

# **Differentiating Arson: An action systems model of malicious firesetting**

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# Abstract

This thesis examines malicious firesetting as a destructive action. It was hypothesised that the differentiation of arsonists on the basis of the actions associated with their crime would reflect differences that have been found to distinguish between other forms of action system. These differences relate to the source of the action (inside or outside the acting system) and the locus of its actualisation (inside or outside the acting system). The four possible combinations of source and locus give rise to four dominant states that an action system can take; integrative, expressive, conservative, and adaptive. It was proposed that these four states characterise four different thematic emphases that would distinguish between arsons.

The hypothesis was tested by analysing 230 solved arson cases from across England. The case files were content analysed to produce 46 behavioural variables taken from both the crime reports and witness statements. In order to test the hypotheses of differentiation a Smallest Space Analysis was carried out.

The results support the action system framework giving rise to four distinct themes to arson from which scales with reasonable alpha scores could be derived. Two relate to demonstrative acts, a) those that actualise within the arsonist's own feelings [integrative], being analogous to suicide, and b) those that actualise externally [expressive], like the burning of symbolic buildings. The other two relate to instrumental acts, c) those that are for personal indulgence, [conservative] similar to personal revenge, and d) those that have an external focus [adaptive] such as hiding evidence from a crime.

A further test of the validity of these four themes was to examine the typical characteristics of the people who committed the different types of arson. Four scales of arsonists' characteristics were developed. These were found to have appropriate, statistically significant correlations with the four themes.

In addition to this general model, the thesis also examined other particular aspects of firesetting. Two specific sub-groups of arsonists that have traditionally been dealt with separately in the literature on arson are serial and female firesetters. By examining these groups of individuals separately, it was found that although their behaviour generally conformed to the action systems model, certain modes of functioning were given different emphases depending on the particular purpose that firesetting serves for the two groups. For example, the female firesetters were found to primarily engage in both forms of demonstrative (integrative and expressive) firesetting, whereas for serial arsonists fire mainly serves an expressive function.

Two specific features of the offenders' background characteristics were also examined separately, namely their criminal antecedents, and the distance travelled to commit the offence. Smallest Space Analysis showed that the previous convictions of arsonists could be classified as either instrumental or expressive offences. These had the expected correlations with the four styles of firesetting actions in that instrumental offences correlated most significantly with the adaptive and conservative forms of

arson; whereas arsonists who committed demonstrative forms of firesetting (expressive and integrative) tended to have previous convictions for other expressive offences.

The spatial analysis of distances travelled to set fires, also revealed differences depending on the form of arson which an offender commits. The two modes of functioning with a strong emotional component (expressive and integrative) were committed by individuals who travelled very short distances from home. Adaptive arsonists travelled slightly further, whereas the greatest distances were travelled by individuals operating in the conservative mode of functioning.

The implications of these findings for understanding the varieties of arson on the basis of the actions that occur are discussed, as well as the implications for arson investigations. It is speculated that the action system framework may provide a general model for considering a wide range of crimes.



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# Chapter 1: Psychological Explanations of Malicious Firesetting

“I am malicious because I am miserable”

Mary Shelley’s *Frankenstein*

Dating back to the early nineteenth century, there have been numerous attempts to explain the phenomenon of why people set fires. To date, however, there is no single explanatory framework which can be seen to encompass all the varieties of arson that exist. In part, this failure probably arises from a lack of operational definition of what exactly is meant by the term ‘arson’. It is not always clear if the different perspectives from which theories of firesetting have evolved are all describing the same phenomena or a range of entirely different behaviours. The ‘explanations’ themselves often consist simply of informal lists of motives for arson rather than attempting to illuminate the individual pathways which might lead different people to set fires.

The focus of this thesis, then, is to develop a framework for examining the nature of arson itself and the characteristics of people who set fires. Such a framework will help to develop a more broadly based understanding of arson. It will also have practical value in many areas such as therapy, determination of how courts should deal with arsonists and, if approached appropriately, the framework could contribute to police investigations of arson. The starting point for the development of such a framework is an examination of the existing theories of arson.

## 1.1 Early Explanations

### 1.1.1 “Pyromania”

The earliest attempts to understand pathological firesetting date back to the nineteenth century (Geller, 1992a). For many years there was a prevailing agreement amongst psychiatrists that arson was an offence committed mainly by adolescent females who had problems with puberty or menstruation (Esquirol, 1845; Ray, 1871;

cited in Geller, 1992a). This was supported mainly by clinical anecdotes appearing in medical texts, for example one of the earliest reports was by a medical practitioner in 1837 who wrote of a young female patient who, sexually aroused and 'overheated' from a dance, returned to her house and set fire to her room. The French physician Marc (1933) is regarded as the first person to introduce the term 'pyromania' as a mental disorder. This became a very popular topic in the scientific literature during the nineteenth century. At that time it was simply defined as an irresistible impulse to set fires and anyone who fitted that description was regarded as legally "insane". People were frequently diagnosed as pyromaniacs based on the single clinical criteria of repeatedly setting fires.

Today, more comprehensive medical definitions of pyromania are being used to clarify this phenomenon. According to the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders, (American Psychiatric Association, 1993) pyromania is defined as repeated deliberate and purposeful firesetting associated with tension or affective arousal before the act, followed by intense pleasure or relief when setting the fires, witnessing or participating in its aftermath. DSM-IV lists several behavioural traits that characterise the pyromaniac, such as making elaborate preparations before starting a fire, being a regular observer at fires, setting off false alarms, and showing interest in fire-fighting paraphernalia. Onset is usually in childhood and may continue through adolescence into adulthood.

Thus whilst it has been suggested that the term "pyromania" has no psychiatric meaning and is merely a catch-all term which is "used by lazy psychiatrists" (Robbins & Robbins, 1967), its' use nevertheless persists and continues to have an impact on modern psychiatric treatment of firesetters.

In fact, pyromania is the diagnosis *least* frequently used for firesetters, as they are more likely to be viewed by mental health practitioners as suffering from either a conduct disorder (in children), an antisocial personality disorder, schizophrenia, mental retardation, organic psychosis or a mood disorder (Barnett and Spitzer, 1994).



## 1.1.2 Psychodynamic Theories

In the early twentieth century, Stekel (1924) and Freud (1932) advanced psychodynamic theories of firesetting. Stekel believed that pyromania had a sexual root and that firesetting was used as a symbolic way to resolve conflict between instinct and reality. Following on from his work, Freud wrote an article entitled *The Acquisition of Power over Fire*, in which he said that firesetting resulted from a fixation or regression to the phallic-urethral stage of libidinal development. Freud based his theories of firesetting on the Greek legend of Prometheus who stole fire from the Gods. The fact that Prometheus carried the fire in a hollow fennel stalk was interpreted by Freud as symbolic of the penis, and he went on to say that “The warmth radiated by fire evokes the same kind of glow as accompanies the state of sexual excitation, and the form and motion of the flame suggests the phallus in action” (p.407). Employing the mechanism of reversal whereby the meaning of an element in a dream is concealed by transformation into its opposite, he suggested that it was the means of extinguishing the fire which was the key feature of this theory. Therefore, Freud wrote, “in order to possess himself of fire, it was necessary for man to renounce the homosexually tinged desire to extinguish it with a stream of urine”.

Although an emphasis on the sexual symbolism of fire continued into the 1950's, new perspectives began to question these urethral-erotic interpretations and firesetting behaviour became increasingly to be viewed as more complex in its root causes.

For the last twenty years the original psychoanalytic formulation has been under severe criticism. For example, in what still remains the largest study of arson of its kind, Lewis and Yarnell (1951) identified only forty among a sample of 1,145 adult male firesetters who appeared to derive sexual pleasure from setting or watching fires. Although some more recent studies (e.g. Lange and Kirsche, 1989) continue to find support for the sexual arousal motivation in fire-raising, there are many more that do not. For example, Rice and Harris (1991) identified only 6 out of their sample of 243 male firesetters who were recorded as having had sexual arousal to fire

as a motive for their offence(s). Other work at the same institution (Quinsey, Chaplin and Upfold, 1989) reported no differences between normal subjects' and firesetters' sexual arousal patterns to fire-related stimuli.

Unfortunately, although this sexual aspect to firesetting has been discredited by most empirical scientifically valid research, it is a view that some writers find hard to dispel. For example, Macdonald (1977) states that "the majority of pyromaniacs, both male and female, describe sexual excitement while watching the blaze, and some masturbate at the scene" (p. 191). He goes on to offer advice to those investigating suspected cases of arson: "The investigator will want to talk to anyone seen masturbating in the area of the fire" (p.223). Barracato (1979), a respected fire investigator, who clearly took Macdonald's advice to heart, went further in suggesting that investigators should follow suspects to the bathroom because "urination is a psychological form of sexual gratification for the pyromaniac, and it's impossible for him to function in front of other people" (p.4).

Currently, somewhat less extreme psychoanalytic interpretations prevail, although these are no more in agreement than the original. For example, because firesetting in children is often accompanied by hyperactivity and displays of aggression, some psychodynamic writers have emphasized the importance of aggressive rather than libidinal forces (e.g. Nurcombe, 1964). Others have concluded that neither aggressive nor libidinal drives were as important as the anxiety produced by conflicting instinctual urges. For example, Kaufman, Heims and Reiser (1961) argued that anxieties characteristic of the oral stage of development were at the root of firesetting. The children in their study expressed fears relating to falling, drowning, dissolving or being burned up, which were regarded as 'oral' anxieties.

Clearly, then, these conflicting psychodynamic explanations of firesetting do not offer much towards a unifying theory of arson, perhaps because they lack a firm basis in empirical research. Although in the later psychodynamic studies (e.g. Kaufman *et al*, 1961) subjects were actually interviewed, the conclusions were based on subjective interpretations rather than observable phenomena.



As previously mentioned, one of the first major empirical studies of arson was conducted by Lewis and Yarnell (1951). Based on their examination of 1,145 firesetters, they concluded that arson is associated with developmental crises, and while psychological and family stressors may contribute to a particularly difficult passage through a developmental stage, it is not so much these external factors that cause the firesetting, but the psychological and constitutional changes that occur at certain ages. Although early writers on arson (e.g. the French physician Marandon de Montyel (1885) cited in Lewis and Yarnell p.15) had noted that *pyromanie* often appeared at puberty and menopause, Lewis and Yarnell found that several additional developmental periods were associated with firesetting behaviour. They identified peaks in the incidence of arson occurring around ages seventeen to eighteen, twenty-four to twenty-six, thirty-five (in females only), forty, forty-seven to forty-nine and sixty years of age (in males only). Although some of these peaks are associated with established developmental stages (e.g. puberty and menopause) the others are harder to explain in terms of their psychological significance. Nevertheless, Lewis and Yarnell did make the important observation that arsonists influenced by developmental crises rarely continued their firesetting behaviour once they had passed the particular stage involved. Adolescent firesetting, for example, rarely continued for more than three years, while acts of arson committed during the menopause usually stopped after a five year period (Lewis and Yarnell, pp 430-31.) However, clearly not every arsonist in their sample set fire during one of these developmental periods. Furthermore, of those that did, it is not possible to ascertain what proportion of their fires was actually *caused* by going through this stage. Finally, as these developmental stages are presumably common to all people, it is not clear why only certain individuals are driven to set fires, while others are not.

Therefore, in order to provide a clearer picture of the etiology of firesetting behaviour, it is probably important to examine theories which account for individual factors that may differentiate between arsonists and non-arsonists.

An American psychologist, Ken Fineman (1991, 1995) has stated that while few child arsonists grow up to be adult arsonists, most adult arsonists start setting fires in



childhood. It may therefore be useful to begin a discussion of modern theories of firesetting, by focusing firstly on those that have attempted to explain the etiology of arson behaviour in children.

## 1.2 Explanations for Firesetting by Children

Work by Kafry (1978, 1980) has shown that most young children experiment with fire. Fascination with matches, lighters and fire may be a normal investigative part of growing up, and not necessarily a prelude to firesetting behaviour. However, other research has suggested that although some firesetting by children is motivated simply by curiosity, habitual firesetting from an early age may be a way of expressing anger or frustration with aspects of the child's family circumstances (Kolko and Kazdin, 1991a, 1991b). Fineman (1991) recently outlined the need to distinguish between 'curiosity' and 'psychological' firesetting, stating that 'curiosity' was responsible for 60% of all arson committed by children. The only difference in the characteristics of these two groups offered by Fineman, however, was that the first was mainly represented by children under five years of age, while the latter consisted of 5-10 year olds. The question therefore arises as to how one can determine when a child's act of firesetting arises out of mere curiosity and when it is indicative of more deep-rooted behavioural problems.

Some studies of child firesetters have found that certain psychological characteristics differentiate these children from other non-firesetters. For example, Rothstein (1963) studied the Rorschach responses of eight firesetting boys ranging in age from six years to twelve. He found two distinct groups in this sample which he described as borderline psychotics and impulsive neurotics. The first group demonstrated weak ego's which Rothstein said collapsed, under the need to discharge tension. In contrast, the second group of children were described as overcontrolled and since neurotic personalities blocked the expression of daily tension, their anxiety mounted until it resulted in a sudden breakdown of control accompanied by acting-out behaviour.

The administration and interpretation of the Rorschach test, however, is something which requires a considerable level of psychological expertise and its results are largely subjective. Therefore, although these findings may be useful from a clinical perspective, it is difficult to know how they could be refuted. Research highlighting differences in directly observable characteristics would be more helpful.

In the largest study of juvenile firesetters to date, Wooden and Berkey (1984) compared the characteristics, as reported by their parents, of 69 young arsonists apprehended in Southern California with a control group of 78 non-fire setters. The two groups were matched in terms of age, race, sex, level of school and order of birth. Of the eighty-four possible behavioural problems examined in the study, thirty-three items statistically differentiated the two juvenile groups. The two most distinguishing characteristics of the thirty-three problem areas were stealing and truancy. The parents of the firesetters reported that their children both stole and were truant significantly more often than did the parents of non-firesetters (47% versus 13% for sometimes or frequent stealing and 37% versus 6% for occasional or frequent school truancy). These differences were both significant at the  $p \leq .001$  level.

The firesetters also exhibited more behavioural problems and learning difficulties than the non-firesetters, many of which have been documented in other studies. These include lying, playing alone, impulsiveness, fighting with siblings or peers, impatience, being out of touch with reality, jealousy, shyness, hyperactivity, stuttering, expressing anger, violence and being a poor loser (e.g. Kolko and Kazdin, 1991a; 1991b). Kafry (1978) has explained the link between setting fires, hyperactivity and aggression in the young by suggesting that a child, unable to control impulses, may attempt to discharge tension through external means such as firesetting.

However, other researchers have emphasised the importance of the social environment of firesetting children, and have explained the emergence of the arson behaviour as an extreme outburst or reaction to negative early experiences. A number of studies have found that children who set fires often experience severely disrupted home lives. For example, in the study reported above, Wooden and Berkey



(1984) found that 61% of the firesetters had experienced recent disruptive changes in the family (such as divorce or remarriage, the death of a relative or the presence of a new baby) compared to 28% of the non-firesetters. Furthermore, whereas 82% of the non-firesetters group lived with both natural parents, only 51% of the firesetters lived with both parents. Other research has also consistently noted significant family disturbances in the background of firesetters. For example, in Bradford and Dimock's (1986) comparison of 57 adult arsonists and 46 adolescents arsonists, both groups came from disrupted family backgrounds. For example, seven (15%) of the adolescents, and seven (12%) of the adults were illegitimate and 10% in total were adopted. Nearly 40% of the adolescents were in a single parent family home with their mother. Additionally, DeSalvatore and Hornstein (1991) found that in more than half of their sample of 52 juvenile firesetters the parents had received a psychiatric diagnosis (54%), and a smaller number had a history of alcohol or drug abuse (23%).

Another difference observed in the Wooden and Berkey (1984) study was in the method of discipline chosen by the parents of the two groups. The parents of the non-firesetters employed withdrawing of privileges more frequently than the other group (36% versus 12%). The parents of the firesetters, on the other hand, employed corporal punishment more frequently than those of the non-firesetters (12% versus 4%).

The authors point out that these slight differences in punishment methods may be indicative of some socio-economic differences between the two sample groups. As past research has shown, the parents of lower socio-economic strata more frequently use corporal punishment than parents from the middle socio-economic strata. Other research has examined this link between socio-economic factors and firesetting further, suggesting that arson is sometimes used by lower-class individuals who lack persuasive skills (e.g. Pettitway, 1987). This perspective is discussed further in the section on explanations of adult firesetting.



Wooden and Berkey (1984) also explored those behaviours that characterised the severity of the firesetters themselves. They found that as the children got older the number of behavioural problems shared by the more serious firesetters in each age group increased (from fifteen shared by the four to eight year-olds, to twenty-three for the pre-teenagers, to forty-four for the teenage group). The older the juvenile, the more varied and complex the problem areas became. There were also subtle distinctions in terms of the behavioural problems shared by each of the three age groups.

The younger firesetters were more likely to express their anger and frustration by striking out at things close to them, such as the family pets, their own toys, and their siblings, as well as themselves. The pre-teenage firesetters displaced this hostility onto others by fighting with their peers. In the teenage firesetters, frustration and aggression were expressed through such means as strange thought patterns, bizarre speech, and severe depression. What characterises all of these groups, is the inability to express anger either directly, or through more appropriate means. The use of arson as a means of expression is described by Geller (1992c) as the most common presentation of pathological firesetting in adults, where the behaviour is neither a primary symptom of a psychiatric disorder, nor attributable to pyromania, but is used as means of communicating a desire, wish or need.

An important question arising from the finding that certain behavioural problems are associated with youngsters' firesetting activity, is whether firesetting is, as some researchers have argued, simply an extreme form of antisocial behaviour (Patterson, 1982), or whether the antisocial behaviours associated with firesetting differ from those associated with Conduct Disorder in general. Addressing this question, a study by Forehand *et al* (1991) has found that it is the severity of behavioural problems, rather than their uniqueness that is associated with young firesetters. In their sample of 36 male juvenile delinquents, the 12 firesetters reported significantly more conduct disorder symptoms, than the non-firesetters.

This section has presented two apparently conflicting views of firesetting by children. On the one hand some researchers have argued that firesetting is a natural consequence of a difficult progression through a developmental stage, whereas others have emphasised the role of the family situation as an environmental stressor. Inevitably, however, there is a proportion of young firesetters who's behaviour cannot directly be explained by either of these theories. These are individuals who neither appear to have disrupted family lives, nor significant psychological problems who nevertheless set fires. Similarly, there are children who do not set fires despite a variety of emotional and environmental disturbances. Therefore, additional factors must be considered in formulating a unifying theory of firesetting behaviour.

### **1.3 Explanations for firesetting in adults**

#### **1.3.1 Communicative arson**

Firesetting behaviour in adults has generally been addressed from a psychiatric perspective and has focused on the identification of clinical features which are commonly found for this group of individuals. This does not amount to a theory of firesetting per se, but merely to the identification of certain risk factors. Nevertheless an examination of these risk factors may provide some indication of the psychological processes that may lead people with these characteristics to set fires.

Like the studies focusing on child firesetters, research has shown that the family histories of adult arsonists were characterised by disturbances of some kind. For example, Hurley and Monahan (1969) found that firesetters reported high incidences of early parental separation (20%), illegitimacy (16%), death of close relatives (24%) and being adopted or brought up in children's homes (28%). However, none of these results differed significantly from a control group of non-arsonists. What did differentiate them was their high level of relationship and other social problems. Fifty-four percent reported sexual maladjustments, 62% reported difficulties in relationships with the opposite sex; of those that had married, two-thirds were divorced.



This suggestion that arsonists experience particular social and relationship problems has also been picked up by later studies. For example, Harris and Rice (1984) found that firesetters were less assertive than other patients in situations requiring the verbal expression of negative feelings, and they described themselves and were described by others as more shy and withdrawn. Based on this they hypothesised that assertion deficits and social isolation play a large contributing role in the etiology of firesetting behaviour. This was supported by a later study by the same researchers (Rice and Harris, 1991) using a much larger sample of 243 male firesetters. Comparing these individuals with 100 other patients in the same hospital, they found that the firesetters were more socially isolated (as indicated by variables such as hobbies, marital status, living arrangements, etc.), less likely to be physically aggressive, less intelligent, younger, less physically attractive and had more extensive psychiatric histories than other mentally disordered offenders. Multiple discriminant analysis further indicated that the firesetters were more likely to have suffered childhood abuse, their families were more likely to have reported unusual interest in fire, the number of such fire-related misbehaviours as false fire alarms was higher and they were significantly less likely to have previous non-fire and violent charges.

In summary then, these results were consistent with the hypothesis that firesetters are more socially isolated, less likely to be physically aggressive, and have more extensive psychiatric histories than other mentally disordered offenders. Together, the earlier results of Harris and Rice (1984) and the later study (Rice and Harris, 1991) lend considerable support to the idea that social skills in general and assertiveness in particular represent important clinical characteristics of firesetters. This again points to the possibility that arson may be used as a method of communication by such individuals (Geller, 1992c). In order to expand on this, it is useful to return to the environmental perspective. Specifically, research has identified certain environmental factors which may create the conditions in which people are more likely to feel that they lack the ability to communicate their needs directly.



### 1.3.2 Socio-economic explanations for arson

In the late sixties and early seventies in the Bronx area of New York, there was a sudden increase in the number of building fires attributable to arson. The area had become a run-down ghetto, services were poor and unemployment and crime high. The multi-racial population were crammed within neglected timber framed apartment buildings and legitimate options for rehousing were limited. However, some locals realised that whenever a fire occurred within such buildings, the tenants whose apartments were affected were automatically re-housed by the council in a better environment, often outside the Bronx. Having discovered this, many tenants apparently began deliberately starting fires in order to be moved out. Such was their resolve they would at times violently frustrate fire-fighters' attempts to extinguish the fires. To date, there have not been any outbreaks of such magnitude in the UK. However, fire services reports indicate that there are occasional similarities to such motives for arson on some local authority estates and homeless hostels. One could argue that those persons are making a protest against the disadvantaged economic and social position, in which they see themselves. Hence, arson can have a socio-economic rationale for impoverished individuals.

This aspect of arson has been examined by a number of studies bringing an environmental psychological perspective to the study of arson. A study by Pettaway (1987) examined the relationship between demographic variables (age, race and sex) along with environmental characteristics of the offender's residence, and the motivation for arson. This study differentiated between arson which was retaliatory (revenge) in motivation and that which was non-retaliatory (e.g. playing with matches, crime concealment).

The results for age and race showed a reversal of the pattern for retaliation for whites and blacks in different age categories. For white offenders the youngest age group (below 18) were most likely to use arson as a means of retaliation, with odds increasing from the main effect value of 0.681 to 0.859 (for non-whites the odds decrease to 0.54). On the other hand, non-whites were more likely to commit

retaliatory arson if they were over 18. Blacks in the age bracket 19-30 were 1.52 times more likely to commit this type of arson (main effect odds of 1.262), and the equivalent figure for those over 30 was 1.21 (main effect 1.164). Pettaway suggested that the explanation was related to the demographic and structural characteristics of the offenders' place of residence. Individuals residing in type 6 neighbourhoods, so-called "natural areas" for crime, were more likely to commit retaliatory arson. These areas consist of predominantly black female-headed households, a large proportion of separated males and divorced females, living in single-unit detached properties, often with inadequate kitchen and bathroom facilities. Pettaway found that those individuals who are most likely to retaliate (whites under 18 and blacks over 18) are more often residents of type 6 environments than those who do not commit retaliatory arson. This study suggests, therefore, that environment is a more important determinant of the likelihood of committing arson for revenge, than are characteristics such as age and race. Whilst it may be controversial to suggest that individuals in lower socio-economic strata may be more likely to use aggressive non-verbal means of retaliation because of lack of persuasive skills, this study can be seen to provide general support for the communicative aspect of firesetting.

In this way arson is seen as a way of achieving goals. This brings us to the variety of other goals, or motives, which various studies have offered as causes of firesetting.

### **1.4 Motives for arson**

In order to be of greater explanatory value, it is useful to discuss motives for arson within the general framework of motivational theory. There have been three main approaches to human motivation. The first of these was based on concepts of instincts and unconscious motivation. Proponents of this approach argued that individuals 'instinctively', or inherently, behave in ways that serve their best interests, although their desires and needs are not always consciously determined. This model came under increasing criticism and eventually gave way to a second school of motivational theories, namely 'drive' theories.



This approach is based on the assumption that present behaviour is largely based on past behaviour and the consequences thereof. The 'drive' to behave in certain ways comes from a search for some optimum level of arousal or general stimulation. In this way drive theories can be seen as being similar to reinforcement approaches. The difference lies in the fact that reinforcement theory does not concern itself with what initiates behaviour; rather, emphasis is placed on the consequences of that behaviour.

The third major approach to motivation is the cognitive theories. Whereas drive theories viewed behaviour largely as a function of what happened in the past, cognitive theories argue that a major determinant of behaviour is the beliefs, expectations and anticipations individuals have concerning future events.

The factor that has received the most attention from motivational theorists is the concept of human needs as these determine what people want from the environment. Theories of human needs have been termed 'content theories' of motivation, as distinct from 'process theories' which address the issue of how motivation operates. (Steers and Porter, 1991).

Operating within this framework, firesetting behaviour can be seen as an attempt to address an individual's needs; therefore the motives of arsonists can be discussed within the terms of need theories. Two of the most important of these are Maslow's need hierarchy and McClelland's learned needs (Steers and Porter, 1991).

Maslow's theory explains human behaviour in terms of a hierarchy of five general needs. The most basic of these are physiological needs, including food, water, oxygen, etc. In Geller's (1992a) typology of motives for arson he mentions a category of firesetter described as vagrants. In some cases, serious fires can result from these individuals' efforts to stay warm when unsheltered. Lewis and Yarnell (1951) described them as wanderers and hobos; these days they would probably comprise a proportion of the homeless population. Certainly the desire to stay warm can be categorised as a physiological need. Another motive for firesetting which could be similarly classified has been the subject of some controversy, and that is the



sexual arousal that allegedly accompanies some individuals' firesetting activities. Again, Lewis and Yarnell (1951) describe one of their groups of firesetters as an erotic group, made up of pyromaniacs and firesetters who derive direct sexual pleasure from setting and watching fires. As previously mentioned, however, more recent research (Rice and Harris, 1984; Quinsey *et al*, 1989) has minimised the importance of such a motive.

Finally, fires which are set for financial gain could also be said to be motivated by physiological need in that food and shelter are usually dependent on financial considerations. Most typologies of motives for arson include this category (Geller, 1992a; Douglas *et al*, 1992; Icove and Estep, 1987).

