to act at one time or another, we have a wide collection of factors that are difficult to manage.

In some cases, it is possible to establish a certain temporal relationship between the different crimes, which can provide another linking element that can support the analysis of other elements such as the MO or signature. In the criminological literature, there are many studies that consider the day of the week in which crimes are committed as an identifiable variable of a particular offender. In general, they tend to distinguish between weekend offenders and weekday offenders. The subject must balance his criminal life with his non-criminal life, which means being subjected to certain programs and time determinants. Everything from going to work, to getting sick or arrested, are temporal determinants that limit the offender's choice of when to act. Moreover, victimology can also have temporal influence, as is, for example, the case of a rapist who targets young women who are alone, he will access his victims much more easily if he acts on weekends in recreational areas than if he does it during the rest of the period. week.

When there are coincident elements in temporal terms between cases, generally the selected day and/or time, this information, apart from linking the cases, can be used to generate a profile. As mentioned before, the criminal is conditioned by his non-criminal life, and the fact of choosing the same day and/or time will have a reason behind it. In most cases, it is usually used to make assumptions about their professional or family situation and lifestyle. A criminal who usually acts in the morning and evening and whose MO takes a long time to accomplish, it would seem logical to think that he would be related to people who have a lot of free time, have flexible schedules and jobs. that allow them to move, or to the unemployed (this

conclusion is not reached only through this information, it must be analyzed together with other data).

In terms of space as an element used to link crimes, at the inductive level there is significant statistical and scientific support with a variety of studies related, in particular, to the journey to crime, which may be relevant from an evidence point of view in a court of law. For example, Rossmo (2000) presented a table with different studies conducted with sex offenders in several countries and with different samples, showing that the journey to crime of those offenders did not exceed 2 miles.

In Spain, a study with similar characteristics was carried out by the Institute of Criminal Sciences and Security of the UAM, with the collaboration of the State Secretariat for Security, provided a similar result regarding that journey to crime. Specifically, sex offenders who were strangers to their victims, in Spain, moved an average of 1.24 miles from their residence to the location of the attack.

As regards both elements, time and space, it must be emphasised that they must be called into question as connecting elements in certain circumstances, in particular in locations and times characterised by high crime rates. It seems clear to think that if we are faced with an area where crimes are frequently committed, it will be more difficult to establish discriminatory and unique elements linking them to a single offender. The types of crimes in terms of their frequency and characteristics must also be taken into account when using these elements, since the probability of linking two robberies that take place in the same neighborhood is not the same as that of two rapes that take place in the same neighborhood. Neighborhood. In the case of robbery, the spatial element may be less relevant than in the case of rape.

The need to discover and develop liaison tools for law enforcement has led to the creation of computer systems made up of databases that store information on crimes that can be consulted by investigators.

These systems aim to automatically establish a link analysis, helping to solve cases. These databases use IT's ability to manage a large amount of data and work with it through searches, comparisons, and analysis.

Among these computer systems, the following stand out: the Violent Criminal Apprehension Program (VICAP) in the USA, the Violent Crime Linkage Analysis System (VICLAS) in Canada or the National Criminal Intelligence Service British Police (NCIS) in the United Kingdom.

<http://www.rcmp-grc.gc.ca/to-ot/cpcmec-ccpede/bs-sc/viclas-salvac-eng.htm>

Although these programs are very useful as databases, performing link analysis through them is very risky and quite likely to be productive. Several arguments explain this problem:

—As a database, it requires the inclusion of information, if the information in the cases is not included in the database, it is not useful. There is no structured operating procedure shared by all users of these databases with regard to the inclusion of criminal cases. Some critics claim that no more than 50% of cases are included, making their comparison unreliable.

—All the data in the case must be included, which means time and effort on the part of the investigators. If all fields are not filled in using checklists and data inclusion manuals, some information may be ignored and,

therefore, removed from the analysis. The procedures and criteria for the inclusion of information are not standardised and are sometimes incomplete. For example, for a sexual assault it is not the same to simply include the information "penetration" than to specify "anal penetration" and even more, "anal penetration with object".

—These databases store data mainly from physical evidence and OM. As we have explained throughout this chapter, establishing a link analysis that exclusively compares OM behaviors is not correct.

—The results of the analyses of these databases are mainly based on comparison and frequency analysis, which in some cases can cause many false positives. We should introduce parameters that reflect discrimination and uniqueness. For example, if we want to link a rape case in which there was a threat with a knife, penetration and threats to the victim, this can lead to the linking of a large number of cases, since these MO elements used for linking are not at all discriminatory and singular.