The second level of Maslow's hierarchy of needs is Safety and Security needs. These include a desire for security, stability and protection. In terms of arson, firesetting which is motivated by crime-concealment fulfils the need for protection from the undesirable consequences of being caught and convicted of the primary crime, e.g. murder, burglary, etc.

The next level of the hierarchy concerns Social needs such as the need for love, affection and a sense of belonging. Maslow states that individuals who are unable to satisfy this need will feel lonely, ostracised and rejected. Whilst arson that is motivated by rage, hatred, unrequited or rejected love and jealousy (Barnett, 1992) may not actually achieve the social needs of the firesetter, their behaviour can be seen as resulting from the frustration and dissatisfaction of these needs, and as a way (albeit a dysfunctional one) of restoring the disequilibrium that such frustration causes.

The desire to achieve a sense of social belonging may also be what motivates vandalism firesetters who usually form part of a group of like-minded juvenile delinquents. Similarly, firesetting by younger children has been categorised as being motivated by either curiosity or anger (Wooden and Berkey, 1984; Kolko and Kazdin, 1991). Whilst the former probably only involves 'fire play' rather than

deliberately setting fires, the latter group may be seen as attempting to draw attention to social needs that are being neglected or ignored within a disruptive home environment. Kolko and Kazdin (1991b) examined the firesetting risk (measured by factors such as eliciting greater community complaints about their contact with fire, and engaging in more fire-related activities) of these two types of child firesetter and found that children motivated by anger may be more deliberate or purposive in their use of fire to resolve particular individual problems.

The fourth level of Maslow's hierarchy concerns Ego and Esteem needs which can be focused either internally or externally. When focused internally, the esteem needs include a desire for strength, achievement and independence. When focused externally this need consists of a desire for reputation, status, fame and glory, attention and importance. According to several typologies of arsonists' motives (Prins *et al*, 1985; Home Office, 1988; Rice and Harris, 1991) the most common single reason behind acts of firesetting is revenge, either against an individual or against society. This category of arson can be seen as an attempt to redress self-esteem by someone who feels they have been wronged. Other categories of arson which can be viewed as attempts to enhance esteem include arson because of jealousy (Rider, 1980) and vanity or recognition firesetting (Geller, 1992).

The final stage of the need hierarchy is the need for self-actualisation which refers to the process of developing our true potential as individuals to the fullest extent. This would include the development of a personal ideology and membership of groups which support that ideology. Arson which is committed by political and extremist groups, such as the Animal Liberation Front, therefore, can be viewed as being motivated by the need for actualisation of the particular goals and ideals propagated by that group.

Another well-known need theory is the learned needs theory developed by David McClelland. This theory is closely associated with learning theory since he believed that needs were learned or acquired by the kinds of events people experienced in their culture. Taken together with reinforcement approaches to motivation which argue



that present behaviour is shaped by the consequences of past behaviour, the motivation to commit arson can be viewed as an interaction between social, psychological and environmental factors. This is the approach taken by Jackson, Glass and Hope (1987) who present a functional analytic view of recidivistic arson.

## 1.5 Cognitive Behavioural Model of Firesetting

An analysis of behaviour based on this model requires the identification of both antecedent events which are considered important for the initiation of the behaviour, and the consequences of that behaviour which maintain and direct its developmental course. Functional analysis allows for the same behaviour to serve different purposes and be a function of different antecedents across time and situations. Thus, the model is particularly suited to analyses which stress the developmental aspects of a particular behaviour. Arson can be seen as a type of behaviour which has such dynamic qualities.

Jackson *et al* consider recidivistic arson to serve a number of functions and represent a number of motives. Central to their model is the notion that a fascination and experimentation with fire is a widespread feature of normal child development and that the responses of parents, other authority figures and peers to the firesetting behaviour are important factors in the development to more pathological arson. As previously mentioned, Kafry (1978, 1980) has found almost universal fire interest in five to ten year-old children, therefore it is important to identify those factors which maintain and exaggerate this interest. The antecedent events proposed by Jackson *et al* are of these types: *general setting conditions, specific psycho-social stimuli and triggering events*. The first, general setting conditions, includes psycho-social disadvantage, general dissatisfaction with life and the self, and ineffective social interaction. That arsonists are dissatisfied with themselves is indicated by findings suggesting a high incidence of depression and suicidal inclination. A study of firesetters in psychiatric institutions in Ireland (O'Sullivan *et al*, 1987) found that there was a consistent proclivity for individuals of all diagnostic types to engage in self-destructive behaviour. Lewis and Yarnell (1951) also pointed out that some of



the arsonists in their sample acted out heroic roles. With regard to ineffective social interaction, Vreeland and Levin (1980) suggested that firesetting along with anti-social behaviours, sexual, marital and occupational maladjustment and alcoholism (which have been found to have a high incidence among arsonists) may be considered as indicators of a general lack of social skills and self-esteem.

The second type of antecedent event, specific psycho-social stimuli, may explain why the arsonist 'chooses' firesetting behaviour rather than socially acceptable responses, or even other forms of deviant behaviour. The literature suggests that arsonists avoid interpersonal conflict, however, it is unclear why they do so. The specific factors which direct arsonists toward the use of fire will vary according to the individual experiences of the firesetter. They may include some early experience with a fire. Some studies have found that fathers of arsonists have some work involvement with fire.

The third factor is a triggering stimuli which evokes the firesetting. Again, this will vary amongst individuals, but may include rejection by others and abuse. A common feature suggested by Jackson *et al* is that the event induces an undesired situation over which the arsonist is powerless. An important area of research, therefore, would be to examine the emotions preceding firesetting or the temporal relationship between the triggering event, the emotional antecedents and the firesetting. Emotional triggers are one of the factors examined in the current study.

The behaviour of firesetting itself is also considered an important factor in the model. The targeting of specific property types by particular arsonists indicates that this may form an intrinsic part of the overall arson behaviour. Following the firesetting, many arsonists stay at the scene of the crime, allowing them to achieve some of the aims which were initially responsible for them setting the fire, such as control. Arsonists may become progressively more involved in the aftermath of fire, such as raising the alarm, staying at the scene, helping to fight the fire, etc.

The consequences of firesetting have important implications for the continuance of the behaviour. Where young firesetters feel isolated and rejected with little alternative avenues to improve their situation, firesetting may provoke greater contact with parents and peers, thereby positively reinforcing the behaviour. With repetitive firesetting the child may also gain the interest of a number of professionals. Negative reinforcement may also occur, where the child firesetter is recognised as suffering from emotional problems and is therefore protected from stressful situations. In contrast, adopting a punitive approach towards the firesetter is likely to simply encourage secretiveness, rather than actively discouraging the behaviour (Jackson *et al*, 1987). This in turn diminishes the positive consequences of the act itself, leading to the individual increasing his involvement in the aftermath of the firesetting in order to maintain some positive benefits.

Finally, the dramatic consequences of the fire itself (e.g. fire engines, crowds, praise and recognition) together with the effect of this in light of a history of social inadequacy may be classically paired with fire. Additionally, if the offender is apprehended, enforced avoidance of fire and firesetting materials may prevent the development of appropriate behaviour towards fire.

Admittedly, the hypotheses outlined in the Jackson *et al* paper suffer from a lack of empirical testing, being based on the cumulative clinical experiences of the authors, however a number of avenues for future research are suggested, such as examining the developmental aspects of firesetting behaviour.

Cognitive-behavioural evaluations of firesetting emphasise the need to understand the different motivations underlying the act. For example, Fineman (1995) states that a fire set out of jealousy with an *accompanying* feeling of anger must be regarded as different from one which is *motivated* by anger itself. Similarly the role of alcohol can play a different role depending on the individual firesetter. To the opportunistic arsonist the consumption of alcohol might act as a catalyst for setting a fire, whereas to a more serious arsonist it might simply act as a disinhibitor.



A later study by Jackson *et al* (1987) developed the idea that individuals use arson where they feel they do not possess a repertoire of alternative behaviours for dealing with given situations. The study tested the “displaced aggression hypothesis” of arson, which suggests that feelings of hostility may be redirected away from people targets and onto property targets. The results showed that arsonists rated themselves as significantly less assertive than either violent offenders or control groups. This suggests that arsonists experience considerable difficulty in resolving interpersonal conflict in an interpersonal manner - which may promote the redirection of hostility onto property. Secondly, arsonists were found to have less stable or less well-defined constructs of the seriousness of person versus property offences compared to the other groups. There was no significant bias towards rating person offences as being more serious than property offences. This may reflect a psychological conflict regarding the seriousness of property and person crimes which is responsible for the displacement of hostility provoked by an individual onto property.

### 1.6 Conclusion

This chapter has outlined various explanations that have been suggested for why people set fires, ranging from environmental and social factors such as poor parenting and poverty, to individual psychological characteristics such as mental illness and lack of social skills. There does not appear to be any cohesion among these numerous theories, until it is considered that what they could represent are various explanations for different forms of arson, rather than conflicting explanations of a single phenomena. For example, the types of firesetting behaviour studied by Kafry (1978; 1980) primarily concerned ‘experimental’ match play by children which involved setting fire to small household items. In contrast, other research has focused on arson committed by individuals housed in psychiatric institutions and special hospitals (e.g. Jackson *et al*, 1987; Harris and Rice, 1984). These authors are very often dealing with prolonged pathological firesetting by adults where both the nature of the behaviour and its consequences - in terms of extensive destruction of property and potential loss of life - are much more serious.



It has been argued (Blackburn, 1993) that the foundation of a theory of crime is the construction of an appropriate classification system to account for variations in both different ways of committing the offence and types of offenders.

The next chapter, therefore, discusses existing classification systems of arson and draws on research in other areas of criminal behaviour to provide a framework for the model of firesetting presented in the current thesis.

## Chapter 2: The Classification of Arsonists

It has been almost two decades since Vreeland and Waller (1979) categorically stated that “the lack of an adequate system of classification is a major contributory factor to our lack of understanding of firesetting behaviour”. To date there have been several attempts to create typologies of arsonists, most of which are based on classifications of motive (e.g. Inciardi, 1970, Vreeland and Waller, 1979, Prins, 1994). This reliance on uncovering the supposed ‘motives’ for firesetting as the basis of a classification system suffers from serious problems of validity and reliability. As Durkheim (1897) warned: “human intention is too intimate a thing to be more than approximately interpreted by another person”. More recently, Geller (1992a) also criticises motivational classifications on the grounds that they focus on possible explanations for the firesetting behaviour, rather than describing variations in the behaviour itself.

The review of literature on arson in the previous chapter highlighted the fact that there are various different explanations for arson that appear possibly to be only relevant to distinct sub-sets of arsonists. In order for an explanatory framework to take account of all the many different forms of arson, therefore, it seems necessary to regard the act of arson itself not as a single phenomenon, but as a range of behaviours that are each associated with different motivational processes and offender characteristics.

Clearly, beyond the act of setting a fire itself, there is a potentially unlimited range of behaviours that might be associated with the crime of arson. In order to reduce these disparate acts to homogeneous classes of behaviour it is necessary to develop a classification system which meaningfully differentiates between styles of committing arson. This is the aim of a classification system, namely to reduce phenomena by generalising beyond the particular and unique to facilitate more systematic observations (Clinard and Quinney, 1973).

It has been suggested that a useful offender classification should meet seven criteria; comprehensive coverage of the offender population, clear definitions of categories, sensitivity to changes, clinical relevance, economy of application and both reliability and validity of distinctions (Megargee, 1977 cited in Blackburn, 1993). Unfortunately, most existing classifications of arsonists fail to meet even the first of these criteria; in almost all of the typologies of motives, for example, there is included a catch-all category of so-called 'motive-less fire-raising' (e.g. Prins, 1986).

Prins (1994) discusses a number of different typologies of arson. He concludes that they tend to confuse the motivations and the characteristics of arsonists or produce overlapping categories that may be of some practical assistance but do not really help in understanding the distinct varieties of arson. Prins admits that his own classification scheme is an amalgam of other schemes, serving to provide a framework for explaining and describing arson. But, as with other classifications (e.g. Faulk, 1988; Inciardi, 1970) no empirical studies have tested the validity of the potentially contradictory ways of distinguishing between different types of arson and arsonist.

With this in mind, the current chapter reviews the literature on classifications of firesetting and integrates this with classifications derived from research on other offence types. The aim of this is to draw out the common features underlying these schemes which can be used as a basis for the new classification of firesetting presented in this thesis.

Traditionally, classification systems of offenders generally fall into one of two broad categories: those that identify categories from an explicit theory, and those which derive categories empirically (Blackburn, 1993).

Examples of theoretically derived classifications include those which identify sequential stages of cognitive and interpersonal development. For example, Sullivan, Grant and Grant (1956) proposed a stage theory which they called Interpersonal maturity level. This suggests that perceptual development involves increasing



integration with people and social institutions. Individuals progressing to higher levels are assumed to be less likely to conflict with society, therefore delinquents would be expected to fall at the lower levels of achieved integration. A number of studies have found support for this (e.g. Warren, 1983, cited in Blackburn, 1993).

A similar theory is the Conceptual levels model (Harvey, Hunt and Schroder, 1961, cited in Blackburn, 1993) which also assumes that socialisation proceeds through stages of increasing cognitive complexity in interpersonal orientation. Again, there is some support for delinquents operating at a more primitive conceptual level (Hunt and Hardt, 1965, cited in Blackburn, 1993).

Adopting a theoretical approach, several clinicians (e.g. McGaghy, 1967; Knight *et al*, 1985; Prentky *et al*, 1985) have constructed typologies of rapists based on the psychological meaning of the offences to the individuals committing them. However, these have failed to become generally accepted, largely because of limited empirical tests of their reliability and validity.

Equally, classifications which are based purely on statistical clustering techniques are also of limited value due to a lack of coherent theory underpinning the research findings. The two most widely known empirical classification systems are Quay's (1987) behavioural dimensions, and Megargee's MMPI-based classification (Megargee and Bohn, 1979).

Clearly what is required in order to overcome the limitations of both of these types of classification systems, are ways of differentiating offenders which based on theory and have been subjected to empirical testing. With arson, however, there is at present no such unified framework.

The contradictions arising from this are apparent in the variety of emphases that are given to characterise arson. For example, arson has been regarded both as a category of property offences (Hill, Langevin, Paitich, Handy, Russon and Wilkinson, 1982) - because its most obvious feature is the destruction of property - and also an offence

against the person because the motive is often reprisal against a specific individual or group (Lewis and Yarnell 1951, Barnett 1992). Pettitway (1987) makes a different distinction: between arson which is retaliatory in motivation and that which is non-retaliatory (e.g. crime concealment). From this perspective the retaliation is seen as a means of communication by people who lack verbal skills or strong physical capabilities for direct aggression. Geller (1992c) goes further in seeing arson as a form of emotional expression in pathological adults, where the behaviour is neither a primary symptom of a psychiatric disorder, nor attributable to pyromania, but is used as a means of communicating a desire, wish or need. This is part of an approach that explores variations in the psycho-pathological characteristics of arsonists (Sakheim, Osborn and Abrams, 1991).

These considerations generally present the arsonist as an individual who is unable to have the impact s/he desires by constructive means, or by drawing on more conventional forms of physical or verbal coercion and therefore uses fire setting as the means to that end. This is also expressed from a functional-analytic perspective, using principles of reinforcement by Jackson, Hope and Glass (1987).

This summary of the existing approaches to arson classification highlights the two main issues that need to be addressed in relation to classifications of offending generally. The first concerns the ways that an offender differs from others who commit the same crime, and the second is the way offenders as a group generally differ from non-offenders. In terms of arson, classifications of the former type have tended to focus on typologies of motives (e.g. Pettitway, 1987; Barnett, 1992), whereas the latter category has mainly concerned psychiatric classifications and personality characteristics which differentiate firesetters from non firesetters (Geller, 1992b; Jackson, Hope and Glass, 1987).

## **2.1 Differences between offenders and non-offenders**

Most psychological theories of crime attempt to account for an individuals' disposition to engage in antisocial acts. For example, Gottfredson and Hirschi (1990)



in their General Theory of Crime, propose that that the behavioural correlates of crime which they identify (e.g. gambling, drinking, smoking, promiscuity) all have an underlying common factor, which they term lack of control. Other research suggests that the general factor of delinquent or criminal behaviour is part of a broader dimension of general deviance. For example, Jessor and Jessor (1977) found significant generality among measures of problem drinking, illicit drug use, sexual precocity, and delinquent behaviour, which related to personality variables reflecting unconventionality. This was also supported by Osgood *et al* (1988) in an analysis of similar measures, and they also demonstrated longitudinal consistency in these behaviours. Those who engage in one form of antisocial behaviour are therefore also more likely to engage in others.

This view of offending has its origins in the work of Eysenck (1977) who sees criminality as "...a continuous trait of the same kind as intelligence, or height or weight". Eysenck's theory was that personality was made up of three dimensions, termed Extraversion (E), Neuroticism (N) and Psychoticism (P). He argued that since criminals would have weak consciences, because of their poor ability to build up conditioned responses, they would have high scores on all three of the dimensions. This theory is primarily concerned with individual differences, specifically those that differentiate criminals from non-criminals.

Robins (1978) suggested that there is an 'antisocial personality' that arises in childhood and persists into adulthood, with numerous different behavioural manifestations, including offending, and this idea is embodied in the DSM IV diagnosis of antisocial personality disorder (American Psychiatric Association, 1994). There are a number of psychological correlates of this antisocial personality, such as failing to maintain close personal relationships, poor job performance, involvement in crime and a tendency to lose one's temper in response to minor frustrations.

Psychologists have carried out a great deal of research on the relationship between different personality factors and offending. However the personality scales that correlate most reliably with offending often consist of items simply asking about a



respondent's past criminal behaviour. For example, the Psychopathic deviate scale of the Minnesota Multiphasic Personality Inventory is primarily concerned with nonconformity and conflict with family and authority. Therefore it may be regarded as measuring a tendency towards social rule-breaking rather than a psychopathic or 'criminal' personality per se (see Wilson and Herrnstein, 1985).

A few of the studies reviewed in Chapter 1 identified personality factors that appear to differentiate firesetters from non-firesetters. In summary, these findings indicate that deficits in assertiveness and social skills are common among mentally disordered firesetters (Harris and Rice, 1984; Jackson, Hope and Glass, 1987). A perceived lack of persuasive skills has also been hypothesised to explain the finding that retaliative arson is more common in certain geographical areas characterised by poverty (Pettaway, 1987).

Although useful in providing possible explanations for why certain individuals may commit arson, these findings do not directly contribute to the development of a classification system which will differentiate *between* sub-groups of arsonists. In order to take this one step further it must be shown that the personality factors listed above are related to observable differences in the nature of the fires that are set. This leads us to a consideration of classification systems that have examined differences among sub-groups of offenders.

## **2.2. Classifications of sub-groups of offenders**

The main focus of this type of research has looked at different forms of aggression, and attempted to delineate differences in the characteristics of individuals who display these different types of aggressive behaviour. One of the best known classifications of this type is Megargee's (1966) undercontrolled and overcontrolled personality types and their relation to aggression. A distinction has also been made in the literature between primary and secondary psychopaths (Karpman, 1948). This is based on the source of the psychopathic behaviour within the individual; for primary psychopaths the antisocial behaviour reflects uninhibited instinctual expression,

whereas the behaviour of secondary psychopaths results from dynamic disturbances such as neuroses or psychoses.

In relation to firesetting behaviour, a few studies have differentiated between the characteristics of sub-groups of these offenders. For example, Rice and Harris (1991) compared one-off arsonists with known repeat offenders. They found, interestingly, that repeat offenders were younger but had more extensive criminal histories than the first-time firesetters. Also, first-time offenders were more likely to have victimised a person they knew and for reasons that were psychotic. Finally, repeat offenders were less likely to have a history of interpersonal aggression, were more likely to be diagnosed as personality disordered, and were more likely to have set fires in extreme excitement or as a release of tension. This last result suggested that some of the repeat offenders may have been pyromaniacs, however, closer examination of their clinical files indicated that anger and revenge were more important precursors of the firesetting activity.

A study by Sakheim, Osborn and Abrams (1991) focusing on juvenile firesetters also provides a number of variables which can be used to discriminate between subgroups of these offenders. The authors identify four categories of firesetters based on levels of risk for recidivism. Minor risk is attached to young firesetters who play with matches out of curiosity as increased parental supervision can usually combat this habit. When a child sets a fire as a "cry for help" there is a moderate risk of recidivism as they will probably continue to set fires until their emotional needs are recognised. A definite-risk firesetter is usually a conduct-disordered child who is chronically angry and rebellious, and uses fire repeatedly in power-struggles with adults. Finally an extreme risk for future firesetting is attached to children or adolescents who belong to the category of "pyromaniac", or who are psychotically disturbed. Their behaviour is unpredictable and therefore dangerous. For this study, the first two groups were called minor firesetters, and the latter two were called major or severe firesetters.



Using psychological test data, psychiatric evaluations and social histories of the 50 firesetters examined, the authors found that 10 of the 35 variables significantly discriminated between the two categories. Inadequate superego functioning, sexual excitement, poor social anticipation and awareness, rage at insults or humiliation, and cruelty to children or animals were found to be more frequent in the severe group than in the minor group, with a high degree of statistical significance ( $p < .01$ ). Also, intense anger at maternal rejection, neglect or abandonment; poor social comprehension and judgement; and attraction to or pre-occupation with fire were found more frequently in the severe than in the minor firesetting group, with a statistical significance of  $p < .05$ . In contrast, the presence of obsessive-compulsive defences against impulsivity was observed more often among the minor firesetters than severe firesetters at the  $p < .05$  level of significance. Also, there was a tendency for the presence of guilt or remorse over previous firesetting episodes, separation anxiety, and a wish for reunion with a paternal figure to be found more frequently among the minor than the major group ( $p < .10$ ). The authors claim that using these variables correctly classified the minor firesetters in all cases, and the severe firesetters in 88% of cases.

Although this study focuses on child firesetters, the motives used, with the possible exception of the “playing with matches” group, can also be applied to adults in order to distinguish their risk of recidivism. Although the results of this study may be useful as a clinical tool for identifying those firesetters who remain seriously at risk for future firesetting in the community, a criticism is that the majority of the variables used were somewhat psychodynamic in nature and would not be readily observable at an arson crime-scene, for example; or during the course of non-psychoanalytic therapy sessions; or in Judicial proceedings considering the appropriate dispersal of arsonists. Another criticism is that, along with their previous work (Sakheim and Osborn, 1986) the authors claim that a high number of the firesetters became sexually aroused when setting fires (50% in the first study). As mentioned previously, this particular aspect of firesetting has been discredited as a significant motivating factor in studies of adult arsonists.

In order to overcome the limitations of classifications such as these which focus on characteristics which are not directly observable, a third form of classification exists which takes account of features of the crimes themselves and what they can tell us about the individuals who may be responsible.

## 2.3 Behavioural Classifications

Many behavioural classification systems are built around the crime of rape because of the strong behavioural component that exists for this crime. There is the possibility of having a victim who can relate information about a great many of the perpetrator's actions. These actions in themselves, focusing as they do around interpersonal sexual aggression, are likely to be revealing of the individual who commits them.

Canter and Heritage (1990) argue that the primary focus of a classification system should be on behaviours rather than attempting to examine the motivations and intentions of the perpetrator. Such factors relate more to possible explanations for the offending behaviour and do not describe variations in the behaviour itself. These variations ought to be empirically determinable in order to ensure the reliability and validity of the classification.

Unfortunately, most published conceptualisations of variations in offender behaviour have tended to combine accounts of actions in an offence with explanations of the intentions, motivations and inferred offender characteristics. For example, a commonly cited approach to rapist typology, Groth's (1979), is based on the assumption that rape is not an expression of sexual desire but the use of sexuality to express power and anger. The typology that is derived from this perspective, as a consequence, emphasises the various psychological functions that rape has for the offender and not what varieties of actions in rape actually consists of.

A further example, is given by the work of Prentky *et al.* (1985). Their attempts to characterise and classify rapists make little distinction between the overt behaviour as it occurs in the sexual assault and the psychodynamic processes that are taken to



account for or produce that behaviour. There is little attempt to distinguish aspects of the offender's motivations and life-style from his offending behaviour.

Any attempt to understand the actions that occur in an offence requires the classification of offence behaviour as distinct from classifications of the person in either psychological or social terms. So although early approaches to classification is guided by a particular explanatory framework any composite modelling of offence behaviour will have to draw upon all those approaches that are supported by scientific evidence.

This confusion of action and person is less problematic in the clinical context in which earlier theoretical formulations were derived. However, the primary question for researchers in the field of investigative psychology is what variations in offence behaviour can be reliably identified without any knowledge of the person who committed them. The exploration of how any empirically validated variations relate to offender characteristics is an important issue for subsequent examination.

Variation in the rapes studied by Canter and Heritage (1990) revolved around interpersonal interaction. The finding that rapists were consistent in their choice of venue (either inside or outside) prompted examination of other consistencies. In terms of offence behaviour, those rapists that chose to offend inside tended to have a more intimate style of rape and they tended to operate closer to home. Younger offenders tended to operate outdoors and tended to have committed burglary as juveniles.

Rosenberg and Knight (1988) also developed an empirical classification of sex offenders using cluster analysis. The study used behavioural variables based on the information contained in the clinical files of sex offenders, including institutions, schools, parole and probation reports. The cluster analysis was based on the individual subjects' scores on four dimensions arrived at through principal-components analysis of 19 individual variables. These were: Substance Use, Unsocial Behaviour, Life Management and Impulsivity in Offences. An additional fifth scale of

sexual aggression was included in the cluster analysis as it was unique from the other four scales derived from the principal-components analysis.

The researchers identified 12 clusters which were named according to their characteristic scores on the five variables scales. For example, High-Competence Alcoholics had high substance abuse and life management scores and were less impulsive in their sexual offences; whereas Predatory Antisocial Aggressives had high unsocialised behaviour and sexualised aggression scores, together with a low offence impulsivity score.

These clusters were externally validated using the recognised diagnostic schemes of DSM III and Massachusetts Treatment Centre (MTC) sexual offender subtype ratings.

The results of Rosenberg and Knight's (1988) cluster analysis draw attention to the potential pitfalls of classifying offenders on the basis of the inferred motivation of their sexual aggression (as the MTC framework does). Many of the motivational distinctions made by the MTC (Prentky *et al*, 1985) did not correspond directly to any of the empirical clusters derived by Rosenberg and Knight. For example, although the MTC framework distinguishes between rapists motivated by anger as opposed to sexual sadism, the empirical analysis produced clusters which contained offenders from both of these two groups. There were also clusters produced (e.g. Low and High-competence Alcoholics) which lacked any corresponding category within the MTC framework. Rosenberg and Knight (1988) therefore suggested an alternative classification based on the planning of the crime and the offender's history of antisocial behaviour.

Conversely, however, it is also important to note that not all of the clusters identified by Rosenberg and Knight had any measurable face validity, in other words they did not represent clinically recognisable types of sex offender. This reinforces the point made earlier about the need for a classification system which has both a theoretical framework and validates the classifications empirically.



Despite its short-comings, however, this study represents one of very few examples of behaviourally-oriented classification systems which do not make inferences about the motivational processes underlying the observed differences in behaviour. The reliance on motives undermines the value of a classification system by introducing inherent biases associated with the inference of the offender's internal processes. Unfortunately, however, a major focus in classifications of arsonists has been on the development of motivational typologies. The most comprehensive of these, at least in terms of the sheer number of motivational categories, is the framework put forward by the FBI in Douglas *et al's* (1992) Crime Classification Manual.

### **2.4 Motivational Classifications of Firesetters**

The FBI approach involves extrapolating from crime-scene evidence what the likely motives are, and then (by an unknown process) inferring the typical characteristics of the offender with each of those motives.

Aside from the reliance on motives, there are also methodological concerns regarding this work in that the classifications were based on "a review of arson research literature and actual arson cases and interviews of [an unspecified number of] incarcerated arsonists across the country". This does not clarify the empirical basis, if any exists, of the classification system, unlike the previously mentioned schemes (e.g. Rosenberg and Knight, 1988) which were methodologically explicit. According to the FBI classification, the defining characteristics of arson are described as being determined by the type of victim selected and crime scene indicators, which they categorise in terms of the level of organisation shown by the offender. They describe the organised arsonist as typically using elaborate incendiary devices, leaving less physical evidence and using a methodical approach; whereas the disorganised one uses whatever materials he has to hand (e.g. matches to ignite and cigarette lighter fluid to accelerate the fire) and leaves behind more physical evidence such as footprints and fingerprints.

The seven main groups of motives for arson described in the manual are: vandalism, excitement, revenge, crime concealment, profit, extremist and serial offences. A number of corresponding offender characteristics are given for each of the motive types. Vandalism arsonists tend to be juveniles with 7-9 years of formal education, a record of poor school performance and disruptive behaviour. They are usually from a lower-class background and live with their parents less than a mile away from the crime scene. Additionally, they will probably be known to the police. Alcohol and drug use are generally not associated with this type of firesetting. Properties likely to be targeted include educational facilities, residential areas and vegetation.

Where the arson is committed for excitement motives, the typical offender is claimed to be an unemployed single juvenile or adult male with 10 or more years of formal education, living with his parents in a middle-class family. This offender is likely to be socially inadequate particularly in heterosexual relationships, with a history of police contact for nuisance-type offences. Serial offending is common in this group and alcohol or drugs may be used by the older offenders. The type of property likely to be targeted include bins, skips, vegetation, building sites and residential property.

Where the motive for arson is revenge, the offender will most likely be someone known to the victim. He will most likely be an adult male of low socio-economic status. The offender will probably live in rented rather than bought accommodation and may have previous convictions for burglary, theft or vandalism. Any relationships will be unstable and short-term. The use of alcohol during the offence is common to this type. The property which is targeted will be something of significance to the victim, such as a vehicle or bed. If the revenge is directed at society, then a public building, such as a library, may be targeted.

Less clear offender characteristics are given in the case of crime-concealment motivated arson. One reason for this may be that the main determinant of the type of perpetrator is the particular crime which is being concealed. If the fire is started for the purpose of concealing murder, for example, then the characteristics of the offender may depend on the nature of the relationship with the victim, e.g. a domestic



murder may involve an entirely different type of offender from one who commits a stranger-murder. Some suggestions, however, are that the offender is likely to be a young adult living in the surrounding area with a history of police involvement, and alcohol and drug use are common.

If the arson is committed for profit purposes, i.e. in order to claim insurance on the property, there may be two separate offenders involved. The primary offender is the business man whose property is to be burned, and the secondary offender may be a known "torch" who is hired to commit the arson. There can be several indications that the primary offender has planned the fire, e.g. valuable furniture may have been substituted with less expensive furniture, and there may be indicators of financial difficulties or recent changes in insurance policies.

Extremist-motivated arson is usually indicated by the perpetrators themselves in that they will often inform the media, or leave spray-painted slogans on the walls of the targeted property. The property itself will also give clues as it will usually represent the antithesis of the offender(s) beliefs.

Finally, the serial arsonist targets unoccupied properties usually at night. The typical offender is usually an unemployed, or erratically employed male and possibly a juvenile with a history of substance abuse and police involvement for minor nuisance offences. He will be minimally educated and will have been an under-achiever at school. He will have poor interpersonal relationships, and be socially inadequate. He generally lives within a mile of the crime scene, and may often remain at or return to the scene to watch the fire.

As with FBI classifications of other offences, many of the most salient points made are ones which are drawn from unreferenced previous literature. Perhaps nowhere is this as clear as with their typology of rape. Here the labels produced by the FBI are almost identical to those used by Knight and Prentky (1987) and because of the theoretical and empirical basis to the latter work, there is some external validity to those similar concepts used by the FBI. However, where the connection to previous

literature is not so clear, where the links between motives and characteristics appear to be based on mere conjecture, the arguments made by the FBI lack any substantive basis. In referring simply to mental conditions or drives towards behaviour there is no adequate explanation as to why other individuals in the same mental state or with the same needs do not engage in firesetting. For example, with the revenge motive which is commonly cited as one of the most frequent motives for firesetting, merely identifying it as a category of arson does not explain why individuals use this particular form of revenge.

Another behavioural classification of arson which is also related to motives, but has the advantage of being based on an empirical approach is by Pisani (1982). This study developed a typology of arson based on correlations among variables. The sample for this study was 138 randomly selected cases of persons arrested for arson in New York City. The largest group of arsonists (53%) were described as using fire as a weapon for revenge. These fires were usually set at night in occupied buildings and were started by flammable liquid. These arsonists often threatened to set fires before doing so and usually had not set fires previously. Three other groups of firesetters with instrumental motives - insurance and welfare fraud as well as crime concealment - together made up a total of 16% of the arson arrests. Vandal firesetters comprised 12% of the sample. These individuals rarely used accelerants in setting fire and usually set fire to only one spot at the scene. Another group with similar offence characteristics to the vandals were called 'pyros' by Pisani and made up 10% of the sample. The difference with this group was that they were said to derive emotional relief or sexual gratification from the fires. A final 9% of the sample were made up of a group who Pisani called 'psychos' who usually had some form of psychiatric history and set fire to occupied buildings, frequently their own apartments. These fires were set by taking a match to bedding and did not usually involve accelerants.

Finally, a recent study by Harris and Rice (1996) classified mentally disordered arsonists by employing multivariate statistical techniques (cluster analysis) to identify four subtypes of firesetters. These four groups were called psychotics, unassertives,



multi-firesetters and criminals. The first of these groups made up a third of the sample for the study. Compared to the rates of mental illness cited by previous research (e.g. Bradford, 1982) this seems high, but as stated the sample was defined by being mentally disordered. These individuals were usually diagnosed as schizophrenic and had set few fires in their lives, nor had they a history of criminal or aggressive behaviour. They were less likely than members of other clusters to have used accelerants and their rate of recidivism was not particularly high for any further violent, non-violent and firesetting offences.

The next largest group (28%) were called 'unassertives'. These did not tend to have a history of aggression, or criminal activity, were more intelligent and had better employment histories. They were the least assertive of all the four types and were most likely to set fires out of anger or a desire for revenge.

The 'multi-firesetters' accounted for 23% of the total sample. They had the worst childhood histories and had high levels of aggression. Although they had little criminal history generally, they had previously set many fires. They were least intelligent and were most likely to have been institutionalised as children, and they had parents with psychiatric problems. They were also very unassertive, but were least likely to have been diagnosed as schizophrenic. In terms of the characteristics of their fires, they were most likely to have fired institutions and to have confessed. They were also most likely to commit their offences during the day and had a high rate of recidivism for all crime types.

Finally, the smallest subgroup were the 'criminals', making up 16% of the sample. These individuals had extensive criminal histories and poor childhood backgrounds marked by abusive parents. They were most likely to have been diagnosed as personality disordered. In terms of the fires they set, they were least likely to have known the victim of the fire, were most likely to set fire at night-time and were least likely to report the fire or confess. These offenders were the most assertive and were most likely to commit further fire and violent offences when released.

Harris and Rice (1996) also attempted to develop a typology of the characteristics of the fires themselves, and to relate this to the four subgroups of offender. However, the only association which they identified was that more serious fires were set by younger offenders with more extensive histories of firesetting.

One possible reason for this failure of the identification of more substantial links between offence and offender characteristics, is the absence of a theoretical framework underpinning the study. Without such a basis to guide hypotheses about expected differences in the characteristics of the fires set by each of the four groups of arsonists, it would be difficult to know what aspects of the fires to include in the analysis.

As can be seen from this review of existing arson classification systems, there is still no single framework which adequately encompasses the full range of behaviour associated with the act of firesetting. In order to achieve this objective, what is required is both a conceptual framework and a methodology that will allow us to differentiate arsonists in a way that is open to empirical test. As an improvement on previous classifications of arson, then, the current study applies a psychological framework to attempt to differentiate arson behaviour based purely on crime-scene characteristics, without inferring the underlying motives of the offenders.

## 2.5 Conclusion

This chapter has outlined various existing approaches to the classification of and differentiation between groups of offenders. In relation to arson a number of key similarities and differences have been identified. A summary of the main distinctions that have been made is listed below under general headings that subsume a number of the different categories mentioned in previous work.



## Revenge

Most studies of arson have cited revenge as one of the dominant classification categories, e.g. in Pisani's (1982) study this group made up 53% of the sample. Rice and Harris (1991) and Harris and Rice (1996) also both mention the role of revenge in arson. In the earlier study, this was seen as one of the main motives behind arsons committed by repeat firesetters, whereas in the latter the category of 'unassertive' firesetters were said to have motives of anger/revenge underlying their firesetting behaviour. However, the inherent unreliabilities of motivational typologies have already been discussed; in this case this is illustrated by the fact that in Pisani's sample 53% were classified as revenge, whereas for Harris and Rice (1996) the equivalent group made up only 28% of the sample. This discrepancy may be due to differences in the nature of the two samples, or to the criteria used by the two sets of authors for determining this motive.

This motive was also indirectly identified in Sakheim, Osborn and Abrams' (1991) study of juvenile firesetters. They identified a category of children who use firesetting in power struggles with adults, which can perhaps be seen as a form of revenge or at least an attempt to *redress* the balance of power in favour of the child.

## Psychiatric

It is not surprising that studies drawing on samples from psychiatric institutions have identified various mental disturbances to be related to firesetting. In the empirical study by Harris and Rice (1996), for example, the largest group (33%) of subjects were described as 'psychotics'. However, even those studies using more objective sources of data (e.g. Pisani, 1982) have identified a category of mentally disordered firesetters. In this study, however, only 9% of the arsonists were labelled 'psychos'. In the study of juvenile firesetters (Sakheim *et al*, 1991) one group of children were described as setting fire as a 'cry for help', and another group was identified as psychotically disturbed. Both of these may be regarded as having emotional and psychological problems of varying degrees.

## **'Pyromania'**

Although this is very rarely diagnosed clinically, most studies of arson have reported a group of individuals who are fascinated with fire and for whom feelings of excitement accompany their firesetting behaviour. Harris and Rice (1996) refer to this group as 'multi-firesetters', whereas Pisani (1982) calls them 'pyros'. Sakheim *et al* (1991) also identified a group of children who experienced irresistible impulses to set fires. Rice and Harris (1991) found that 60% of firesetters in their sample were known to have set more than one fire; these individuals were often diagnosed as personality disordered, and were likely to have set fires as a release of tension. A closer examination of these individuals, however, reveals that they are slightly different to the equivalent group identified in the later study by the same authors. Firstly, in the earlier study the repeat arsonists were reported as having the most extensive criminal histories; however, in the later study they actually had the lowest number of charges of all four groups. Also, the former study reported these individuals as being less aggressive than one-off firesetters, whereas in the second study this group showed the second highest level of aggression.

## **Criminal/Instrumental Motives**

Finally, many studies have referred to various non-psychological motives such as vandalism, crime-concealment or insurance fraud as factors in arson. Profit motives were responsible for 16% of the arsons in Pisani's (1982) study, whereas 12% of his sample were vandal firesetters. Harris and Rice (1996) described one of their empirically derived groups as criminals (16%).

While it can be shown that certain studies share at least some of the same terminology in their approach to classifying arsonists, even the short review above has revealed many inconsistencies in the exact composition of equivalent categories. Also, there are many studies that list categories which are not readily comparable with other frameworks. For example, the 'playing with matches' group of children described by Sakheim *et al* (1991) does not readily fit into the above scheme.



Similarly a number of otherwise comprehensive classification systems do not contain all of the categories found elsewhere. For example, the FBI classification does not refer to psychiatric arsonists.

For this reason an alternative classification framework is required which will not only consolidate all of the categories of arson that previous research has already mentioned, but also be flexible enough to incorporate other forms of arson which may not yet have been identified. Such a framework is presented in the following chapter.

## Chapter 3: Arson as a Destructive Action System

The previous chapter discussed various approaches to crime classification, both in relation to arson and other offence types, such as rape. One problem which many of these approaches share is that no single classification system contains an exhaustive list of categories that encompass all forms of the offence in question. With arson, a number of the disparate categories identified in key studies were summarised at the end of chapter two under four general headings. Although these subgroups could be related to most of the main classifications cited in the literature, they proved not to be general enough as certain recognised categories of arson could not readily fit into this scheme. Therefore it seems that in order to satisfy the criteria of comprehensive coverage of the population an even broader classification system is required.

As noted by Gibbons (1988) in his critique of offender typologies, a number of historical attempts at classification fail to fulfil the criteria that “real-life persons can be found in significant numbers who resemble the descriptions of offenders in the various typologies that have been put forth” (Gibbons, 1988 p.9). For example, a number of criminologists have reported the existence of distinct social role types among prison inmates (e.g. Schrag, 1961; Garabedian, 1964 cited in Gibbons, 1988). However, subsequent research (Leger, 1979 cited in Gibbons, 1988) using the same techniques failed to reliably classify offenders into the same role categories. Similarly, typologies of criminal careers (e.g. Chaiken and Chaiken, 1982) has found that although some offence specialisation exists, most offenders commit a variety of different crime types. For example, one of Chaiken and Chaiken’s (1982) criminal ‘types’ was described as “burglar-dealer”, but many of the individuals classified as such had also committed thefts, frauds or forgeries. Therefore, rather than apply a specific label to these offenders, it might have been better to describe them more broadly as property offenders. Equally, rather than creating endless lists of all the possible motives for arson, for example, it might be better to try to classify them using much broader categories.



One of the central debates in the criminological literature is whether offending occurs primarily as a result of an individual's criminal tendencies, or whether any individual would commit a crime given a certain set of circumstances. This draws attention to the causes of crime, and whether these can be considered as being primarily internal or external in locus. In terms of the more specific causes of particular crimes, a common distinction is made in relation to acts of aggression, between instrumental and expressive motivations (Feshbach, 1964, Rosenberg and Knight, 1988). Although this distinction has not yet been applied to acts of arson, researchers with a clinical frame of mind such as Geller (1992b,1992c) and Sakheim *et al* (1991) have looked at other potential sources of arson within the individual, for example, psychiatric or psychological problems.

Other researchers, particularly those involved in the insurance industry (e.g. Wood, 1995; Arson Prevention Bureau, 1995), draw attention to the targets that are selected by arsonists. While these writers are primarily concerned with property targets, a significant proportion of arson can be seen as being directed at people, i.e. the owners of the fired properties. This distinction between person and property targets of arson is potentially very significant and suggests one dimension on which a general classification model could be based.

A combination of these perspectives leads to the consideration of the whole process of arson as being, on the one hand derived from a variety of sources and, on the other, having the possibility for different types of target.

Many psychological theories of arson have attempted to account for the source of the firesetting behaviour within the individual. As they have revealed, there are many such potential sources, but broadly speaking these can all be seen as emitting either from within the individual (such as the desire for attention) or from some external environmental cue (such as the need for revenge against another individual). Similarly the manifest targets of arson can be differentiated according to whether the desired effect of the act is to modify some aspect of the individual's external or internal environment. Therefore, a conceptual model of arson should encompass the

internal or external sources of the behaviour with the internal or external locus of it's effect.

One possibility is that firesetting behaviour can be seen as an 'action system'. This hypothesis would link a model of arson to a framework which describes firesetting as an interaction between the source of the firesetting impulse and the locus of it's impact.

### 3.1 Action Systems

The approach to arson explored here attempts to model sources and targets within the same framework. This can be done by seeing arson as a process of destructive transactions with the world. As such the variations in types of arson may be considered as similar to the variations that can be found in other behavioural action systems, using the idea of an 'action system' in the sense that Shye (1985) does, deriving his perspective from Parsons (1953) and the systems approach of von Bertalanffy (1968). "A system is an *action system* to the extent that it is active, open, organised, and stable" (Shye, 1985 p101). In general Shye's work has been concerned with effective system functioning; the destructive behaviour of firesetters can be seen as modes of dysfunctioning, but parallel processes can be hypothesised. Fire setting is a transaction with the surroundings, thus 'open'. It is 'organised' in the sense that it has constituents that interact with each other and it is 'stable' in so far as the arson evolves out of existing and continuing processes within the person and his/her surroundings.

Shye (1985) points out that in order to model all actions systems which are open it is necessary to consider a) the sources of the transactions and b) the location at which the interaction has its impact. For both these aspects of the action system there is the possibility of, broadly, the dominant mode being internal or external to each of the components. Thus the source can be within or outside the acting agent, in this case the arsonist. The impact can be within the environment or the agent. In the case of arsonists this leads to the proposal that the dominant target is to change the state of



feeling and experience of the fire setter him/herself or to modify some external state of the world.

Shye (1985) has illustrated in a number of studies that the combination of a) the internal and external locus of actualisation with b) agent or environment as the sources of the action gives rise to four basic modes of functioning of action systems that Shye labels *Adaptive*, *Expressive*, *Integrative* and *Conservative*. These can be seen as providing hypotheses for distinguishable forms of arson. However, the labels that Shye offers are related to actions systems that are functioning well. Arson is clearly not such a system. It might therefore be more appropriate to use terms that recognise these destructive modes, such as 'maladaptive' instead of *adaptive*, 'incoherent' instead of *expressive*, 'disintegrative' instead of *integrative*, and 'obstructive' instead of *conservative*. But to facilitate comparison with the more general action system literature the original terms will be kept.

#### A) *Adaptive Mode*

External events in the system's environment are the source of interaction and the action is an attempt to adapt to that by trying to change aspects of that environment. There is some overt instrumentality in the action that is, in effect, a reaction to some aspect of the context. The burglar who sets fire to a residence to hide clues to his theft, or the car thief who burns a stolen car for similar reasons are both 'adaptive' in this action systems sense. The person who sets fire to a building for insurance purposes, referred to by Vreeland and Levin (1980) as 'arson for profit' can be seen as a more extreme version of this form of arson. Such individuals do not often find their way into the sort of clinical setting in which most research on arsonists has been carried out and so it is not surprising that this aspect of arson has been rarely considered except by researchers such as Pettitway (1987).

*B) Expressive Mode*

Events emerging inside the agent are actualised outside, the dominant style of operating here being the demonstration of aspects of the agent on the world external to that agent. This accords with Geller's (1992c) emphasis on arson that is a means of emotional acting out, but within an action systems framework would draw attention to those forms of arson in which the target had some symbolic, emotional significance to the fire setter, external to his/her direct activities. In the sense that the arsonist achieves no direct, objective benefit from setting fire this is arson that seeks emotional relief, although it does produce a clearly external property offence (Hill *et al* 1982). At its most extreme it could probably be seen to encompass pyromania as Geller (1992c) suggests.

*C) Integrative Mode*

This is the mode in which the source within the system is acting to modify the system itself. In the case of arson emotional distress is being turned inwards to lead to the disintegration of the fire setter. Suicide by arson will usually be dealt with in a therapeutic context as a form of depressive acting out, so this is also an aspect of arson that is usually not dealt with as such within publications on arson. Although Prins (1994) does recognise some forms of arson as aspects of self-immolation. It is apparent that these highly emotionally charged acts can lead to a great deal of property damage as well as the deaths of others and can be of great significance to fire investigators. Their recognition as a mode of arson is thus of some importance practically as well as theoretically.



*D) Conservative Mode*

The conservative mode is the manner in which the system relates to events which emerge outside and are actualised inside the system. In terms of arson the individual sees some external source of frustration, usually another person (Barnett 1992) that s/he wishes to hurt or remove. In this sense the offence has some direct instrumental objective but that objective is focused on changing the emotional state of the fire setter. It is thus a more directed form of revenge from that when the target has some symbolic significance. That act, for example against an institution, is thus more appropriately considered as expressive, whereas the retaliatory act against an individual has a more internal locus and is more appropriately seen as ultimately conservative.

The four modes of acting, derived from their two primary facets can be summarised as follows:

SOURCE OF ACTION IN RELATION TO AGENT	LOCUS OF EFFECT IN RELATION TO AGENT	MODE
External	External	Adaptive
Internal	External	Expressive
Internal	Internal	Integrative
External	Internal	Conservative

These modes, then, provide a hypothesis of the major variations that will distinguish between different action systems. Any system under study, in our case an arsonist, will thus be expected to operate in a way that indicates a dominant theme to his activities which accords with one of the hypothesised modes.

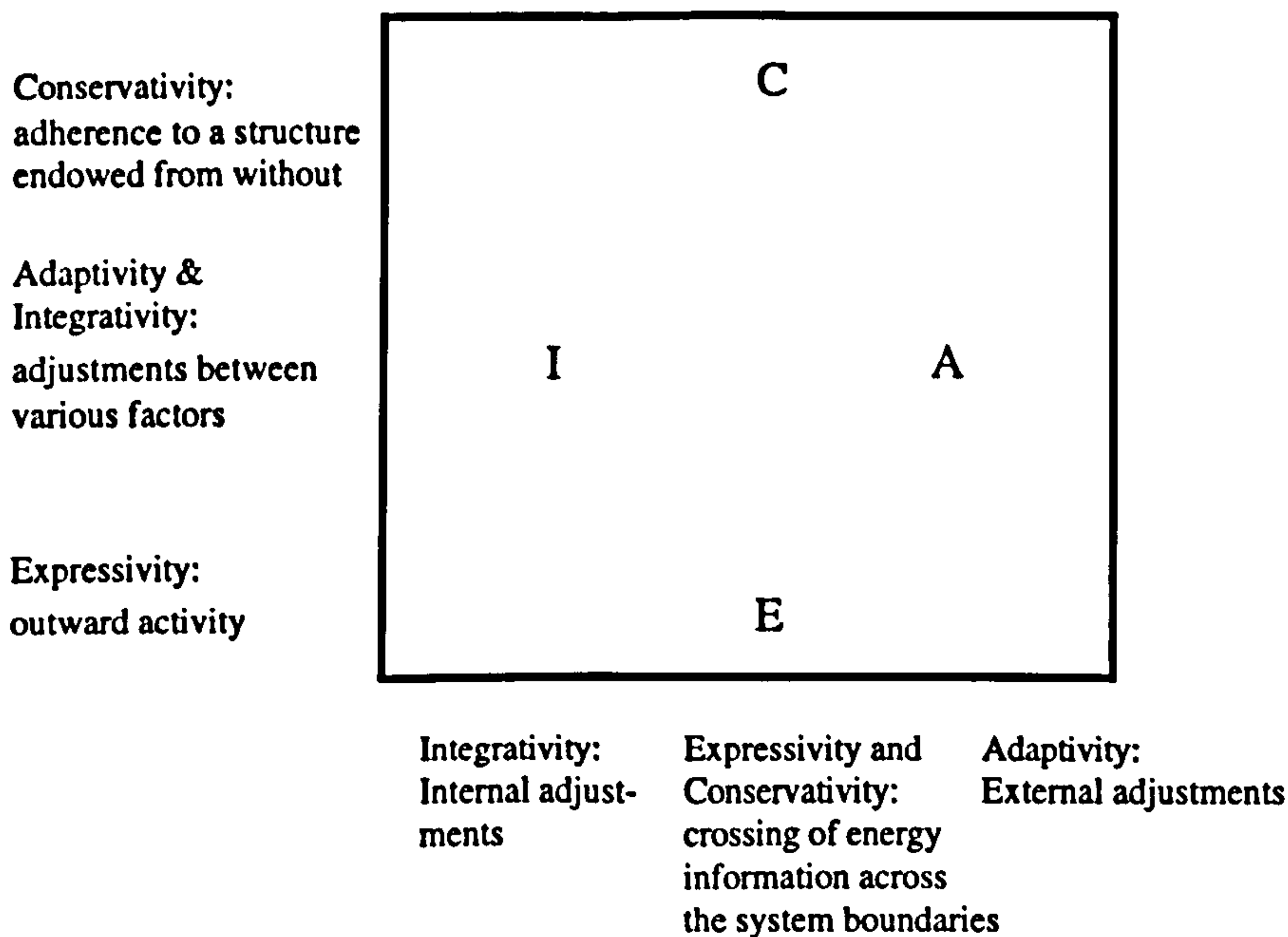
The hypothesis of four modes of arson is supported by previous literature on classifications of arsonists. For example, Harris and Rice (1996) also identified four categories, described as 'psychotics', 'unassertives', 'multi-firesetters' and 'criminals'. Parallels can be seen between these four groups and the modes of action systems functioning as described above. For example, the 'psychotics' may be seen as integrative in the action systems sense since these are both focused on internal processes and emotional disturbances. The 'unassertives' can be likened to the conservative mode of functioning, in that these individuals react to external frustrations by lighting fires, rather than dealing with them more directly. The 'multi firesetters' may be seen as an extreme form of the expressive mode in that emotional relief is obtained from setting fires. Finally, the 'criminals' are essentially adaptive in that their firesetting is used as a way of covering up other crimes that have been committed. However, unlike the four modes of functioning, the categories identified by Harris and Rice (1996) did not contain any clear description of the underlying process of arson that they refer to.