## 5. WORKING METHODOLOGY IN LINK ANALYSIS.

As regards the analysis of links in a court of law, it is necessary to establish a clear and structured methodology for the professionals responsible for these analyses to follow. For this, we can adapt and develop the phases proposed by Hazelwood and Burgess (1995):

1. Gather the necessary documentation: in this phase the expert must collect all the information regarding the potentially related cases. Due to the complexity of the analysis, it is essential to have all the police and forensic information about the cases. As we have mentioned in terms of other techniques, once we are in the judicial phase of the process, information that has not been recorded, investigated or collected in the investigation phase will be hardly accessible in this phase, which means that we may be missing relevant data or information. In this case, we need to point out those absences because of the repercussions they could have on our conclusions. It is particularly interesting to point out where each piece of information used in our report comes from, as well as who, how and when it was collected.

2. Review the documentation and identify the significant characteristics of the crime: In this phase we must analyze each case as a whole to identify their main descriptive characteristics that can establish the possibility that they are related to other cases. This is an initial assessment and description of the case that allows us to determine the most significant points of connection that we need to look for in other cases. An example of this can be the identification of a case of sexual assault against a female foreign victim, with sadistic behaviors and resulting in death.

3. Analysis of crimes, recording all the characteristics of the MO, signature, spatial and temporal characteristics: As we have seen before, we must analyze all these 4 elements.

4. Determine if there are elements of connection between the crimes: In this phase we must compare the different cases to establish correlations between them, based primarily on the consistency of the offender's signature through each crime, with significant similarities in the OM and with temporal and spatial elements that support the connection.

TURVEY (2008) tells us about different types of concepts that we can use when talking about bonds.

- Different behaviors: After analyzing and comparing the behaviors, it has come to the conclusion is that they are different. For example, in two homicide cases, one uses a gun to shoot the victim in the head, and the other uses manual strangulation to end the victim's life. We need to focus not only on the similarities, but also to analyze the differences.

- Connection under investigation: There is an apparent relationship or connection between one or more

several cases. This connection requires more investigation, it is not conclusive, a higher level of connection must be established to sustain a complete connection. To do this requires a complete analysis of the OM, signature, victimology, temporal and spatial elements. Turvey points to as an example the case of two women with similar characteristics who appear dead in their homes, in the same neighborhood and during the same year. The cases show an apparent similarity that needs to be studied.

•Common behaviors: Two behaviors are analyzed and compared and concluded to be similar, although not distinctive. This behavioral evidence should not be taken into account because it is very common in the criminal typology in which it falls, so it is not useful to distinguish one offender from another. An example could be the behavior of using a weapon during a robbery.

5.Preparation of the opinion: The expert must draw up a written report containing the conclusions are presented, establishing at least from a qualitative point of view the probability that two or more cases are related to the same offender or offenders. The expert must present the information and procedures used, the elements and data that support the link, the level of discrimination and the significance of the information used, as well as any data that may call into question the link or that have not been taken into account.

## 6. THE SERIAL KILLER FROM NEWCASTLE

Gérard N. LABUSCHAGNE (2006), a South African police detective and psychologist at the Center for Forensic Psychology of the Free State University, tells us in an article published in a diary directed by Dr. David Canter a case of link analysis carried out by himself in connection with the investigation of a series of murders in Newcastle:

The first murder took place at 6 p.m. on Saturday, February 14, 2004. A young black couple was walking through a park around the city of Newcastle. After having a few beers in the bars in the area, they decided to have sex in a nearby park. While doing so, suddenly a subject jumped on the male, hitting him the head with a rock and moving him aside. After slapping the woman, the criminal pulled out a knife and threatened to kill her if she continued to scream.

He then dragged her into a ditch about 30 meters away from the scene of the attack and raped her. After he finished, he told her to get dressed and leave. The man died as a result of the blows received at the same scene, they pulled his pants down. The criminal did not steal anything from any of the victims.

On October 27, 2004, around 11 p.m., a second crime occurred in the same park as the previous incident. A young taxi driver parked his car in the park and decided with his girlfriend to have sex on the grass. Suddenly, a man surprised them and, moving towards the male, hit him on the head with a stone, killing him.

The offender told the woman not to dress and, armed with a knife, took her to a location near the river, about 90 meters from the scene of the attack, where he raped her once. When he finished, he took her to the taxi and, after taking the key from one of the dead man's pockets, opened the taxi and took two mobile phones, after which he burned the vehicle. The police found the stone three meters from the body. His pants were around his ankles. There were no other injuries on the body.

The third crime took place in the early morning of November 26, 2004, close to the previous scene. The body of a black man was found by a person walking in the area. He was wearing only underwear and a shirt. One of his shoes was about 5 meters away from his body. His pants and other shoe were not found at the scene. What they found, however, was a bloody stone 3 feet from the corpse. In this case, there was no report of rape by any woman.