The fact that some empirical support has already been found for the existence of these four themes in the characteristics of firesetters is encouraging, even though the study failed to find similar sub-groups for the characteristics of the fires themselves. As previously stated, their attempt to find patterns in the features of the fires may have been thwarted by a lack of theoretical framework to guide this process. Similarly, the sub-groups were derived in an *ad hoc* fashion without clear empirical definitions of what each category represented. The labels themselves reflected concepts from a number of different domains, e.g. psychiatry and personality psychology. It was not clear why 'psychotics' for example, could not also be 'multi-firesetters' since one refers to a mental state and the other to a behaviour.

In the current study the adoption of the action systems approach to guide hypotheses about the way that firesetting actions and characteristics will differentiate is expected to strengthen the associations found.



In considering the four modes of acting of any system Shye argues that the modes have logical similarities and differences from each other. Thus adaptivity with its emphasis on adjustments outside of the system is most distinct from integrativity with its focus on internal adjustments, the other two modes being similar to each other on this axis of locus of impact of the actions. Conservativity is distinct from expressivity in terms of the structural processes, the former being an internalisation of external pressures and the latter being an acting out of internal processes. These considerations of the logical relationships between the modes of action can be represented geometrically as shown in **Figure 3.1.a**.



**Figure 3.1a:** The conceptual interrelationships among the functioning modes of an action system, represented by means of geometric-spatial proximities.

In summary, **Figure 3.1.a** proposes that because the conservativity and expressivity modes constitute two polar ends in the functioning of an action system, they are expected to be at opposite ends of the diagrammatic representation. Adaptivity is derivable from these two extremities and therefore maintains an affinity with both of them, and the same is true of integrativity. Although these are also distinct from each other (the former concerning external adjustments and the latter internal adjustments) they are not as distant from each other as are the poles of conservativity and expressivity.

The action system framework therefore provides a number of specific hypotheses for the consideration of arson. One set of hypotheses are that the four modes of arson will be distinguishable. A second hypothesis is that the relative similarities and differences between these modes will take the form illustrated in **Figure 3.1a**. These two hypotheses will be examined in Chapter 5. A third hypothesis is that the arsonists who typically set fires in the different modes will have appropriately distinct characteristics. This will be considered in Chapter 8.

These hypotheses of differentiating modes of a schematic action system have a number of implications that are open to direct test with the relevant data. Firstly, it is hypothesised that it will be possible to distinguish aspects of the arson which indicate some general relevance or association between the arsonist and his/her targets from other more specific aspects that are an indicator of the nature of the target itself and the role that it plays in the destructive action system of the arsonist. These more specific, target related aspects of the arson are hypothesised to relate to the dominant themes that will distinguish between acts of fire setting. Empirical support for the existence of two independent themes will be sought in relation to the source (being either instrumental or expressive) and target (person or object) of the arson. It is further hypothesised that a combination of these two elements will give rise to the four modes of action system functioning.

The set of hypotheses outlined above can be seen as hypotheses about ways of classifying arson activities into exhaustive, mutually exclusive categories, known as *facets* (Canter, 1985). The three facets proposed here can be summarised in the form of a *mapping sentence* (Shye, Elizur and Hoffman, 1994) as follows:





## Chapter 4 Description of Sample

The hypothesis of differentiating modes of a schematic action system have a number of implications that are open to direct test with the relevant data. The first and primary research question of the present thesis is that it will be possible to classify the actions of firesetters into categories or groups of actions which reflect the four modes of system functioning.

### 4.1 Nature of Sample

As indicated in the first two chapters, the majority of previous studies of arson and arsonists have approached the research from a relatively limited number of perspectives. As well as the psychiatric, psychodynamic and functional analytic studies which have been mentioned (e.g. Geller, 1992; Kaufman, Heims and Reiser, 1961; Jackson, Hope and Glass, 1987) there have also been attempts to find psychobiological and socio-economical explanations for the phenomenon of firesetting (Milrod and Urion, 1992; Pettitway, 1987). Given that the current study is concerned with a variety of forms of arson that are not all normally treated as psychologically pathological, the hypotheses would be difficult to test by examining any one identified sub-set of arsonists. Individuals found, for example, in special hospitals or on arson treatment programmes are likely to reflect only one aspect of the arsons considered here. The present study therefore sought to draw directly on recorded cases of malicious fires in which there was a known fire setter, taking the sample from the police records of the fires rather than from sub-sets of patients. This is a methodology which has not previously been employed in arson research in this country. Although there are problems inherent in this type of data collection there are also several advantages over other methods. The main advantages are listed below:

- (1) A police report provides an objective account of events as they occurred, and not as remembered by the arsonist himself after the event.



- (2) Witness reports contain important information regarding the events leading up to the arson, e.g. an argument with a partner, which may provide suggestions as to the underlying motivation.
- (3) The police interview with the suspect, in contrast to the psychiatric interview, contains only factual, non-subjective information, obtained using non-leading, information-gathering interview techniques.
- (4) The police report is the only reliable way of uncovering precise details of how the fire started, the materials employed and other information which may be useful in distinguishing between different offences.

There is also an added practical value to working with official police records. Any results will have direct relevance to that stage in the criminal investigation at which the records are available but not necessarily a suspect.

Conversely, however, the main problem associated with this form of data is the potential bias arising from the requirement that the cases be solved (in order to allow for an examination of the offender characteristics). Recent Home Office figures indicate that there are at least 30,000 arson attacks each year, however, the annual crime figures also show that fewer than 3000 people are convicted or cautioned (Kidd, 1996). There is obviously therefore a much larger percentage of undetected arson cases than detected ones. The reason for this low detection rate may be due to the fact that unlike other offences, the crime of arson must be 'proved' at least twice (Kidd, 1996). In other words, the fire firstly has to provoke the suspicions of the fire service, who will then refer it to the police. The suspected crime is then investigated to determine whether or not it actually is an arson, and subsequently if sufficient evidence exists to identify and prosecute the offender. This problem of recognition as a crime is one which is unique to arson. For a robbery to be recorded as a crime, for example, there is no requirement that it be shown to have actually occurred - a robbery can be revealed by the mere reporting of the offence by an alleged victim (Jackson, 1988).

It could consequently be argued that there might be something so unusual about those cases which are solved as to make them completely unrepresentative of arson as a whole. This same argument, however, could easily be applied to invalidate studies using samples of offenders drawn from other populations, e.g. psychiatric institutions or prisons. These also rely on the successful detection and prosecution of the arsonist, and are moreover even more selective in drawing only on offences of sufficient seriousness, or offenders of such mental instability to warrant a prison sentence or institutionalisation. It is evident, therefore, that there are a number of methodological issues which need to be considered when reviewing or undertaking research in this area. As Petersilia (1980) states "the choices involve trade-offs in terms of the strength and of the inferences to be drawn from the research, it's cost, and the time required" (p.332).

The sample for the current study, then, consists of a total of 230 arson records collected from seven police forces across England. The choice of police forces was *ad hoc*, being influenced by the availability of access to data. The characteristics of the participating forces range from those with a predominantly rural population and low crime rate, such as Dorset Constabulary, through to the Metropolitan police which lies at the other extreme in terms of both population and crime rate. (This broad distribution in the environmental and social make-up of the sample facilitates the development of a generalisable model of arson.)

## 4.2 Data Collection

The 230 cases involved arsons committed between 1991 and 1996, where the offender(s) was known and had been dealt with by way of either a police caution or court conviction. Pilot work on 50 cases (Fritzon, 1994) provided a content analysis framework consisting of 36 behavioural variables. As more data became available, a further 10 variables were added to cover perceived gaps in the existing model. Each case was coded in terms of the presence or absence of each of these 46 variables. The coding involved a detailed examination of the whole police file of which an example is provided in Appendix A. In some cases the file contained a complete set



of all documentation pertaining to the case, for example, forensic evidence of ignition materials, photographs of fire scene, fire officers' reports, social workers' and/or probation officers' reports on the offender, court transcripts, interview transcripts as well as the police Summary of Evidence report. In other cases - usually where the offender had received only a caution - there was only the attending officers' report. In these cases even this sparse documentation contained enough of the variables to allow for its inclusion in the sample. In any case, the analysis performed on the data (see Chapter 5) took account only of positive co-occurrence which reduces the problem of missing data. The examination and coding of the data took place *in situ* as files were not permitted to be removed from the police station where they were held. Because of these practical constraints on the data collection, it was not possible to conduct inter-rater reliability tests, however, care was taken to define variables so as to allow a clear decision to be made as to their presence or absence in any particular case. This 'all or none' coding increases reliability as it reduces the potential for mistakes in assigning the correct values to categorical data. In a previous study using material recorded by the police, Canter and Heritage (1990) demonstrated that the dichotomous approach to content analysis used here did produce reliable and interpretable results. Furthermore, as all the cases were coded by one researcher, namely the present author, there is an inherent consistency, although not necessarily reliability, to the information obtained.

### **4.3 Crime Scene Related Actions**

The variables used in the current study were all ones which were selected to reflect the modes of functioning within the action system framework. A full list of the variables and their meaning is given in Appendix B. The first implication of the action systems hypotheses is that there is some common set of actions that characterises all the exemplars of the systems under consideration. In the case of arson the most obvious defining characteristic is that a person deliberately sets fires in a way that at least implies some form of targeting. Accidental, or non-malicious fire setting would not be an example of the variety of action systems that is being considered here. Therefore all of the variables selected have an implicit indication of

intention and target. Some of the items, however, particularly emphasise the purposeful nature of the firesetting in the current study. These include: 'targeted', 'planning', 'set fire', 'material brought', 'multiple items', 'multiple seats' and 'accelerants', which are all unlikely to occur in accidental fires.

The targets are also assumed to be of personal relevance to the arsonist, expressively or instrumentally. A hired 'torch' commissioned to burn down someone else's property, although having some affinity with the instrumental perspective here would be difficult to distinguish from the person who commissioned the 'arson for profit'. This point is made to emphasise the fact that this first stage in the thesis is dealing with forms of arson not types of arsonist. Therefore the variables we are focusing on at this stage all relate to aspects of the act of arson itself. However, a number of variables were selected to represent the possible motivation for the arson, either expressive or instrumental. Items which were felt to indicate an instrumental motive were 'illegal entry', 'other crime', 'theft', and 'finance' (suggesting a monetary gain from the arson); 'arguments', 'threats', 'threat of arson', and 'outburst' (suggesting that the purpose for the arson was retribution). An underlying motivation of a more expressive nature was suggested by the variables, 'triggers', 'crusade', and 'suicide note'.

It is also hypothesised that it will be possible to distinguish aspects of the arson which indicate some general relevance or association between the arsonist and his/her targets (such as the above motive-related variables) from other more specific aspects that are an indicator of the nature of the target itself and the role that it plays in the destructive action system of the arsonist. The specific target variables used in the study were: 'residential', 'own home', 'business', 'car', 'public building', 'school', 'institution' and 'miscellaneous/uninhabited property'. These are similar to those used in previous studies of arson (e.g. Icove and Estep, 1987). A higher degree of personal involvement with the target was reflected in the variables: 'victim known', 'victim partner' and 'self', meaning that the arsonist either set fire to him/herself or to objects placed around them. The target related aspects of the arson are hypothesised to relate to the dominant themes that will distinguish between acts of fire setting.



As well as these three categories of content categories, relating to maliciousness, motivation and target, a number of other variables were selected in order to cover the full range of actions that occur during firesetting. Some of these were drawn from the literature on arson research, and others were felt to reflect psychologically meaningful gaps in existing material. For example, the use of alcohol is a well-documented correlate of firesetting (e.g. Home Office, 1988; Mather, 1977). Drug taking, however, is usually considered in the same category as alcohol, but was coded separately in the current study as it implies a more deviant use of intoxicating substances, which may consequently be associated with a more 'expressive' form of firesetting. Similarly, Holmes and Holmes (1996) coded arson which takes place outside, whereas in the current study the variable 'public view' was also included as it refers to an arsonists' disregard for the possibility of being discovered, suggesting a more unplanned, 'adaptive' form of firesetting.

Other general circumstances of the firesetting included the time of day, day of week and month of the year, as well as whether it occurred less than or more than a mile from the offender's home (e.g. Holmes and Holmes, 1996; Icové and Estepp, 1987; Douglas, Burgess, Burgess and Ressler, 1992). A more detailed geographical analysis of distances travelled to commit various forms of arson is included in Chapter 12.

Another category of variables related to the arsonists involvement with and interest in fire. Whether the offender remained or returned to the scene, had been involved with firesetting before and whether the offence formed part of a series or spree episode were all felt to reflect a degree of fascination with fire. Related to this was another content category of variables relating to the intended seriousness of the fire. Whether lives were endangered either deliberately by the offender, or by the location of the fire, and whether the offender alerted anyone to the fire were all coded to reflect the degree of malice intended.

Finally, the arsons were also coded in terms of whether they involved another person at the scene, either as a co-offender, or as a witness.

These variables were intended to form an exhaustive list of activities associated with firesetting. In other words, if all the actions that can and do occur in malicious fire setting are considered it is hypothesised that the different emphases highlighted by the action system modes will be apparent in the co-occurrence of some actions and not others. The hypotheses can be tested by considering whether the variety of actions that co-occur demonstrate the hypothesised modes.

Thus although the action system framework does carry implications for the internal psychological dynamics of arsonists it also proposes that more objective accounts of what actually happens in the course of arson will in part relate to the link between the arsonist and the target and in part will reveal differences in hypothesised modes. This allows study of the material that is available in police and fire brigade records of arson.

## **4.4 Descriptive Characteristics of the Sample**

In order to examine the nature of the sample, the first stage of analysis looked at the frequencies of each of the variables.

Where applicable, comparisons are made with findings from previous studies. Three studies in particular, give detailed descriptions of the nature of fires set by arsonists. These are a report by the Home Office Working Group on the Prevention of Arson (1988), a US study adopting the FBI motive-based approach (Icove and Estep, 1987) and a Finnish study by Rautaheimo (1989). In order to allow for comparison with the current research - and explain any significant differences - it is important to describe these studies, particularly the samples on which they are based.

The Home Office (1988) study was drawn from two main sources of data. The first of these was the official fire and criminal statistics from 1986. This part of the study was therefore restricted to the kind of information recorded in these statistics. To supplement this very limited research material, the Home Office report also contained a study of Social Enquiry Reports involving 214 cases of arson committed by 238



offenders. This second part of the report provided slightly more detail on, for example, the supposed motives of the offenders involved. It is important to note, however, the potential bias resulting from a sample where the cases were regarded as sufficiently serious, or where concerns about the mental health or age of the offender, were such that the court felt a Social Enquiry Report was appropriate. This bias is particularly illustrated by one of the findings from this study, which is that 50.5% of the arsonists set fires due to an emotional or mental state. This figure is much higher than that reported by other studies (e.g. Icové and Estépp, 1987, Rautaheimo, 1989).

The second main study which is used for comparison with the present one is by Icové and Estépp (1987). This is an important study as it is one of the few published accounts of the FBI motive-based approach to the classification of offences and offenders. This study was based on data from 1,016 interviews of juveniles and adults arrested for arson and fire-related crimes by Prince George's County Fire Department, Maryland, US. Unfortunately, however, the authors do not state how this sample was selected. Presumably the inclusion of particular cases was driven by those offenders who agreed to be interviewed. Again, this incurs a potential bias in the data. A second concern is that almost a third of the cases (n=303) were arrests for malicious false alarms, which is predominantly a juvenile activity (Home Office, 1988).

Finally, a Finnish study by Rautaheimo (1989) is also included for comparison with the results from the current study. This is probably the most representative of all the three studies in that the sample consisted of all 180 people arrested for arson in Helsinki between 1970-1984. The results of this study are also very comprehensive, giving detailed information on both the fires themselves (including in which phase of the moon the fire was set!), and the individuals responsible. Based on the findings, Rautaheimo concludes that the typical arsonist is:

“a male from a deprived domestic background who has criminal tendencies. He will have human contact difficulties and feel insecure about his masculinity. As well as sexual troubles he will have problems with alcohol. He may also exhibit symptoms of mental and physical illness. These problems will lead to difficult or frustrated relations with either his girlfriend or his wife. While drunk and feeling

resentful or suicidal, he will set fire to his own or to his wife's girlfriend's dwelling. An investigation into his mental state will reveal he is often not in full control of his actions."

(Rautaheimo, 1989)

Although this description is very comprehensive, it does seem to cover a whole range of diverse issues and possible motivations. These points are simply based on the highest frequency variables across the whole sample; therefore an interesting question which arises is whether this is really a description of a number of *different* 'typical' arsonists rather than any one individual.

We will return to this issue in the conclusion of this chapter, as it forms the basis for the analysis in Chapter 5.

To provide a meaningful structure to the frequency analysis in the following section (the variables were classified as belonging to one of eight categories: type of property targeted, relationship with victim, antecedents, mechanics, circumstances, involvement with fire, malice and motive-related. Note that the percentages in the tables do not add to 100 percent. This is due to the fact that not all of the variables in each category are mutually exclusive, in other words each case can have more than one variable present for each category.

## Targeted Property

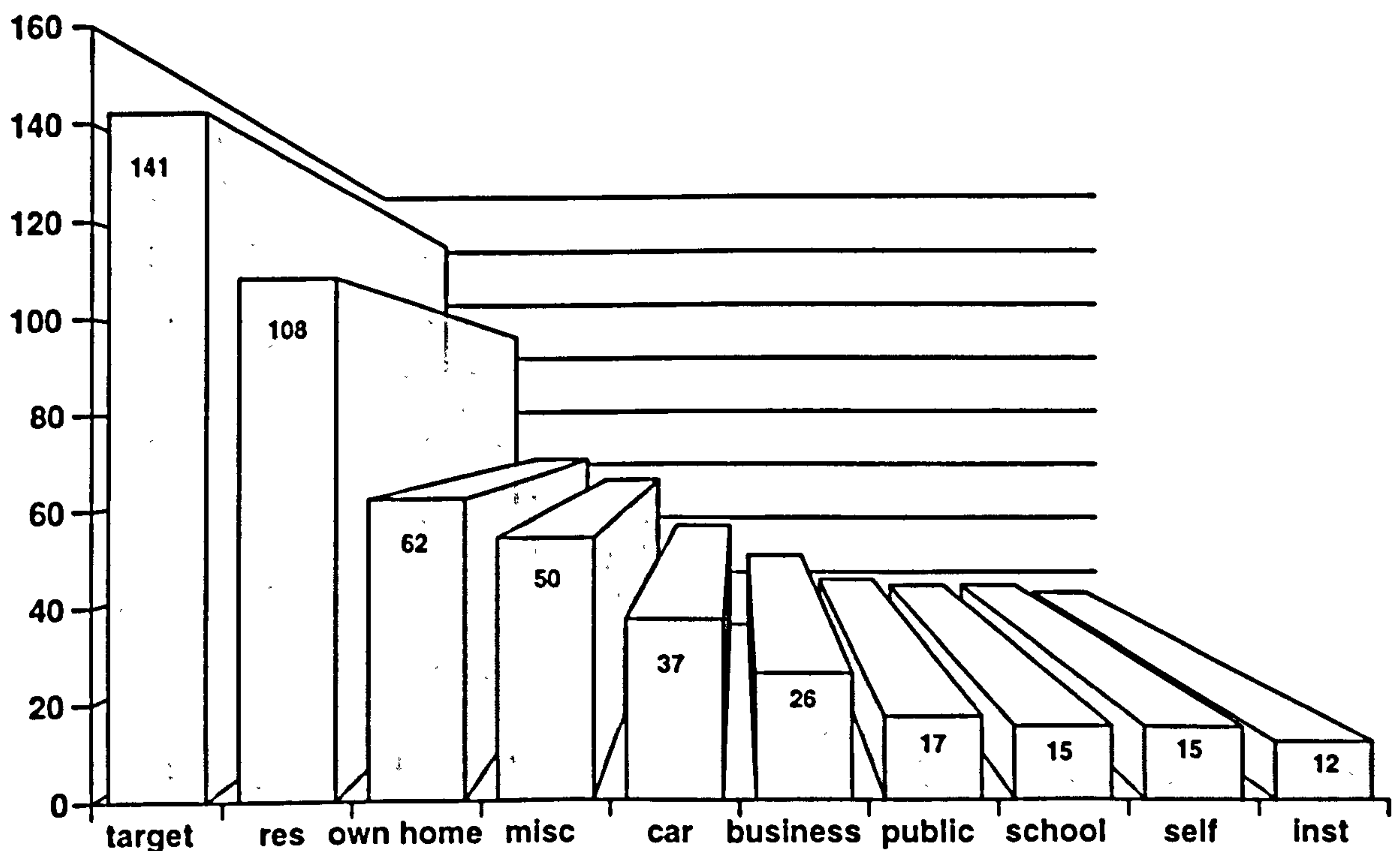
The objects and properties fired were classified into eight categories: residential properties, business premises, schools, public buildings, institutions, cars, miscellaneous objects and the arsonist themselves. In fact in very few of the cases classified as 'self' did the arsonist actually set fire to their own bodies. More common was placing objects around them, setting fire and then remaining in the room and not making any attempt to alert anyone. Miscellaneous objects included areas of wasteland, fields, gardens, sheds and unoccupied or derelict buildings. The variable 'targeted' was also included here to indicate that the object or property



which was fired was specifically selected (see Appendix B for examples). The offender's own home was also included as a specific type of residential property.

**Table 4.4.1: Types of Property targeted**

Property	Frequency	Percentage
Targeted	141	61%
Residential	108	47%
Own Home	62	27%
Misc/Derelict	50	22%
Car	37	16%
Business	26	11%
Public Building	17	7%
School	15	6.5%
Self	15	6.5%
Institution	12	5%*



**Figure 4.4.a: Types of Property Targeted**

These figures show that the majority of the fires in the sample were aimed at specific people or properties, in other words the targets were not randomly selected. Most of the targeted properties were residential (47%) out of which over half occurred in the

\* this column adds up to more than 100% as there is overlap among categories, e.g. 'residential' property can also be 'own home' and 'targeted'.

offender's own home (27%). Various uninhabited and non-property targets (e.g. fields, garden sheds), subsumed under the category of Miscellaneous formed the next highest proportion of fires (22%), followed by Cars (16%), Businesses (11%) and Public buildings (7%). Relatively rare were fires occurring in schools and fires aimed at the arsonists themselves, both at 6.5%. The least common targets were institutions at 5%.

Comparing these findings with the Home Office study (1988), a similar pattern is found, as shows in Table 4.4.2 below. The most common target was residential (39.3%), followed by properties which would be classed in the current study as Miscellaneous (18.1%). Cars were not specifically listed, although they may have been contained in the category 'Other' which made up 15.5% of the Home Office statistics for target. Various businesses (e.g. restaurants, hotels and shops) were targeted in 19.9% of cases, followed by schools (5%) and hospitals (2.2%). This is roughly the same distribution of targets as in the current study.

**Table 4.4.2: Comparison of Arson Targets**

Target	Current Study	Home Office (1988)
Residential	47%	39.3%
Misc/Derelict	22%	18.1%
Car/Other	16%	15.5%
Business	11%	19.9%
School	6.5%	5%
Institution	5%	2.2%

## Relationship with Victim

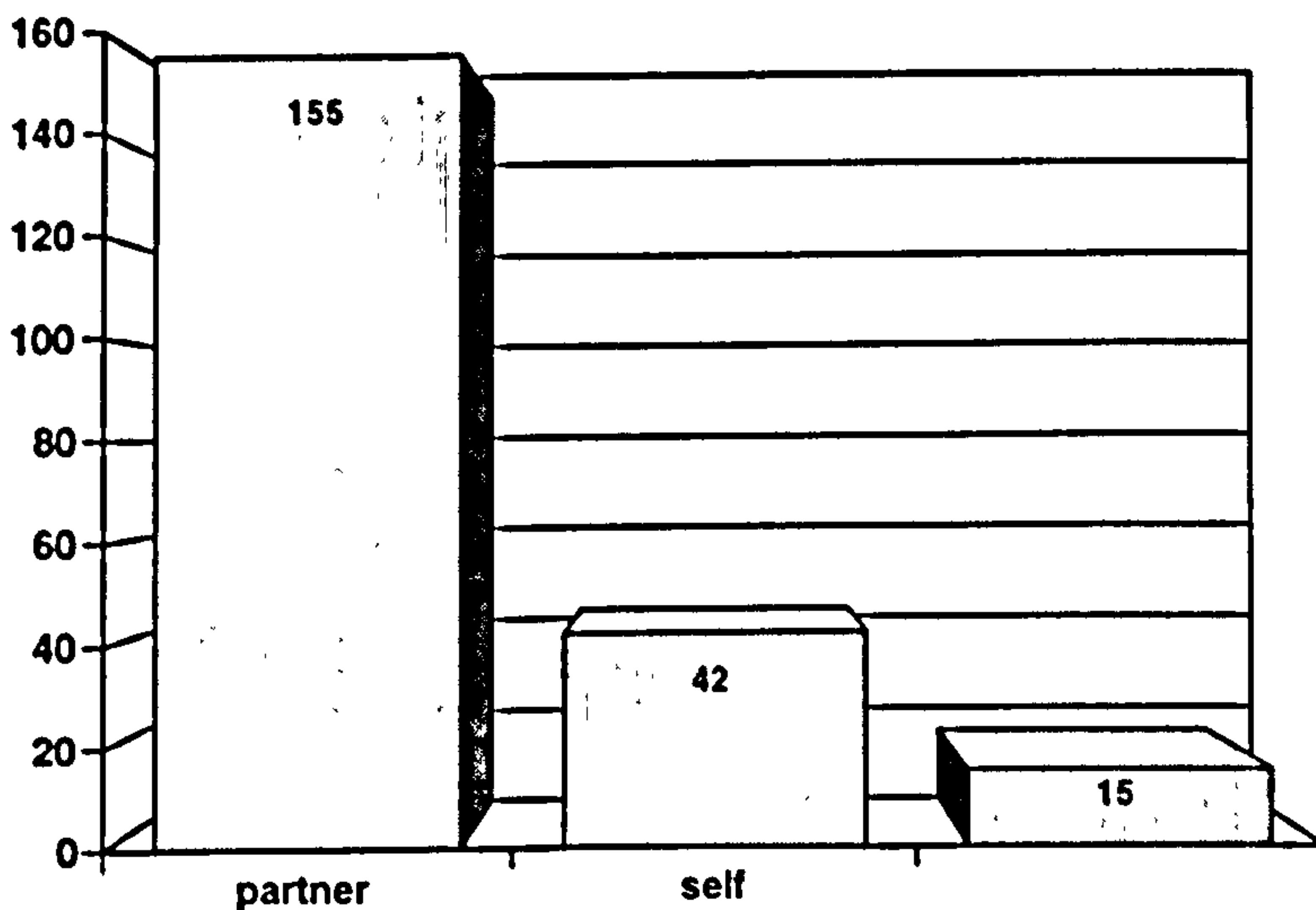
As one of the hypotheses of the study was that the arsons would be differentiable according to the target of the offences, it was important to examine what relationships, if any, existed between the offender and the victim (i.e. person who's property was fired).



This category is made up of three types of relationship, ranging from the general, 'victim known', through 'partner', to 'self'. This latter variable is also in the Target category.

**Table 4.4.3: Relationship with Victim**

Relationship	Frequency	Percentage
Victim known	155	67%
Partner	42	18%
Self	15	6.5%



**Figure 4.4.b: Relationship with Victim**

In the majority of cases (67%) the owner of the fired property was previously known to the offender. About a third of these (18%) were either current partners, ex-partners or 'love rivals'.

The relationship between an arsonist and the victim of the fire is also discussed in the Finnish study (Rautaheimo, 1989). Here, it is reported that in around 70% of the cases, the arsonist had clear ties to the target building or lived nearby. This doesn't necessarily mean they specifically knew the victim, although many of the cases involved either the partner of the arsonist, or his place of work.

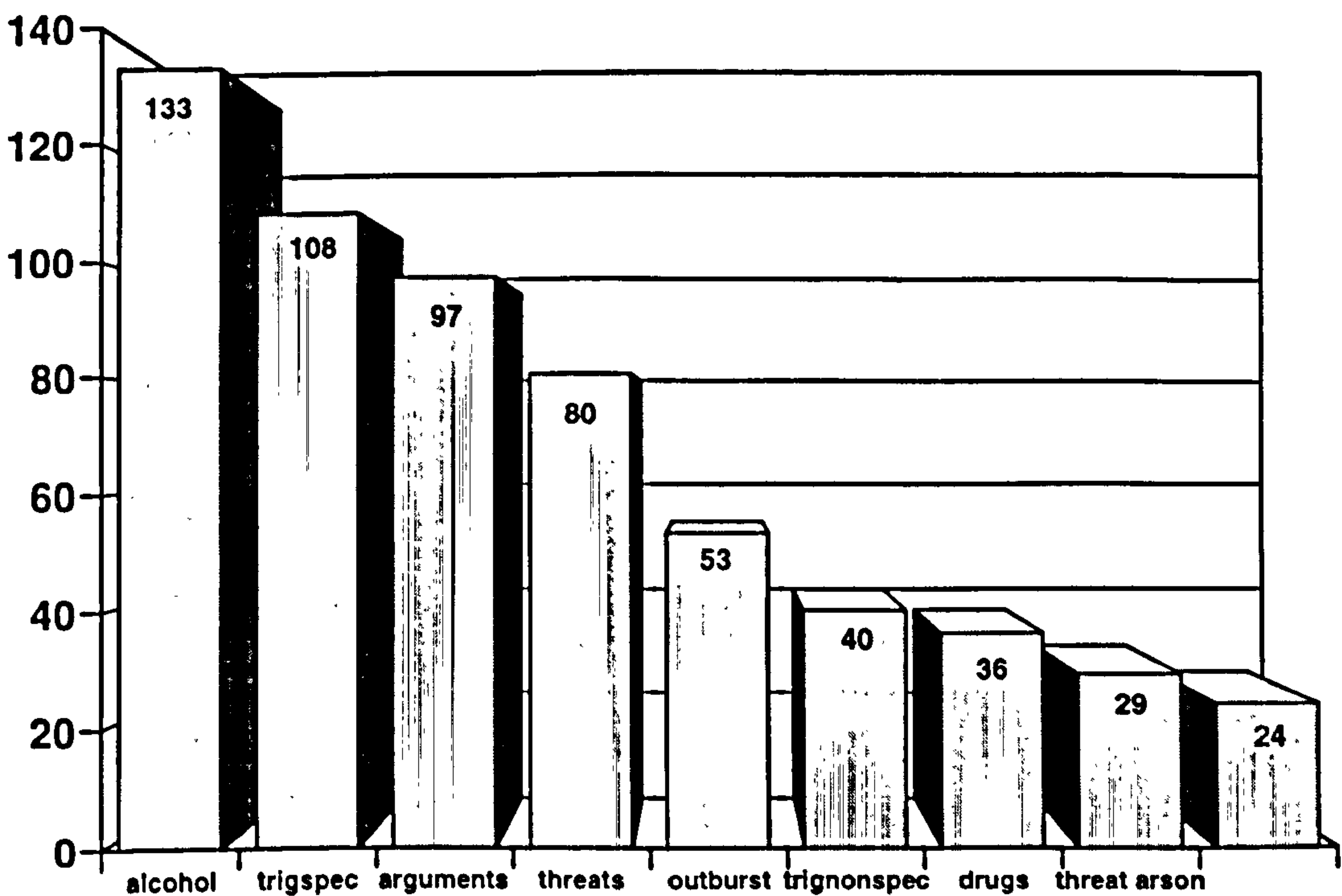
\* the variable 'victim known' is made up of a number of types of relationships ranging from friends and work colleagues to the school attended by the offender. Therefore, the percentages for 'partner' and 'self' do not add up to 67%.

## Antecedents

This category is made up of events and activities occurring prior to the firesetting. These include the consumption of alcohol and drugs, activities relating to the planning of the firesetting and events which acted as triggers. Where the firesetting was directed at specific individuals, it was often preceded by arguments and threats, and sometimes involved a violent outburst.

**Table 4.4.4: Antecedents**

Antecedent	Frequency	Percentage
Planning	133	58%
Alcohol	108	47%
Specific Trigger	97	42%
Argument	80	35%
Threats	53	23%
Outburst	40	17%
Non-specific Trigger	36	16%
Drug Use	29	13%
Threat of Arson	24	10%



**Figure 4.4.c: Antecedents**



Over half of the fires showed evidence of planning (58%), for example in one case the offender taped over the spy-holes in the other flats on the same floor as the flat he later set fire to. Just under half of the arsonists had consumed alcohol prior to setting the fires (47%). There was often evidence of some sort of trigger occurring prior to the fires; either specific to the victim (42%); or a non-specific trigger (16%). Non-specific triggers involved an event which immediately preceded the firesetting activity, but did not directly involve the eventual victim of the fire. An example of this is a case where a nurse set a fire in the hospital where she worked after seeing the man who had raped her a number of years earlier. The most common type of trigger specific to the victim was an argument (35%), although sometimes the trigger was much more trivial, such as the case of a serial arsonist who explained that he had set fire to his hotel room because the TV reception was poor. Offenders made general threats in about a quarter of the cases (23%), and sometimes made threats specifically about setting a fire (10%). Often, these threats were vague, such as one offender who told his intended victim that he knew someone who sets fires. In 17% of the cases, the firesetting occurred during some kind of an outburst, usually of either violence or vandalism. This would typically involve the offender smashing up a room and then setting fire to it. In 13% of cases drugs were taken prior to setting the fires.

The only direct comparison which can be made here with other work is in relation to the consumption of alcohol and/or drugs. Unfortunately, most studies group these together, for example, Icove and Estep (1987) identified that 19% of their sample had taken alcohol and/or drugs prior to setting a fire. However, there were also a further 42% of cases in which the consumption of alcohol or drugs could not be determined, so it may be that a proportion of those were indeed under the influence, bringing their figure closer to that of the current study.

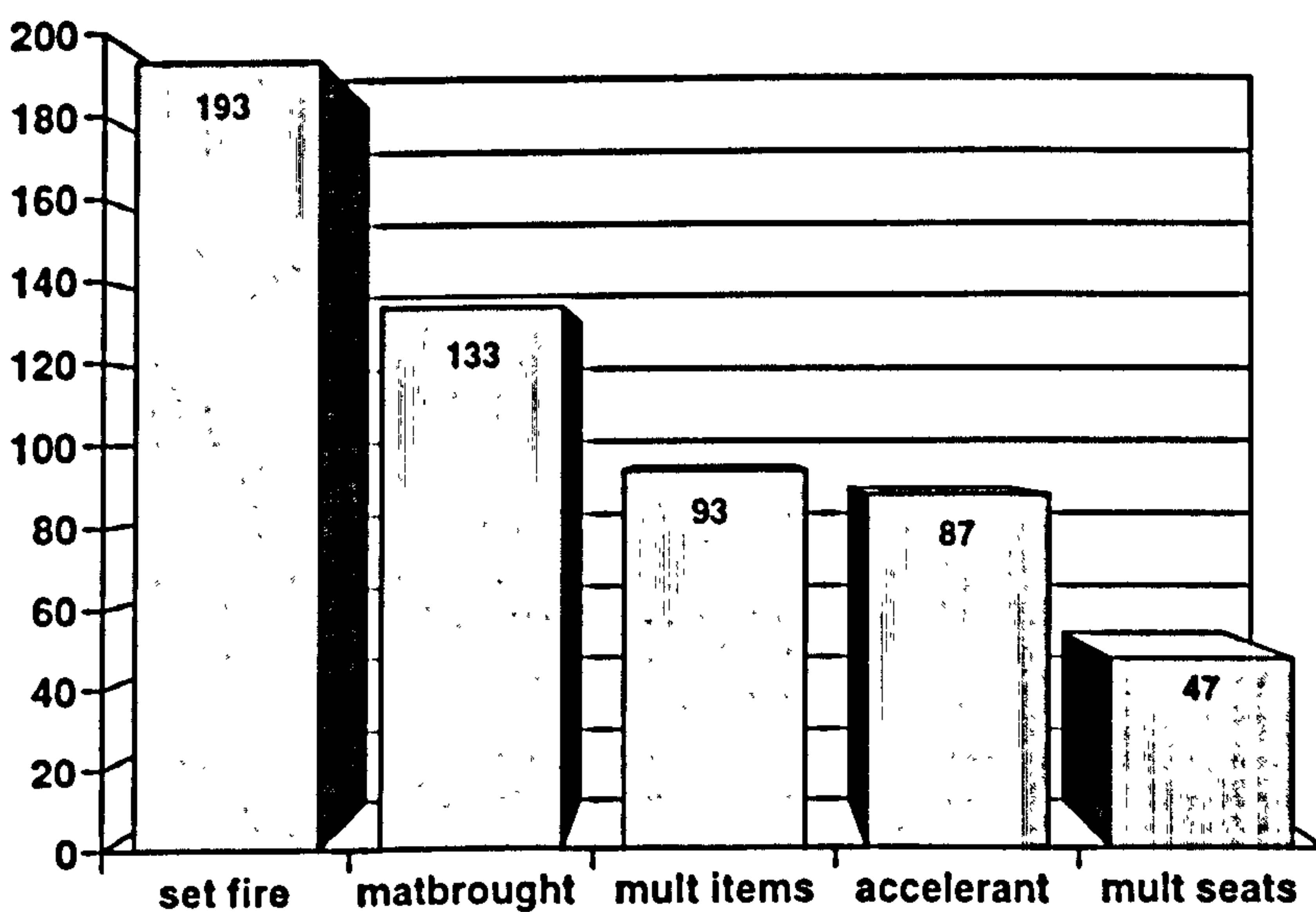
## <sup>3-1</sup> Mechanics <sup>v</sup>

<sup>5</sup> These variables relate to the nature of the fires. Firstly, whether the fired material was set within the property as opposed to a missile being thrown. Also, whether the material which was used was found at the scene or brought along for the specific

purpose of setting a fire. A specific instance of this is the use of accelerants, which are normally brought to the scene. Finally, whether the fire itself was initially set using more than one item and in more than one location.

**Table 4.4.5: Mechanics of Firesetting Activity**

Activity	Frequency	Percentage
Set fire ✓	193	84%
Material Brought	133	58%
Multiple Items ✓	93	40%
Accelerants	87	38%
Multiple Seats	47	20%



**Figure 4.4.d: Mechanics**

These figures show that the majority of the arsons were set (84%) as opposed to missile fires. In over half of the cases (58%) the offender used materials which he had taken to the scene to set the fire. These ranged from cigarette lighters taken by youngsters from home, through pieces of paper picked up and transported to the fire-scene, to petrol cans and other accelerants (38%) which were bought just prior to the arson.

\* in some cases where accelerants were used, these were found at the scene and not taken there by the offender.



In two fifths of the cases (40%) more than one item was lit by the arsonist, whereas in only one fifth (20%) was the fire multiple seated, i.e. involving more than one ignition source.

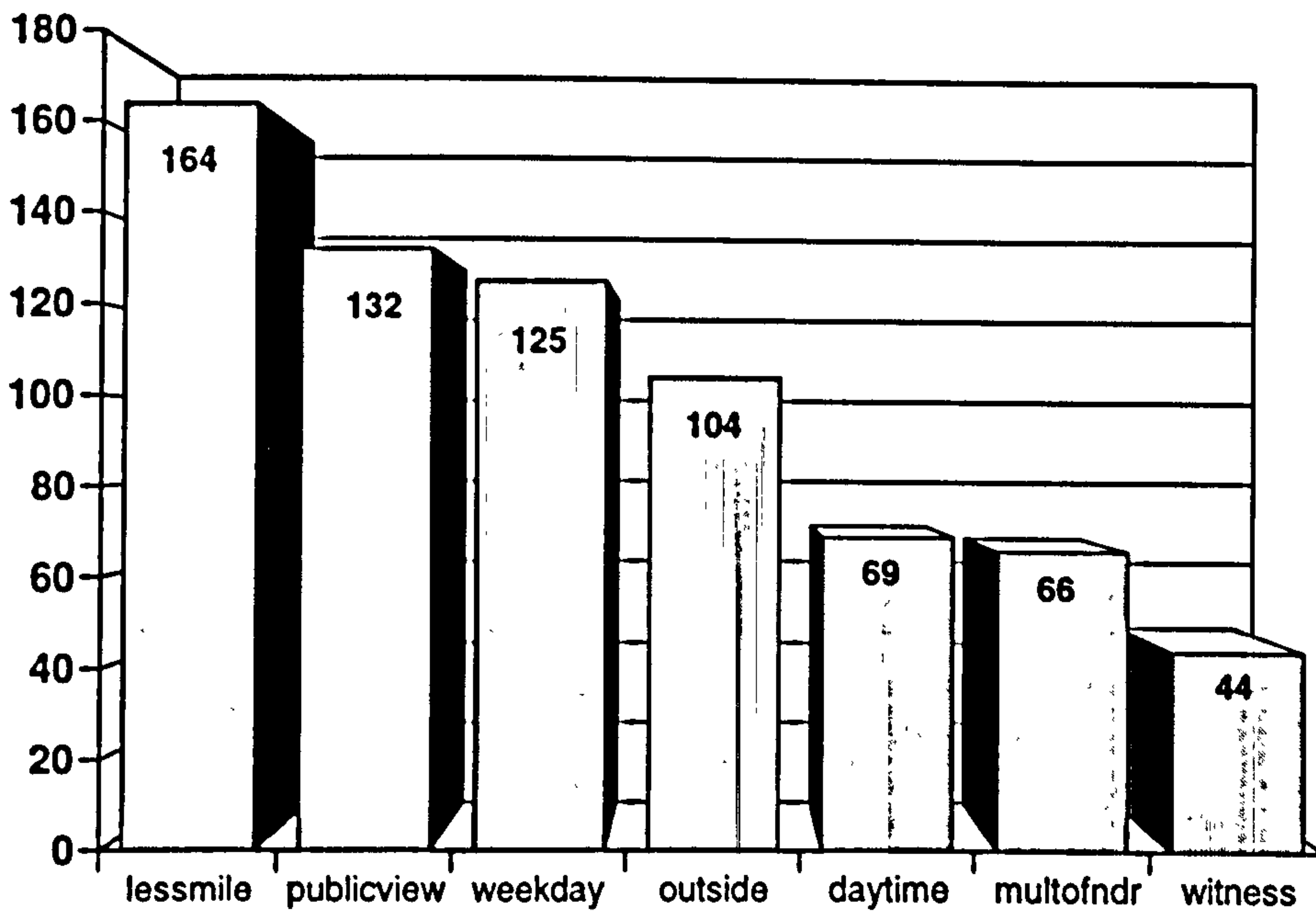
These findings can also be compared with the Rautaheimo study (1989) in which exactly the same proportion (58%) of the arsonists brought combustible materials to the scene, 35% used several ignition points, and 23% used accelerants. These proportions are the reverse of the numbers in the current study using multiple seats and accelerants. However, if one assumes that an arsonist employing either of these methods is trying to ensure a large and successful fire, then there is a good argument for considering the two together. The aggregated percentages for both groups are again exactly the same (58%).

## Circumstances

These variables relate to the circumstances in which the firesetting occurred, including whether it occurred outside, in an area which was not concealed from potential passers by, and whether there were witnesses present at the time the fire was set. Also the distance travelled by the offender from home was coded simplistically as being less than a mile, although more detailed geographical analysis is contained in subsequent chapters. The variables weekday and daytime were also included here, with a more detailed breakdown in Tables 4.4.11 & 4.4.13, and Figures 4.4.j & 4.4.k.

**Table 4.4.6: Circumstances**

<b>Circumstance</b>	<b>Frequency</b>	<b>Percentage</b>
Less than a mile	164	71%
Public View	132	57%
Weekday	125	54%
Outside	104	45%
Daytime	69	30%
Multiple Offenders	66	29%
Witness	44	19%



**Figure 4.4.e: Circumstances**

The majority of the fires in this sample occurred less than a mile from the offender's home (71%). Over half (57%) were set in public view, including (45%) which occurred outside. Not all of the outdoor fires were in public view, however. For example one offender set fire to waste bins behind a restaurant, and another in an industrial estate. Conversely, some indoor fires were in public view, for example if a car was fired in a multi-storey car park, or fires set in public toilets. Reflecting an even greater lack of concern for detection was setting a fire in front of another person, either a co-offender (29%) or a witness, in most cases the owner of the property (19%). Just over half (54%) the fires occurred on a weekday (see Table 4.4.11 and Figure 4.4.j for detailed breakdown) and about a third (30%) were set in daylight hours.

Icove and Estep (1987) also report roughly the same (59% versus 71%) proportion of arsonists setting fires less than a mile from home, but approximately twice as many being with co-offenders (56%). This is probably due to the high number of juvenile vandalism-motivated arsons in their study, 73% of whom are reported by the authors as offending in groups.

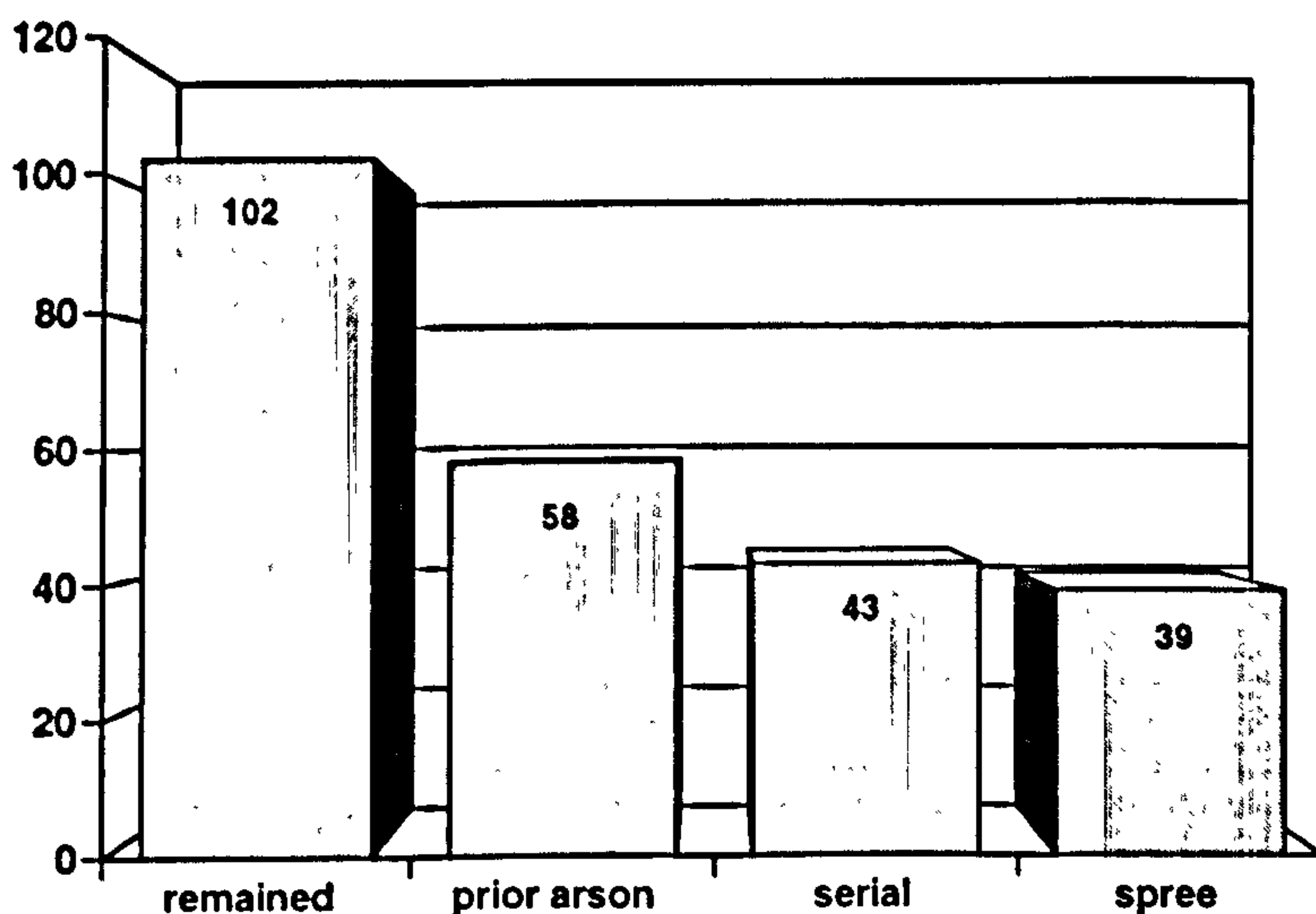


## Involvement with Fire

This category refers to the degree of involvement with fire exhibited by the offender. The variables 'prior arson', 'spree', 'serial' and 'remained at scene' all reflect some degree of fascination with fire.

**Table 4.4.7: Involvement with Fire**

Variable	Frequency	Percentage
Remained	102	44%
Prior Arson	58	25%
Serial	43	19%
Spree	39	17%



**Figure 4.4.f: Involvement with fire**

Almost half (44%) of the sample either remained at or returned to the scene after the fire was started. A quarter (25%) were known or strongly suspected of setting at least one fire before the index offence. Where this was known to have taken place, the current arson was classified as forming part of a series (19)%, and where more than one fire was set on the same occasion, the offence was classified as a spree (17%).

Remaining or returning to the scene also occurred in around half (51%) of Icove and Estep's (1987) group of arsonists. In the Home Office (1988) sample of 238 arsonists, 13% had a previously detected offence of arson. This assumes that the arson history was significant enough to be stated in the Social Enquiry Reports from which this figure was obtained. It is of course possible that a higher number had a history of more minor incidents of firesetting.

## Malice

These variables all indicate that the offender either intended serious consequences, or was reckless as to the potential seriousness of the fire. Where the offender knew that the targeted property was occupied at the time of setting the fire, this was classified as deliberately endangering lives, whereas any fire involving or near residential property was coded as endangering lives by location, as fire could easily spread from an unoccupied building to an occupied one. Also the variable 'did not alert' was included in this category as the offender took no steps to ensure the fire was discovered before it could do serious damage.

Table 4.4.8: Malice

Variable	Frequency	Percentage
Not Alert	177	77%
Lives Endangered by Location	135	59%
Lives Endangered Deliberately	52	23%

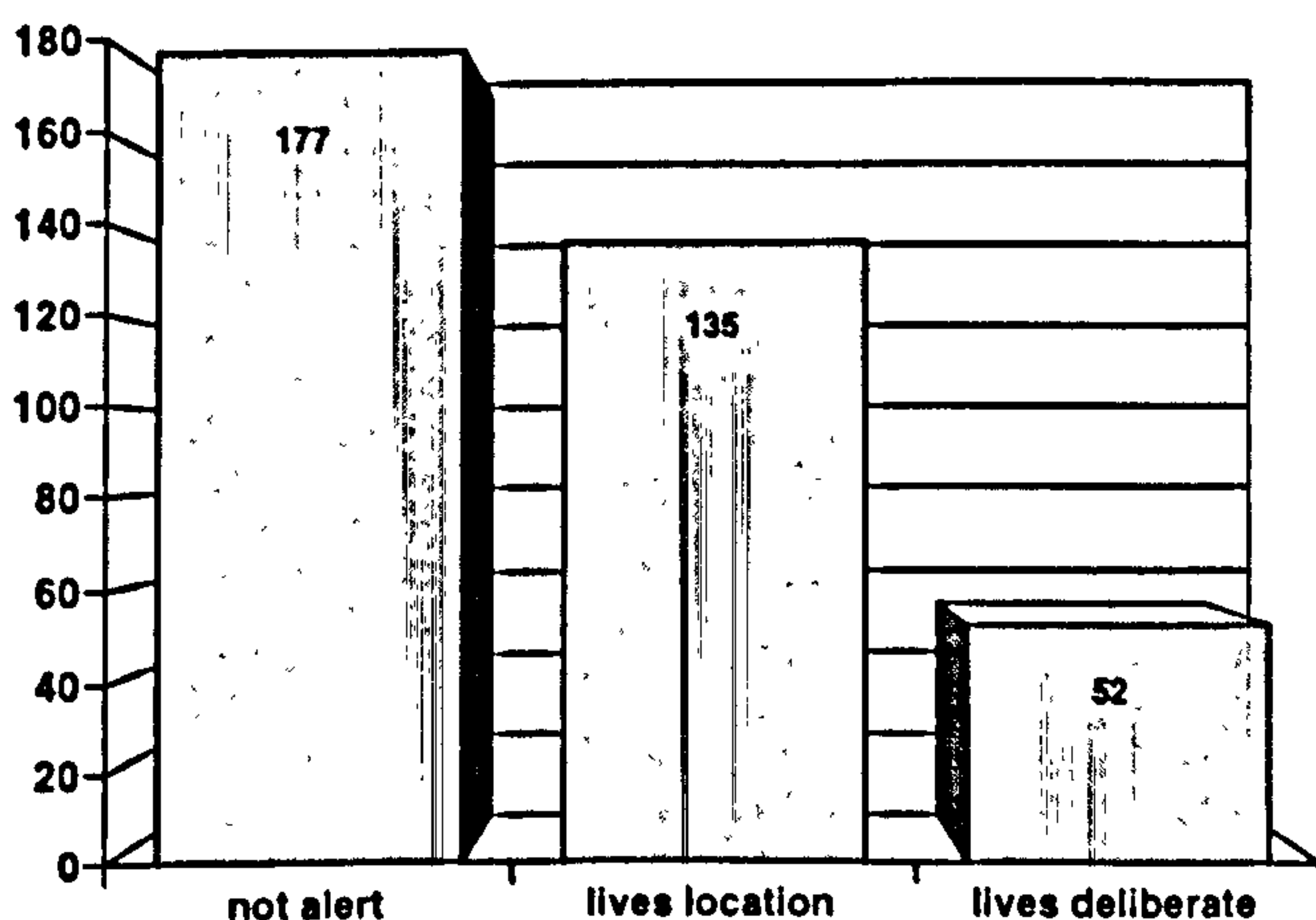


Figure 4.4.g: Malice



The majority of offenders did not alert anyone after setting the fire (77%) and lives were endangered by the location of over half of the fires (59%). However, there was only evidence in 23% of the cases that the offender knew the building to be occupied at the time of the fire, thus deliberately endangering the lives of other residents.