On January 7, 2005, at 9 p.m., the fourth offense took place. A man was walking through the park where the previous attacks took place, carrying a sports bag in which he had personal items.

The next day he was found unconscious with head trauma caused by a rock that was about 24 feet from his body. He was dressed, except for his shoes. One of his shoes was close to his body. The location involved in this incident was close to the second incident and approximately between the locations of the first and second incidents. A roll of money was found by the victim, the only thing that disappeared was the sports bag with the young man's personal belongings.

Two days later, the young man died from the trauma suffered from the blow, again without being reported rape.

A few days later, a young man was arrested thanks to the testimony of a person who had heard him say that he had killed several people in a park. Both rape victims admitted to it, and the suspect himself initially incriminated himself for both crimes, although he later decided not to ratify this statement.

At that time it was decided to consult with Labusagne in order to carry out a link analysis.

Below, we describe the process carried out by the profiler, trying to relate it to the phases that we have previously discussed regarding the analysis:

1. Gather the necessary documentation: The profiler interviewed the lead investigator and began collecting information relevant to the case. He visited the crime scenes, made a geographical analysis of the scenes, consulted autopsy data and statements taken by the police, as well as interviewed rape victims.

2. Review the documentation and identify the significant characteristics of the crime: In this case they were facing sudden attacks against men, characterized by strong blows to the head with the help of a second-hand weapon and located in a specific area of the city.

3. Analysis of crimes, recording all OM characteristics, signature, spatial and temporal characteristics: OM behaviors in all 4 cases are very similar. The offender carried a weapon (knife) that he used on the first two occasions to threaten the women, although to attack the men he used in each case a second-hand weapon that he took and left on the spot, a stone. The victim's approach was usually a blitz approach, he would suddenly hit the victim in the head with a rock to get them out of the way as soon as possible. In the autopsy there is no evidence of combat or post-mortem injuries. In both first incidents, the aggression against the male victim is joined by the sexual assault of the companion, in the third offense, the victim had his pants off, which makes possible a certain form of sexual component in the crimes, although it may be secondary to the primary motive.

As for the signature, Labuschagne uses Hazelwood's concept which is the unique combination of acts or behaviors displayed by the offender. The profiler pointed out the following two elements as the signature of the offender:

- a) A deadly blitz attack with a stone on adult males, and
- b) Absence of theft of money or valuables from victims.

In my opinion, I believe that other elements of signature can be established through a deeper analysis of the incidents. Given the purpose of the offender is to attack male victims, there are a number of elements that do not seem to be part of the MO of that objective and that could be related to the signature:

Rape of victims' girlfriends (2 initial incidents).

Theft of mobile phones and arson of a taxi (second offense).

Tampering with and stealing the male victim's clothes (offences II, III and IV).

Theft or disappearance of the bag with personal belongings.

In all cases there is the intention to quickly end the victim's life, through a quick attack, in force, there is no fighting, control or interaction. However, there seems to be an interest in items that we might consider to be property or items related to the victim. In the case of rape, both were the victim's significant other, or at least the person with whom they had intimate sexual relations. In the case of mobile phones, taxi, clothes, bags, all these were goods and objects of the victim that the criminal tried to take or, at least, destroy (the taxi was burned to destroy it, since he took it or its use would have been very dangerous).

Finally, we can conclude that the offender manifests a lot of anger and revenge towards the victim, which manifests itself in the fast, powerful and deadly attack. In revenge, he tries to take the victims' possessions, making them his, in some cases even theirs, the significant person and sexual relationship, and in others, the clothing or personal items that he believes he identifies with or are important to the victim.

As for the temporal and spatial elements, the criminal always acts at night and his four attacks take place over the course of a year. Although 9 months pass between the first and second attacks, the remaining three take place monthly. The crime scenes are very close to each other, the distance between the most distant scenes (1 and 3) is 0.8 miles.

4. Determine if there are elements of connection between crimes: The combination of analyzed elements, MO, signature, time and space in the four incidents shows us data that indicates a high probability of there being a connection between these cases. The characteristics of victimology and MO behaviors, especially the consistency displayed in each case in terms of the method of approach, the method of attack and the weapon used, are quite striking.

Although these cannot be considered highly discriminatory and singular behaviors, the combination of all three provides sufficient transitional consistency. The analysis of the signature seems to repeat itself equally well in each case, and the temporal element, although especially the spatial one, reinforces the hypothesis of the connection.

In this case, the analysis of the link was admitted in court and provided an important element of knowledge for making the decisions that led to the pronouncement of the judges' sentence.

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