The Home Office (1988) report found that 'occupied dwellings' formed the principal target for the arsons in their sample. A precise figure is not given, however, from their diagram (p.73) the percentage appears to be around 27%. This figure does not necessarily reflect the percentage of arsonists who knew that their target was occupied, whereas in the current study the 23% who deliberately endangered lives were asked in their interview whether they knew the building was occupied.

Sapp, Huff, Gary, Icove and Horbert (1992) found that 21.1% of their sample of 71 serial arsonists turned themselves in to the police. The remainder, 78.9%, who did not alert anyone is a similar figure to that found in the present study.

## **Motive-related**

These variables all provide some indication of the possible motive for the arson. If a suicide note was found at the scene where an individual had tried to set fire to themselves, or their own property, then this suggested that the motive for setting the fire was either genuine or para-suicide. The variables, 'illegal entry', 'theft', and 'other crime' all indicate that the firesetting was either part of or subsidiary to another illegal activity, and/or was done in an attempt to cover up evidence of that other crime. The variable 'finance' is different from the previous group of variables as the firesetting in this case directly conveys some financial or other instrumental benefit to the arsonist. The fact that the fire followed an argument between the offender and victim was included in this category (as well as Antecedents) as it also provides a direct clue as to probable motive. Finally, the variable 'crusade' refers to a situation in which the offender indirectly benefits from setting fires, usually in the form of recognition or enhancing self-esteem.

Table 4.4.9: Motive Related

Variable	Frequency	Percentage
Argument	80	35%
Illegal Entry	69	30%
Other Crime	35	15%
Theft	23	10%
Crusade	19	8%
Finance	18	8%
Suicide Note	4	2%

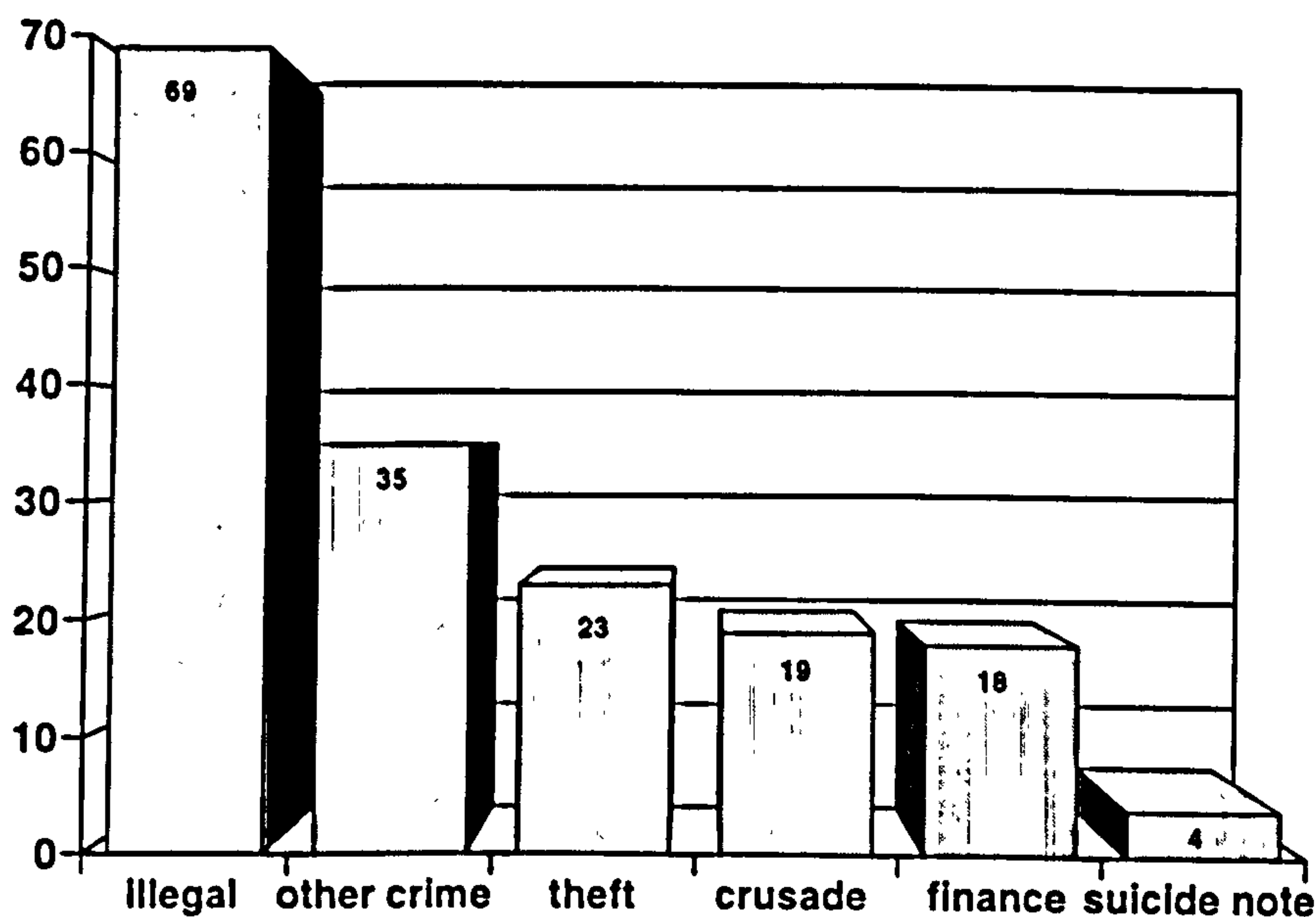


Figure 4.4.h: Motive related

If these variables are indeed an accurate reflection of motive, these frequencies suggest that the most common reason for setting the fires in this sample was as a reaction to a recent argument (35%). This is followed by the arson forming part of other illegal activities, such as burglary (30%), theft from residential properties or businesses (10%) or other crime (15%), for example, car theft. In only 8% of cases was there a direct financial or instrumental benefit to setting the fire. For example, in one case the arsonist lived in council accommodation and wished to be rehoused, and in another the fire was set to cover up a fraud. In only four cases was a suicide note found. This would be the most direct evidence that the fire was intended as either a genuine suicide attempt or cry for help.



A great deal of previous arson research has centred around developing typologies of motives (see Chapters 1 and 2 for reviews). The above variables, however, do not directly tell us what the motive of the offender was, although taken together with other features of the crime scene, they can indicate what the overall process is that the firesetting is part of.

## Month of year

Previous research (e.g. Home Office, 1988; Icove and Estep, 1987; Rautaheimo, 1989) has found seasonal variations in arson figures. The British and US studies found a slight increase in autumn months (September to November) which the Home Office (1988) attributed to the availability of fireworks. This explanation would not apply in the United States, however, where fireworks are used more frequently in the summer or at New Year. The Icove and Estep (1987) study classified the arsons by motive, namely vandalism, excitement, revenge, crime concealment, profit and 'others'. In fact looking more closely at the seasonal variations, the group for whom the autumnal increase was greatest was the revenge motivated arsons, with 32% of this category of arson occurring in autumn months. Within the largest group of firesetters overall, namely vandalism-motivated, the majority (34%) of fires occurred predominantly in Spring months (March to May). For excitement-motivated arson the peak occurred in winter months (30%), and the summer months were when most crime-concealment arsons occurred (44%). This is an illustration of the importance of looking at the relationships between variables, rather than simply their frequency.

The Rautaheimo (1989) study involved Finnish arsons; here the increase occurred in winter months (December to February). Here, one can speculate about the role of latitude and climate, with lack of daylight and extreme temperatures possibly being responsible for people setting more fires.

Table 4.4.10: Month in which arson occurred

Month	Frequency	Percentage
January	27	10.2%
February	23	8.7%
March	24	9.1%
April	28	10.6%
May	21	8%
June	21	8%
July	25	9.5%
August	13	4.9%
September	26	9.8%
October	15	5.7%
November	24	9.1%
December	17	6.4%

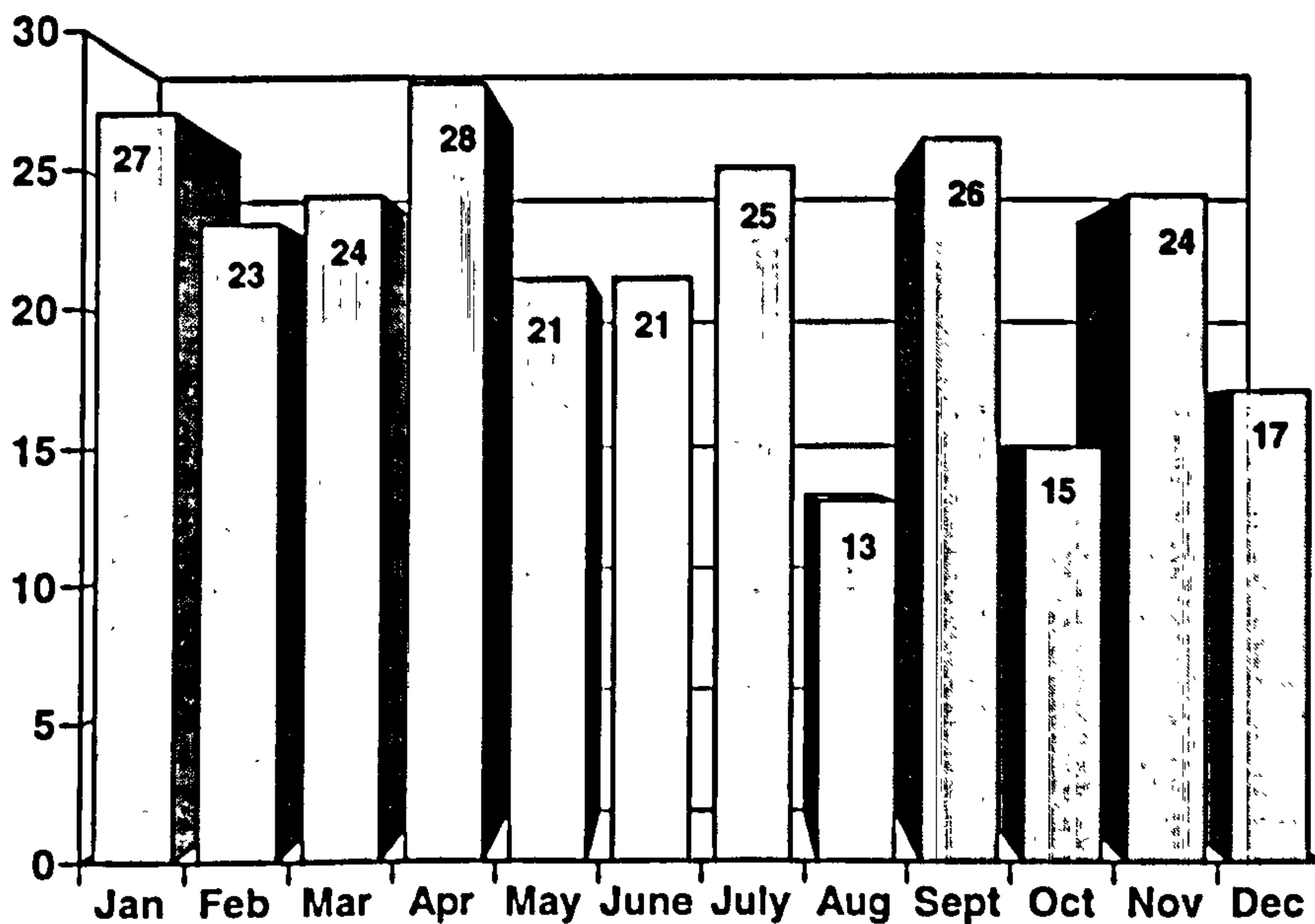


Figure 4.4.i: Month

The total percentage for the spring months taken together is 27.7% which is just higher than the aggregates for winter (25.3%), summer (22.4%) and autumn (24.6%). It is worth noting, however, that the individual percentage for September is much higher than for the other autumn months, and the mean for December is much lower than for the other winter months. These differences highlight the importance of examining the nature of the arsons that occur predominantly during those months, and the characteristics of the offenders responsible. For example, one explanation may be that the majority of the arsons that occur in September are committed by



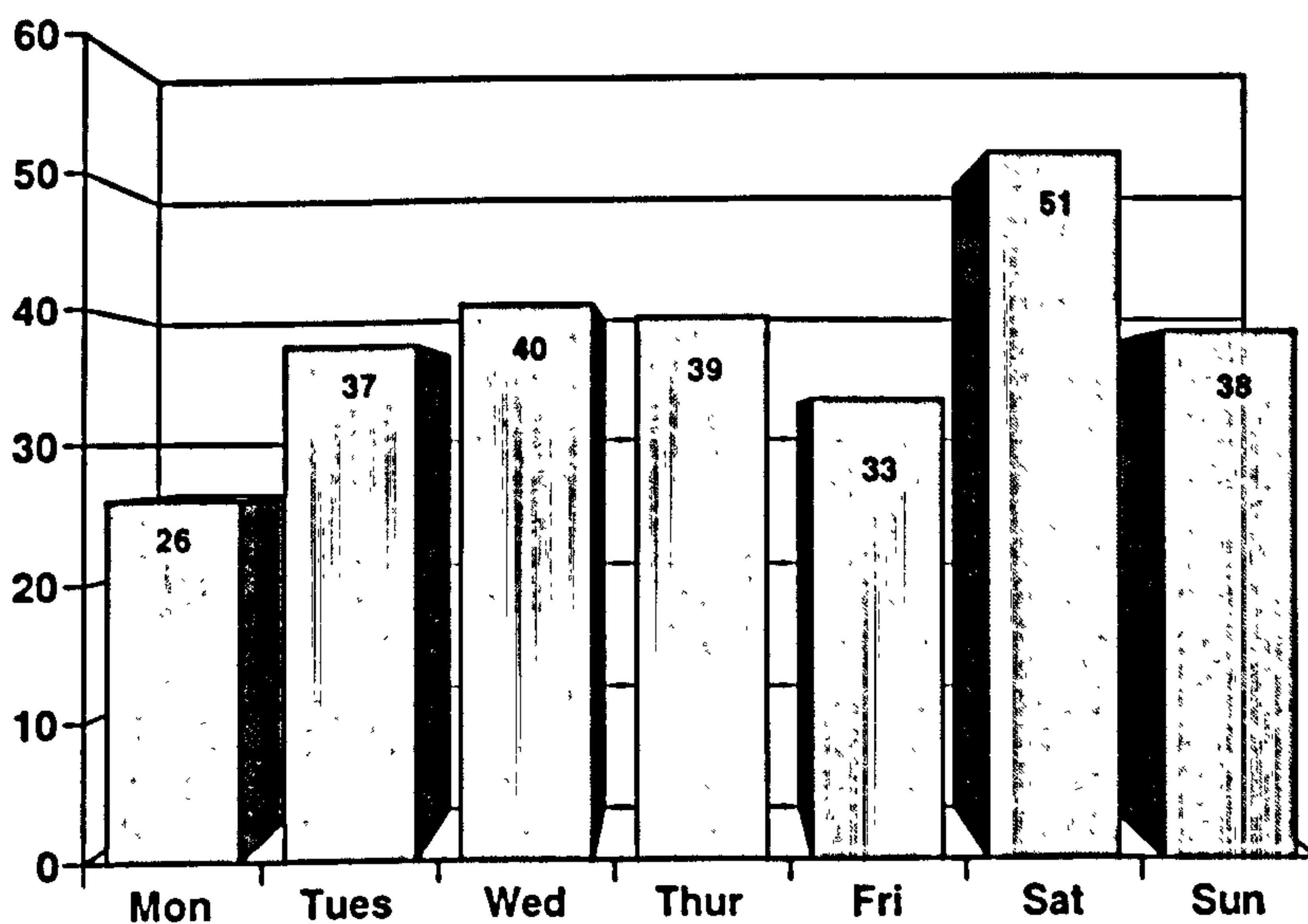
school pupils who are coming to the end of their summer vacations and set fires out of boredom or frustration at being about to return to school. Conversely, in December, these same individuals may be more occupied with Christmas and winter sports.

## Day of Week

Previously, this was coded dichotomously, simply as either a weekday or not. Table 4.4.11 and Figure 4.4.j below, give a breakdown of frequencies for each day of the week.

**Table 4.4.11: Day of Week**

Day	Frequency	Percentage
Monday	26	9.8%
Tuesday	37	14%
Wednesday	40	15.2%
Thursday	39	14.8%
Friday	33	12.5%
Saturday	51	19.3%
Sunday	38	14.4%



**Figure 4.4.j: Day of Week**

These figures show that twice as many fires are set on Saturdays as on Mondays (51 versus 26). This is not unexpected as many people have other commitments during the week and do not have the free time to set fires. Also, previous figures indicated that a substantial proportion of the arsons were precipitated by arguments and alcohol, the consumption of which is usually more frequent at weekends.

These figures accord with the Home Office (1988) finding of a twenty percent increase in arsons occurring on Saturdays and Sundays. Unfortunately this study does not quote the actual figures. Table 4.4.12 below, however, compares the current results with those found in the Rautaheimo (1989) and Icove and Estepp (1987) studies. This table shows that in the Finnish study almost twice as many arsons occurred on Friday and Saturday than the average for the rest of the week. The highest figures in the US study, however, were for Wednesdays and Thursdays. Again, these were mainly attributable to vandalism-motivated firesetters.

**Table 4.4.12: Comparison of Frequencies for Day of Week**

Day	Current Study	Rautaheimo (1989)	Icove and Estepp (1987)
Monday	9.8	14.2	14.2
Tuesday	14	13.3	15.4
Wednesday	15.2	13.3	18
Thursday	14.8	8.5	16.3
Friday	12.5	16.3	15.3
Saturday	19.3	24.1	8.9
Sunday	14.4	10	11.5

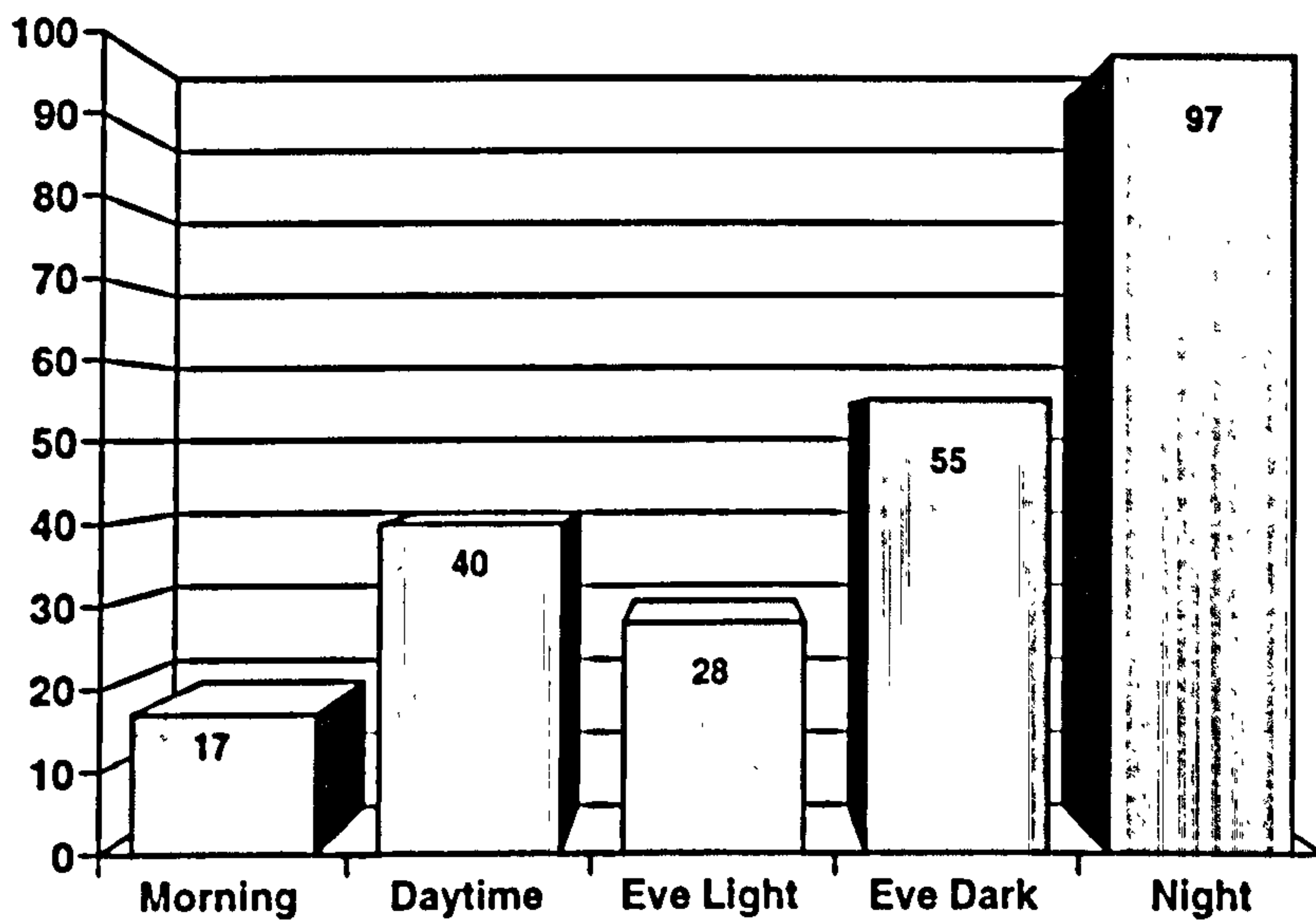
### **Time of Day Arson Was Committed**

Again, this was previously coded dichotomously as either daytime or not. Table 4.4.13 and Figure 4.4.k below give a breakdown in terms of either morning (0600-0859), daytime (0900-1759, evening light, evening dark (both 1800-2259), or night-time. The differentiation between evening light and evening dark is to account for seasonal differences in daylight hours.



**Table 4.4.13: Time of Day**

Time	Frequency	Percentage
Morning	17	7.2%
Daytime	40	16.9%
Evening Light	28	11.8%
Evening Dark	55	23.2%
Night	97	40.9%

**Figure 4.4.k: Time of Day**

There was a marked increase in the number of arsons which occurred in the hours of darkness, with just over a third (35.9%) being committed during daylight hours.

It might be expected that more arsons would occur in the evening and at night, for four main reasons: (a) those offenders who were employed would not readily be able to set fires during their working hours; (b) most arguments occur in the evening; (c) alcohol tends to be consumed more often at these times; and (d) darkness provides a cover against detection and allows the fire to be seen better.

This is almost the reverse of the Icove and Estep (1987) findings for times of day. They found that just over a third more arsons were committed during daylight than in darkness. The British study (Home Office, 1988), however, also identified an increase of around a third from daytime fires to those occurring between 6 p.m. and

midnight. Similarly, Rautaheimo (1989) found that the incidence of arson doubled in the evening compared to those occurring during the day.

These US differences may be accounted for by sampling differences. Over 70% of the sample in the Icove and Estep study were juveniles, whereas in the current sample only about a quarter were aged 17 or under. This draws attention to the possibility that juveniles may commit different forms of arson to adults, and that one of those differences may involve the times of day and days of week on which they occur. This is one of a range of relationships between aspects of firesetting which will be explored in the next Chapter.

## 4.5 Conclusions about the current sample

✓ The discussion of the frequency findings in relation to previous studies of arson highlights a number of important issues regarding the representativeness of the current sample. Firstly, in terms of target the main difference compared to the Home Office (1988) figures was in the number of businesses fired. This may be due to the lack of insurance-fraud type arsons in the present study. The requirement that cases be solved will probably have led to an under-representation of those types of cases, including insurance fraud, that are hardest to solve. Another discrepancy which was identified through comparison with the Home Office study was the figure for previous incidents of firesetting by the offender (25% versus 13% respectively). This could be due to biases in either sample. It may be that arsonists who are known to the police for previous fire-related offences are more likely to be caught for subsequent acts of arson, therefore they will be more highly represented in the current study. Alternatively, the Home Office study was based on Social Enquiry reports, which normally only record actual convictions for fire offences. The current study made note of any mention of previous fire-related activity, e.g. a parent mentioning that their child played with matches, even if these had not been officially recorded as crimes. Consequently the Home Office figure may have been artificially low.



Based on the frequency results overall it can be concluded that the main sampling inaccuracies in the current study are due to the previously mentioned 'solvability bias'.

Other discrepancies, e.g. the frequencies for co-offending in the Icove and Estep (1987) study, are more likely to be due to biases in their sample, in this case an over-representation of juvenile firesetters.

## 4.6 'Profile' of an Arson

The overall picture of the average act of firesetting that emerges from the frequency data in the present sample is a night-time, weekday attack on a residential property less than a mile from the offenders' home. The property will have been specifically chosen for attack because the offender knows the victim. There may have been an event involving the victim - such as an argument - which occurred immediately before the fire and which acted as a trigger. The arson will be planned and the offender will use materials brought to the scene. The fire will be set following the consumption of alcohol and the offender may remain or return to the scene afterwards, but will not alert anyone. Lives will be endangered by the location of the fire.

This overall profile accords with a description of a revenge-type attack, commonly cited in the literature as the most frequent motive for firesetters operating alone (e.g. Barnett, 1992; Lewis and Yarnell, 1951). However, two fairly high frequency variables do not fit in with this framework - public view (57%) and outside (45%) - as an arson which occurs in a residential property cannot also be outside and in public view. These items seem to suggest a different form of arson than that created by the other high frequency variables.

In fact there is a great deal of variation within the dominant processes of arson identified by this frequency analysis. If we look, for example, at the variable 'targeted' which is indicative of a retaliative arson. The frequency for this variable is 61%, yet the frequency for residential property is only 47%. Clearly, then, there

exists a form of arson which is not motivated by the desire for personal retaliation against another individual, but is instead purposeful and targeted at another form of property.

These findings open up the possibility that there may be many different forms of arson which are characterised by the different behaviours that occur during their commission. This in turn highlights the need for a classification system which will account for the variations in form that have been identified. This is the subject of the following chapter,



## Chapter 5 Modelling Firesetters' Actions

The previous chapter has explored some of the general trends and patterns in the current data set and compared these to results found in previous studies of arson. Overall the picture that emerged from the analysis was that there is a great deal of variation within the data which is obscured by focusing on aggregated frequencies. It is necessary to look at the inter-relationships among variables in order to fully explore the variations that exist between different forms of arson.

This chapter, therefore, presents a model of arson which is derived from an analysis of the inter-relationships among all the crime-scene related actions mentioned in the previous chapter. This model is intended as a new classification system for arson which overcomes many of the concerns highlighted in the critique of existing systems. The theoretical framework guiding the search for structure in crime-scene actions proposes that an examination of firesetting behaviour will reveal four underlying themes relating to the four modes of functioning of behavioural action systems.

By focusing on the actions of arsonists, rather than internal processes (motivation, mood, fantasy, etc.) which have formed the basis of previous classifications, the current model has important implications. Psychologically, we are seeking to uncover the underlying processes that lead individuals to commit arson, and practically there is very real benefit to arson investigators in a framework which draws on information readily available to those conducting an investigation.

### 5.1 Procedure

As discussed, the central objective of this second phase of analysis was to identify themes relating to the three facets of the hypothesised actions system structure, as summarised in

the mapping sentence, within the co-occurrence of the actions. This involves, in effect, the comparison of every one of the 46 offence variables with every other, across the 230 cases. In order to carry out such an analysis a data matrix was produced by coding the offences in terms of the presence or absence of each of the variables.

In order to represent the relationship that every variable had to every other variable in a form that allows for examination of the two interrelated facets the data was subjected to Smallest Space Analysis (SSA I), one of a series of non-metric multi-dimensional scaling procedures (Canter 1985). The function of the SSA is to test the relationship each of the variables has to every other variable. Though they have many aspects in common, there are several key differences between the techniques of SSA-I and factor analysis, which is perhaps a more traditional method for examining inter-relationships among variables. Most importantly, these differences are found in the way the techniques model structure in a correlation or association matrix and how the structure is represented. In SSA-I, information about the structure is contained in the order of similarities among the variables in the association matrix; but in factor analysis linear combinations of variables ('factors') are found or 'extracted' to satisfy extrinsic mathematical criteria of variance maximisation. Inevitably, however, variance must be ignored to get a convenient number of factors. The representation of the factors is skewed further by the factor analytical representation, which employs a heuristic known as 'rotation to simple structure' to improve post hoc the factor structure. Further variance is lost by simply ignoring variables which do not correlate highly with these artificial constructs - mathematical solutions which are deified into real substantive findings. SSA-I by contrast merely translates the similarities in the association matrix into distances in the geometric representation. In this case the association matrix was derived using a Jaccards coefficient of association. This only takes account of positive co-occurrence. If two variables are both absent from the records this does not increase the association. This was deemed the appropriate measure of association for data drawn from police records because it can never be certain that absent information was just not recorded.



A geometric representation of the relationships in the association matrix is then generated as with other Multi-dimensional scaling procedures. The algorithm attempts to find the best representation within the predefined dimensionality such that the higher the correlation between any two variables, the closer together the points representing them will be. SSA operates on the ranks of the distances between the points and the ranks of the association coefficients. It thus captures the relative sizes of associations and is therefore most appropriate for examining dominant themes in the present form of data.

## 5.2 SSA of Offence Behaviour

A 3-dimensional SSA solution was found to have the reasonable Guttman-Lingoes coefficient of alienation of 0.18 in 10 iterations. Figure 5.2.a below shows the projection of the first two vectors of the 3 dimensional space. In this figure each number represents an aspect of the arson derived from the content analysis. The numbers relate to the items as listed in Appendix B. So the closer together any two variables are in Figure 5.2.a the more likely when one occurs in an offence that the other will also occur. By contrast, for illustration, it is very unlikely in a case where a public building is the target that a suicide note will be left. These two variables are on opposite sides of the space.

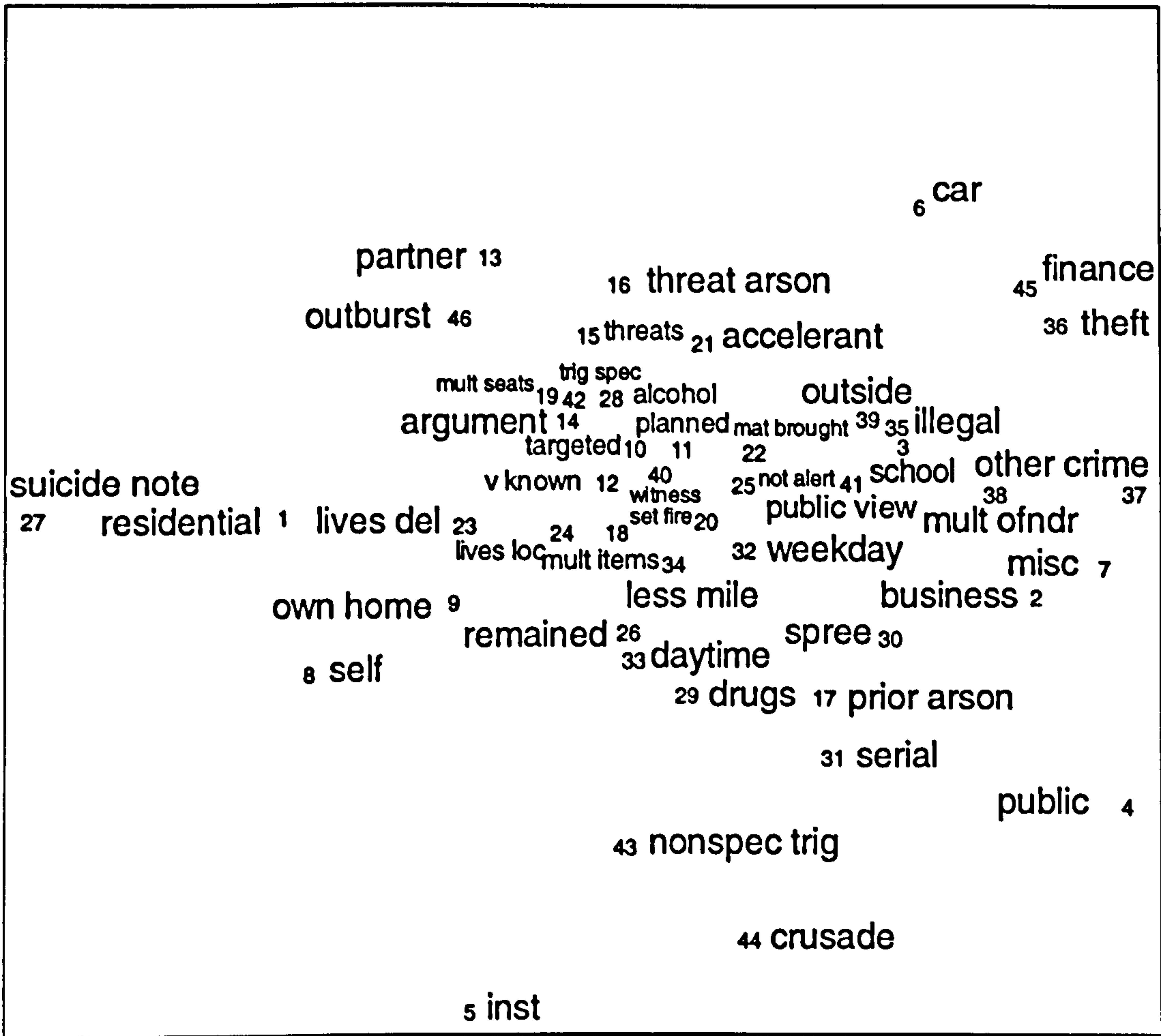


Figure 5.2.a: SSA of Arson Actions

### 5.2.1 Focal Aspects of Arson

The first hypothesis which relates to the actions carried out at the arson crime-scene is that there would be evidence of a focus facet describing the association between the arsonist and their target. This is distinct from those aspects of the variables and actions that relate to the nature of the target. Furthermore, the action system framework proposes that the actions that do indicate some form of significance of the target to the offender would dominate.



In terms of the SSA plot the general aspects that are characteristic of a system of relationships in general will be placed at the centroid of the space. A number of specific hypotheses can therefore be proposed about the actions that will be found as central to the configuration. One is that they will provide some indication of the degree of significance of the offence to the offender. A second is that they will be the most frequent set of variables. If frequency is linked to associative significance in this way then gradations in frequency would be hypothesised to exist as well, with the most target specific variables being the least frequent.

This hypothesis of a focus facet that distinguishes between the central significance of the offence and its different forms of target is directly comparable to the focus facet reported by Canter and Heritage (1990) for rape. In that case it was the surprise, sexual attack in which the victim's reactions were ignored that was at the centroid of the configuration, occurring in more than 65% of the cases. The very low frequency variables were found at the edge of the plot and characterised the different styles of rape.

**Figure 5.2.1.a** shows the frequencies of each of the variables superimposed on the same SSA configuration as **Figure 5.2.a**. This reveals clear contours to distinguish variables that occur in more than 60% of cases, in 35% to 59%, 20% to 34% and in 2% to 19% of cases. The pattern is very similar indeed to that reported by Canter and Heritage (1990) for rape.





These arson related actions do appear to indicate a significance and involvement of the arsonist and a determination to ensure the fire had some real destructive effect. They therefore do lend credence to the proposal that arson can be examined as a destructive action system in which there are gradations in the actions from those that are focused on achieving these destructive objectives to those that are specific to the transactions with the targets in question.

This focus facet thus also indicates that the differences in the themes of arson will be revealed through the lower frequency variables. In effect, the focus facet modifies, or moderates the differences between the themes. Because all the arson considered here is intended to have a significant impact the achievement of that impact will require certain common actions, such as not alerting anyone to the fire, thus increasing the likelihood that it will light fully before anyone can disturb it. Beyond these common elements the differentiation of arsons will be in those aspects of the offence that relate to the source of the actions and the locus of its desired effects.

## **5.2.2 Themes of Arson**

### **Source of action**

The first primary facet relates to what might be regarded as a motivational category; whether the source was internal to the offender or external to him. This is a distinction that has many parallels in other areas of psychology, notably in the considerations of locus of control in attribution theory in which the situation is contrasted with the person as a cause (Rotter, 1975). In relation to crime an interesting distinction has been made between acts which are expressive and those which are instrumental (e.g. Feshbach, 1964; Cornell et al, 1996). The expressive crime is one in which the locus of the cause is seen as being within the person, some aspect of them that seeks to find expression. This is a little different from the more precise definition of expressivity in the action system

framework in which it is an internal process acted on external phenomena. For instance, in the actions system framework, the expression of anger against the self would not be expressive in the same sense as the expression of anger against some external frustration. In the context of crime therefore the label 'Demonstrative' may be more useful as a general description of the processes caused by some inner need to express anger or other emotions, as opposed to those actions that have some direct objective of modifying something external to the actor and achieving goals of a more instrumental character.

The modulating facet of focus indicates that the distinction between demonstrative and instrumental actions will be clearest at the periphery of the plot. So actions that indicate the individual is revealing emotions and have little obvious subsequent material significance are hypothesised to be on the opposite side of the plot to those actions that have some direct obviously functional consequence. Figure 5.2.2.a, which is the same configuration as Figure 5.2.a, shows that at the bottom are actions that have non-specific triggers, that are serial, involve drugs and attacks on the arsonists themselves, as well as suicide notes. Public buildings are also, interestingly in this region, as are institutions and businesses, suggesting that in this sample these are targets selected because of their emotional significance rather than as a form of arson for profit. This accords with the anecdotal comments that arson for profit is often difficult to detect in relation to 'professional' business related arson and so is very rare in the present sample of detected cases. Although the variable 'finance' was included to take account of cases of arson for profit, it's definition (see Appendix B) is quite broad, and in fact in the current sample it applied most frequently to cases where the financial benefit was more indirect, such as the offender wanting to be rehoused.



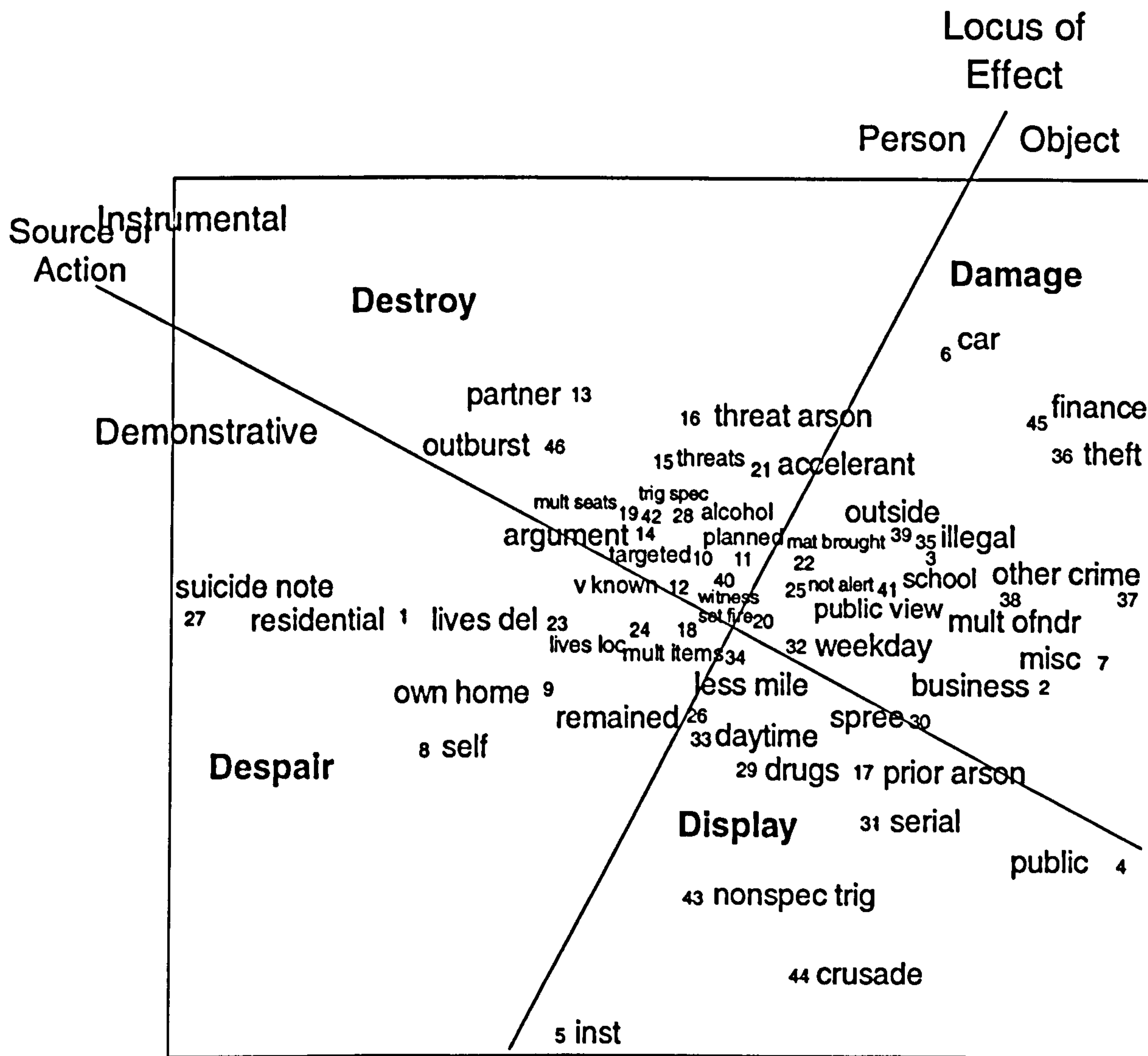


Figure 5.2.2.a: SSA showing themes in arson actions

The top half of the plot contains a number of actions that indicate the instrumentality of the arson; the arson being part of a threatening activity, a partner being the victim of the arson, accelerants and materials brought to the scene, as well as the arson being part of a theft or other crime and the arsonist incurring some financial benefit from the fire. These all accord with the proposal that the arsonist was trying, essentially, to create some change on people and the environment rather than his or her own emotional state.

Interestingly, school buildings are part of this process, indicating a form of revenge that contrasts, for example with institutions at the other side of the plot.

### **Locus of effect**

Instrumental crimes have a clear external objective in that some consequence outside of the individual's emotional state is desired. In a sense, the consequences are the primary objective that give rise to the offence. The demonstrative actions have the primary objective of changing how the person feels. However, the targets of these offences can be either external to the arsonist, in the sense of being some object with which the arsonist does not have a very personal identification; or internal in the sense of being part of the offender's personal or social identity, typically another person.

The distinction between demonstrative and instrumental origins of the offence are therefore hypothesised to be different from those that deal with the target of the offence. The partitioning of the SSA space that accorded with these distinctions would therefore be expected to be orthogonal to the partitioning between person and property directed offences. It is thus hypothesised that both the demonstrative and instrumental regions will have targets that are either objects or persons.

In other words, the action system framework draws attention to the targets of the arson, proposing that differences in whether the target is clearly external to the agent or not would have implications for many other aspects of the ways in which the individual operates. It would therefore be expected that target differences would be a major distinction across the SSA configuration, regions being associated with different classes of target, these classes reflecting whether the action is directed externally or internally. **Figure 5.2.2.a** therefore also shows how the original SSA presented in **Figure 5.2.a** can be partitioned to discriminate between whether the target is a property, external to the agent, or some form of person that may be part of the arsonists' self-identity.



### **a) Objects**

To the right of the plot the variables: business, car, public building, school, hospital/institution and miscellaneous/uninhabited property indicate that the target of these offences was an object. As anticipated by the modulating facet, those variables that most directly indicate the target are at the periphery of the plot. The other variables associated with these types of arsons relate to the nature and benefits that the arsons provide for the offender. For example, illegal entry to and theft from the premises, the arson occurring as part of another crime and more than one offender being involved are all variables that accord with what would normally be considered property crimes.

### **b) Person**

In contrast, to the left side of the plot the variables: victim known, self and victim partner indicate that a person was the likely target of these arsons. Moreover, typically they were people who had some significance to the arsonist. These offences can be considered to be violent crimes 'against the person'. The person fires tend to be more serious, involving outbursts, multiple seats and accelerants. There was also evidence of planning and targeting in these cases, and lives were either endangered deliberately or by the location of the fire.

## **5.2.3 Modes of Arson**

Because the two primary facets of source and target were orthogonal to each other they create four sub-sets, postulated as modes that actions systems can take. It is therefore of value to consider the four segments of Figure 5.2.2.a as illustrating the four hypothesised modes.

### **Integrative Mode: Demonstrative Person (*Despair*)**

In action system terms those systems whose dominant mode is one of events emerging inside and being actualised inside the system are regarded as essentially integrative. In one of the examples in Shye's paper, concerning a study on quality of life, this mode of functioning was described as promoting internal harmony. Although incongruous with this description, the theme of arson behaviour which corresponds to this mode of functioning is the Demonstrative Person theme. In the context of arson, the integrative mode of functioning represents *dis*-harmony within the individual, resulting in arson behaviour which may be an attempt to restore equilibrium, or alleviate distress by seeking attention from family or the authorities. The desire to set fires emerges internally, and coupled with the need for attention, results in the actualisation of the firesetting also being directed internally.

Within the person-oriented offences, there was a sub-group of cases where the individual either set fire to him/herself, or to objects placed around them, in what would appear to be an act of suicide. However, in the few cases classified as this type of arson, none of the individuals actually died. In one case, the arsonist attempted to set fire to himself in front of his partner and attending fire officers, and in others the time of day chosen was such that neighbours were alerted by smoke before any serious damage could be done. These cases, therefore are probably better viewed as para-suicides or cries for help.

### **Conservative Mode: Instrumental Person (*Destroy*)**

This is the manner in which the system relates to events which are actualised inside the system and emerge outside. In terms of arson behaviour, the theme which corresponds to this mode of functioning is the Instrumental Person theme. These arsons often occur as a direct result of some sort of dispute between the offender and another person, usually an ex-partner, or sometimes an ex-employer. This external event causes anger



and a sense of injustice within the individual which he may attempt to redress by retaliative arson.

Thus this form of arson is the instrumental aspect of the person-oriented region. The arson behaviour was directed externally, in other words at another individual. These fires often involved prior threats and violence towards the victim, and there was usually some specific discernible trigger which occurred immediately prior to the firesetting indicating the reactive nature of this type of behaviour. These arsons are classified as instrumental because they served a specific purpose, usually revenge.

### **Adaptive Mode: Instrumental Object (*Damage*)**

Adaptation to external environmental factors, in terms of crime targeting in general and arson in particular can be seen as opportunistic in that the decision to commit the crime may only be arrived at when the individual recognises the environmental possibilities. It suggests a form of criminal sophistication in which arson is part of the repertoire for achieving criminal goals. The Instrumental Object theme of arson behaviour accords well with this perspective. This type of firesetting activity is often committed by groups of youngsters where the choice of target is opportunistic rather than selective being less personally meaningful, rather just available. The variables illegal entry and theft from premises were found in this region, also indicating instrumentality, where the firesetting can be seen as an externally-generated (perhaps by peer pressure) part of the overall activity of breaking into properties.

### **Expressive Mode: Demonstrative Object (*Display*)**

This describes events emerging inside and actualised outside the system. In terms of arson the theme which most closely corresponds to this mode of functioning is the Demonstrative Object theme. These fires tended to be of a serial nature with the arsonist often targeting particular types of public buildings and institutions. The fact that these

individuals commit serial offences suggests that there is some type of intrinsic fascination for fire which relates to the internal emergence of the behaviour. The targeting of particular buildings which, in their perception, cause a lot of attention to be focused on the individual may also reinforce the firesetting tendencies. These fires were often preceded by some kind of emotionally-charged event as indicated by the variable 'non-specific trigger'. Taken together with the variable 'crusade', where the fires were 'discovered' by the arsonists themselves, reinforces the notion that the firesetting in these cases acted as a way of obtaining emotional relief. There is some suggestion in the psychiatric literature that some individuals use arson as a means of communicating emotional states (e.g. Geller, 1992c). This type of firesetting may be committed by such individuals.

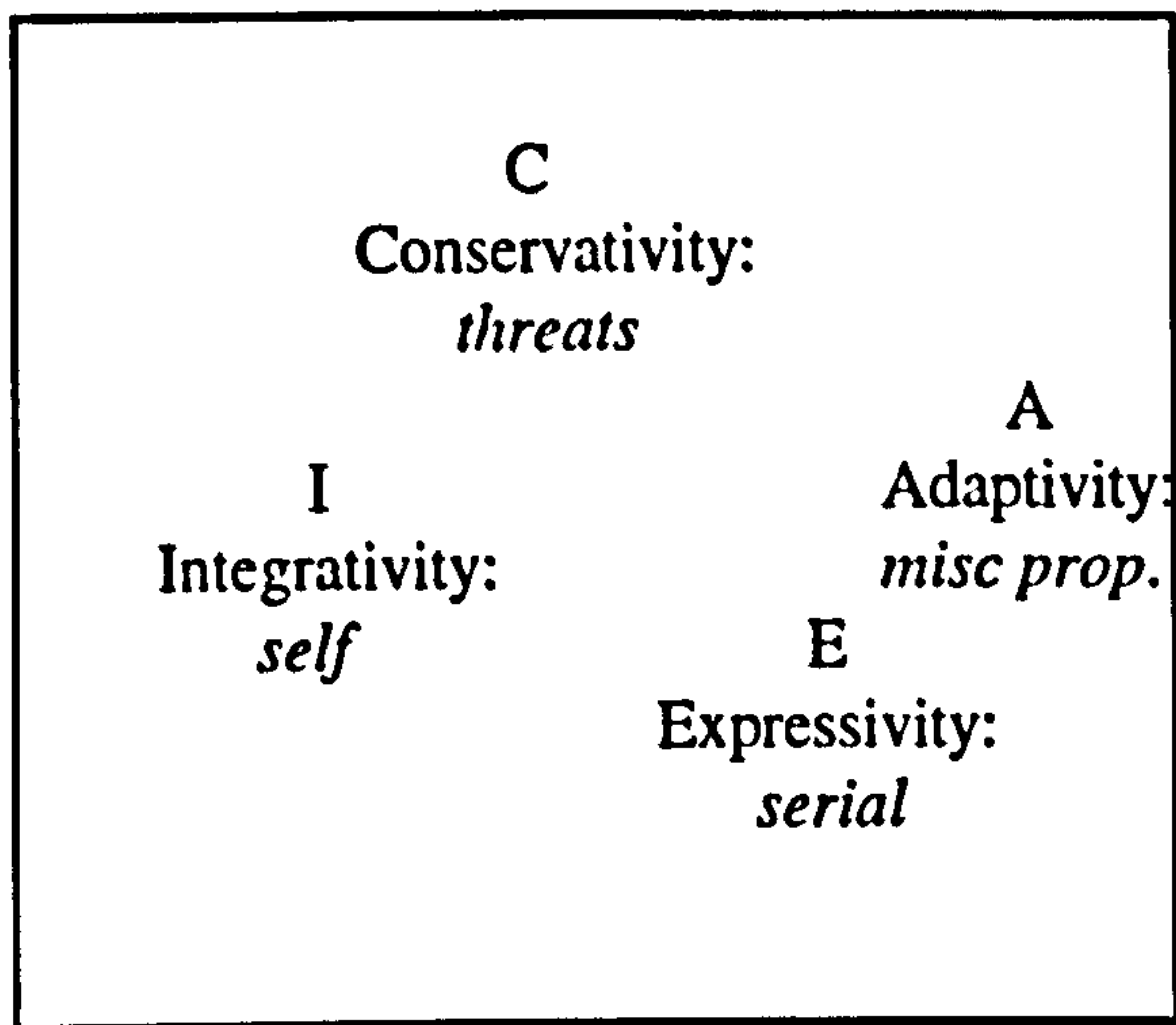
These fires tended to involve repetition over time and prior arson by the offender. The target in these cases was often a public building or hospital, which may have held some meaning for the individual, for example, he may feel anger against authority figures or the symbol that a hospital represents. Another reason for targeting these types of buildings may be that they usually attract a number of fire engines and crowds thus creating vicarious attention for the arsonist. This hypothesis is supported by the fact that the arsonists often remained or returned to the scene of the fire in order to observe or participate in its aftermath.

#### **5.2.4 Relationships Between Regions**

Further support for the correspondence between the themes of arson and modes of functioning outlined above comes from the positioning of the regions of the SSA. Figure 5.2.4.a shows the basic structure of the arson SSA. The positioning of the four regions is indicated with the 'core' variable that helps to define that region most precisely. The relative position of these variables and the regions they represent corresponds to that



which was hypothesised by the relative similarity and differences of the four modes, based on their definitional constituents.



**Figure 5.2.4.a:** The spatial relationships among the functioning modes of arsonists

The expressive mode (represented by the variable 'serial') is located opposite the conservative mode ('threats'), and the integrative ('self') opposite the adaptive ('misc. property'). Taking this diagram together with the regional structure of the SSA, there would appear to be a slight drift towards the internally-driven types of arsons. It may be that these internal processes are more dominant in systems which are characterised by dysfunction and disorder rather than effective functioning. It also seems likely that the instrumental arsons carried out as part of fraudulent activity were under represented in this sample, as previously mentioned.

### 5.3 The Effect of Target Variables on SSA plot

As previously noted the variables that referred directly to the target of the arsons were located at the periphery of the SSA. This is partly a consequence of the modulating facet, where bands of decreasing frequencies radiate outwards. However, there is also an issue of mutual exclusivity regarding the target variables, in that it is usually not possible for more than one target variable to be present in any one case. Because of the

way that these variables are defined, and the resulting zero or near-zero correlations, the SSA will tend to position the target variables as far away from each other as possible. This means that other variables associated with each of the targets are similarly forced apart. This raises potentially important implications for the SSA configuration as a whole. In order to test the verity of this SSA, the eight target variables were removed and the analysis re-run. Figure 5.3.a below shows the results of this endeavour.

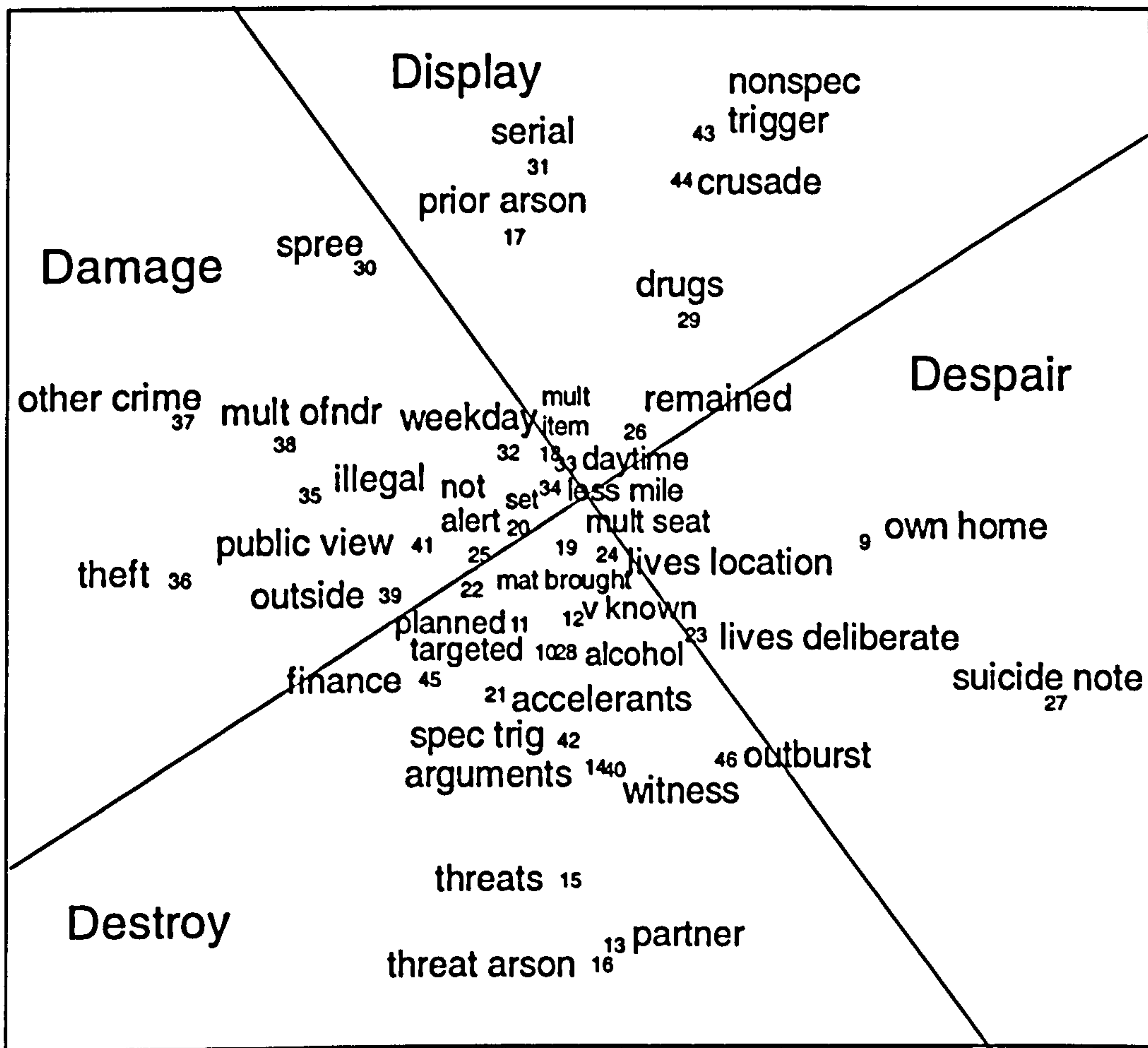


Figure 5.3.a: SSA of Arson Actions without Target variables

This diagram together with Table 5.3.1 below shows that the meaning of the original SSA structure is retained when the eight target variables are removed, in other words the majority of the behavioural variables remain in the same regions. This confirms that



those regions are not simply defined by the targets associated with those particular styles of firesetting, rather they are created by the co-occurrence of conceptually similar variables.

**Table 5.3.1:** Comparison of items in SSA T (with target variables) and SSA -T (without target variables)

	<b>SSA T variables</b>	<b>SSA -T variables</b>
<b>DESPAIR</b>	<i>residential</i> <i>self</i> own home multiple items lives location lives deliberate suicide note	own home lives location lives deliberate suicide note
<b>DESTROY</b>	targeted planned victim known partner arguments threats threat of arson mult seat accelerants alcohol witness specific trigger outburst	targeted planned victim known partner arguments threats threat of arson mult seat accelerants material brought alcohol witness specific trigger finance outburst
<b>DAMAGE</b>	<i>business</i> <i>school</i> <i>car</i> <i>misc</i> material brought spree weekday illegal theft other crime multiple offenders outside public view finance	spree weekday illegal theft other crime multiple offenders outside public view

	SSA T variables	SSA -T variables
DISPLAY	<i>public</i>	
	<i>inst</i>	
	prior arson	prior arson
		multiple items
	remained	remained
	drugs	drugs
	serial	serial
	daytime	daytime
	non-specific trigger	non specific trigger
	crusade	crusade

It must be noted that some of the non-target variables are in fact themselves defined by the targets. Probably the best example of this is the variable 'suicide note' which is of course closely related to the target 'self'. With this proviso, however, these results do demonstrate the reliability of the SSA structure.

## 5.4 Scales of Arson Modes

The four modes of arson were proposed to reflect discernible themes to any given arson. This implies that the sets of actions identified as representing each of those themes should form a scale in the sense that their combined existence is a reasonable indication of some underlying dimension. One direct way of testing this is to calculate Cronbach's  $\alpha$  for each of the sets of actions that define a region. The actions used and the  $\alpha$  value for each theme are given in **Table 5.4.1**.



Table 5.4.1: Scales of Actions

	Instrumental Person	Instrumental Object	Demonstrative Person	Demonstrative Object
ITEMS	accelerant	business	lives deliberate	crusade
	alcohol	car	lives location	drug use
	argument	finance	multiple items	institution
	multiple seats	illegal entry	own home	non-spec. trig.
	outburst	mat. brought	residential	prior arson
	planned	misc. property	self	public building
	targeted	mult. offenders	suicide note	remained
	threats	not alert		serial
	threat of arson	other crime		
	specific trigger	outside		
	victim partner	public view		
	victim known	school		
	witness	spree		
		theft		
$\alpha$ VALUES	.83	.62	.72	.62

The  $\alpha$  values in this table are reasonable, when it is remembered that the data is derived from official reports in which there is considerable room for omission and ambiguity. The conservativity mode has the highest Cronbach's  $\alpha$ , possibly because this revenge-like arson is the most clearly represented in the present sample. Curiously, the two themes in which objects are the target have lower scale values, reflecting the smaller number of actions that were recorded here, presumably because there is less information of psychological relevance available when there is no obvious victim.

The ability to derive reliable scales from this data leads to a further hypothesis that particular items could produce more meaningful scales with an underlying order. This hypothesis is explored in the next chapter which looks in detail at each of the four styles of firesetting derived from the SSA analyses.

## 5.5 Assigning Cases to Themes

It is important to remember that although the SSA indicates that the *behaviour* of arsonists can be classified in terms of four psychologically meaningful themes, it does not

classify the arsonists themselves. The crime-scene actions of any one individual may contain variables from more than just one SSA region, although because these regions represent psychologically distinct modes of action, it would be expected that the majority of behaviours would fall into one particular region. The associations that the SSA is based on also means that the variables from any one case are more likely to co-occur contiguously. In order to progress to looking at the characteristics of people who commit particular sorts of arsons it is first necessary to examine whether it is actually possible to classify individual cases as belonging to one of the four categories of arson.

The procedure for classification was as follows. First each case was given a score consisting of the number of variables present for each theme. Because the four themes contained unequal numbers of variables, these raw scores were converted into proportions, i.e. the number of variables present divided by the number of variables possible. Any individual case was then classified as belonging to a particular theme if the proportional score for that theme was greater than, or approximately equal to the score for the other three themes added together. Because of the low frequency variables contained in the Demonstrative Object and Demonstrative Person themes, these were classified as such simply if they contained a greater proportion of variables than in any other single category (as opposed to all the other categories added together). Additionally, a case was considered to be a hybrid between two themes if it contained approximately the same proportion of the variables for each of those themes. A case was not classified as either a pure type or hybrid if it contained less than a third of the variables in any theme, or if it contained roughly equal numbers of variables from more than two themes.

Using this method, almost all of the cases (84%) could be classified as either pure types or hybrids between two types. Table 5.5.1 below shows the distribution of cases assigned to the four themes. The most frequent pure type was the Instrumental Object theme, representing 26.5% (n=51) of the cases. This was followed by Instrumental



Person (20%, n=38), Demonstrative Person (18.5%, n=36) and Demonstrative Object (10%, n=19). There also existed five hybrids, the most common of which was a combination of Instrumental Person and Demonstrative Person (13.5%, n= 26). With the exception of this hybrid, the pure types were the most frequently identified profiles of cases. This is a confirmation of the action system hypothesis of four dominant processes underlying arson activities. The next most frequent hybrid was between Instrumental Person and Instrumental Object (8%, n=15), followed by Demonstrative Object with Demonstrative Person (1.5%, n=3) and Instrumental Object with Demonstrative Object (2%, n=4). These are all combinations which are supported by the action systems framework in that they are all adjoining regions. However, there was one case which was a hybrid between Instrumental Person and Demonstrative Object. This is an interesting finding as this case was one of the few representations of arsons committed for Insurance Fraud in the current sample. Here, the offender had been involved with setting fires before ('prior arson'), the offence formed part of a series for that offender ('serial') and he remained at the scene as he also reported the offence, in order, presumably, to avoid suspicion ('remained' and 'crusade'). The offence was also planned and targeted and the victim was known, as it was his own place of employment. Also, accelerants were used and there were multiple seats of fire. This description accords with the literature on arson committed for insurance fraud, in that the individuals who set the fire are often 'hired' by the business owners because of their known fire involvement. Unfortunately, it is not possible to verify whether this was the case in the current example as the business owner denied being involved.

**Table 5.5.1: Number of cases assigned to each behavioural theme**

	<b>N</b>	<b>%</b>
Instrumental Object	<b>51</b>	<b>26.5</b>
IO-IP	<b>15</b>	<b>8</b>
Instrumental Person	<b>38</b>	<b>20</b>
IP-DP	<b>26</b>	<b>13.5</b>
Demonstrative Person	<b>36</b>	<b>18.5</b>
DP-DO	<b>3</b>	<b>1.5</b>
Demonstrative Object	<b>19</b>	<b>10</b>
DO-IO	<b>4</b>	<b>2</b>
<b>TOTAL</b>	<b>193</b>	<b>100</b>

The fact that the majority of arson cases belong to one of the four main behavioural themes is empirical support for the hypothesis that the SSA structure represents the dominant processes underlying arson behaviour. It is also to be expected that, with the exception noted above, all of the hybrids are from contiguous regions. These findings have broader implications for classification systems generally. Previous classifications of arsonists have tended to discuss their motivations as exclusive categories. The above analysis has shown, however, that in the current data set as many as 21% of the arsonists exhibited actions representative of more than one behavioural category. As discussed in the previous chapter, the typology approach to classification that seeks to identify categories of offenders that conform to strict 'types' has been criticised (e.g. by Gibbons, 1988) on the basis that few individuals are found who conform to these rigid classifications. Those schemes that include broader categories, however, have generally found to be more successful. The findings of the above attempt at classifying the current set of arsonists, would also argue against the wisdom of discussing categorical types of arsonist. However, the pattern of hybrids found would support the notion of describing offenders in terms of their predominant themes of arson behaviour. In other words, cases could be described as Demonstrative (without specifying the target as either a person or an object), or as being Person-oriented (containing a mixture of Instrumental and Demonstrative actions).

The endeavour of assigning cases to themes described above highlighted the possibility of quantitative distinctions existing within each of the four themes, as well as qualitative differences between the four themes. In other words, cases which had a high number of variables present for a particular theme were classified as a pure type, whereas fewer variables in a particular theme meant that they were more likely to be classified as a hybrid, or not classified at all. Clearly, then, some cases were more Display, Destroy, Damage, or Despair than others. The possibility of underlying scales existing within each particular theme is explored in the following chapter.



## 5.6 Summary of Chapter

This chapter has considered actions carried out by people when setting fires. The analysis has shown that there are discernible patterns underlying these actions and that they can be classified into psychologically meaningful themes of behaviour. There are three main facets underlying this firesetting behaviour. The first relates to the association of the target to the offender and ranges from variables that indicate a close association, to those that describe the targets themselves. The second facet relates to the targets as either a person or an object; and the third describes the motivational category as either instrumental or expressive. As these latter two facets are orthogonal, this gives rise to four different forms of arson, which have been given the descriptive labels: Damage, Display, Despair and Destroy (from now on this will be referred to as the 4D model). These correspond with the four modes of action system functioning Adaptive, Expressive, Integrative and Conservative, respectively.

This is an important development in the classification of arson as it presents a framework with a unified underlying structure, unlike previous classifications whose categories were drawn from a number of different domains such as psychiatric and criminological descriptions.

The following chapter further explores the structure in the four themes of arson actions, following on from the identification of scales of actions, and focuses on the quantitative and qualitative variations *within* each of the four scales.

## Chapter 6: Scales of Arson Action

The previous chapter examined the structure of arson actions and identified four forms of firesetting which corresponded to the modes of functioning in the action systems framework. The possibility of variations within these four forms was highlighted by assigning cases to themes, where it was found that certain cases had a stronger affinity to one theme of arson than other cases. This suggested that there may be more or less extreme forms of each of the four themes.

The present chapter, therefore, examines the structure within each of the four forms of arson in order to determine whether different pathways to a particular form of arson exist, and what the quantitative and qualitative dimensions of those pathways are.

### 6.1 Scaling in Crime Research

The concept of scaling in crime research has generally been confined to examinations of criminal career paths, particularly those of delinquents (Nye and Short, 1957). Here it has been empirically demonstrated that scales of offences exist such that more serious crimes are committed by people who have also carried out less serious ones. For example, Nye and Short (1957) found that delinquents who had taken things of large value had also taken things of medium value, played truant from school and vandalised property. This is of both academic and practical interest. Firstly, the finding points towards an underlying progression of criminal behaviour and gives some indication of the possible pathway towards more serious criminal activity. Secondly it is obviously of direct investigative benefit if there are a number of juvenile suspects of a large value theft, where one or two of the suspects are also known to have committed the lesser offences. Of course this is only a valid inference if there is only one scale of delinquent career paths, and in fact other later research has shown that this is not necessarily the case. For example, Scott (1959) identified two separate scales of delinquency; one



concerning acts directed at anonymous persons or property, and the second involving behaviours affecting specific people known to the offenders. This distinction can be considered as similar to that found between person and property targets in the current study.

This notion of cumulative scales of activities can also be applied to variations within a particular type of offence by examining the behavioural patterns of serial offenders. It is possible, for example, to look for increases in the seriousness of offences, such that particular activities deemed to represent more serious offences are always preceded in a series by offences characterised by less serious behaviours. This is examined in relation to the serial arsonists in the current sample in Chapter 7.

These considerations involve a form of scaling which is unidimensional, in the sense that the items in the scale are ordered along a single dimension, e.g. seriousness. As identified by Scott (1959) and in various later studies (Quay and Blumen, 1963; Smith, Smith and Noma, 1986) most crime is best viewed as multidimensional. A form of scaling which allows differentiation along two dimensions of kind and degree is Partial Order Scalogram Analysis (POSA). This can be used for the examination of data that is not strictly ordered, such as variations in styles of committing an offence.

The difference between this form of scaling and the alpha reliability scales previously discussed relates to the ability to reproduce all observed comparabilities in the case profiles. Cronbach's alpha measures inter-item correlations within the scale and assumes that the items are conceptually related, i.e. contiguous. POSA, however, examines the different roles of the items within the scale and would therefore still be able to reproduce profiles of a scale with a poor  $\hat{\alpha}$  co-efficient.

The possibility of partially ordered scales existing within individual crimes has yet to be examined, and forms the basis of this chapter.

## 6.2 Procedure

It has been suggested (Shye, personal communication) that in an SSA configuration with a clear modulating facet relating to frequency of occurrence, (1) variables that are closer to the centre have a relatively weaker affinity with the theme to which they belong; and (2) variables that are close to region boundaries will also have a relatively weaker affinity to the region as a whole. Because of the large number of items in some of the regions of the SSA, and the wish to obtain the best variables to represent each of the proposed scales, the clearest way to determine each variable's affinity with every other variable within its region was to conduct separate SSAs for each of the four regions. These were run using only the non-target variables. The results of these SSA's are presented in Figures 6.2.a-6.2.d

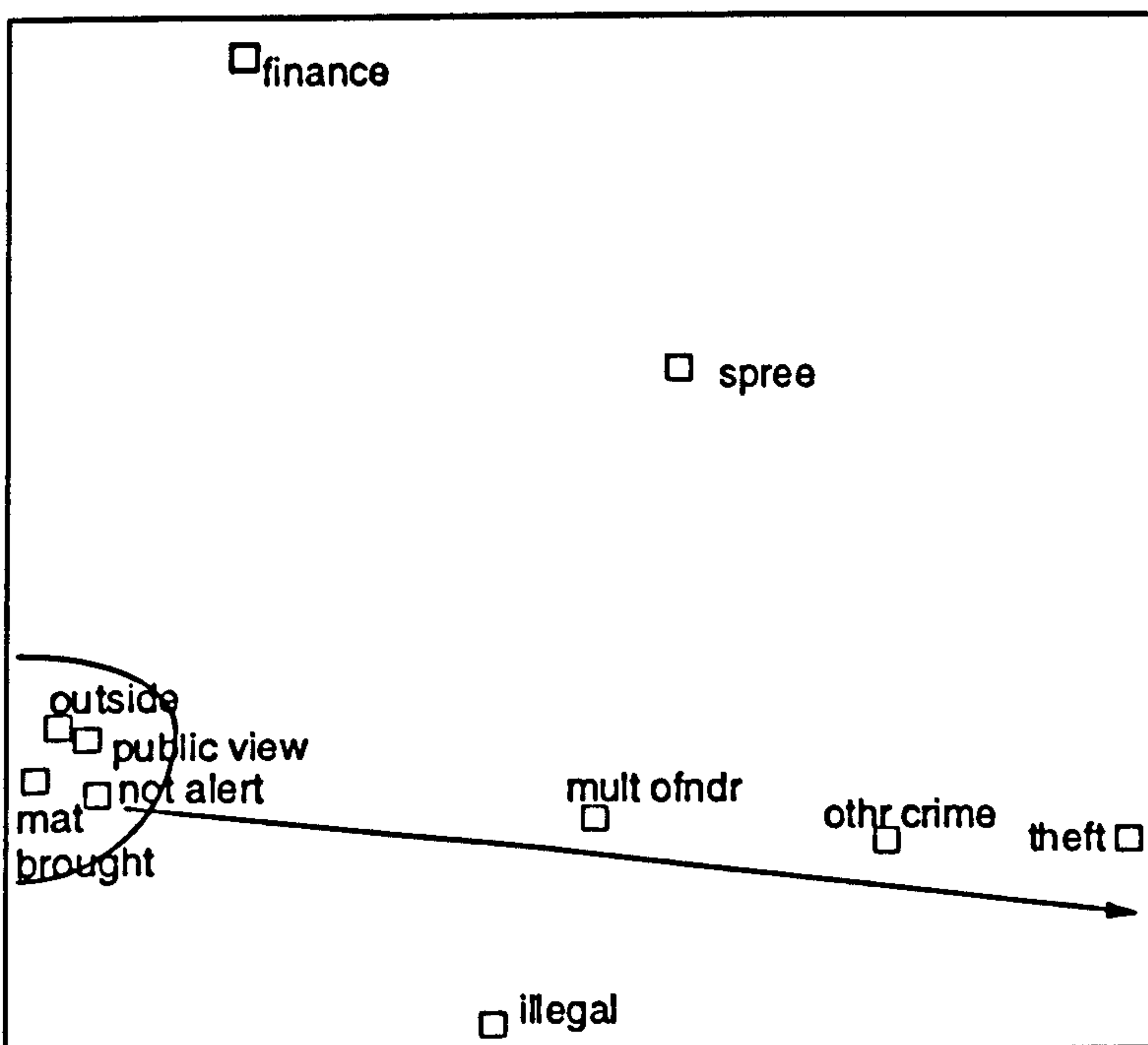


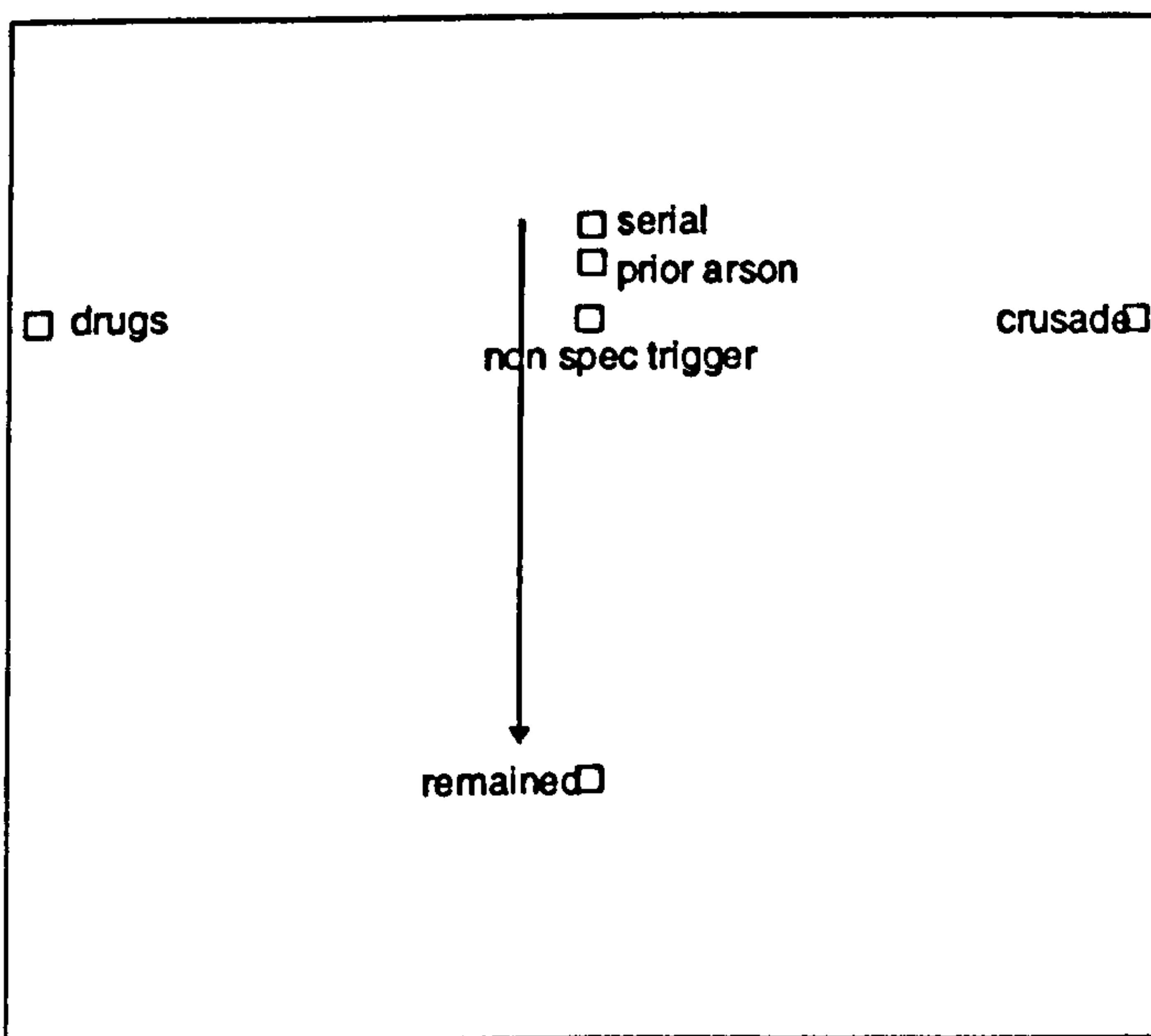
Figure 6.2.a: SSA of variables in Damage

This SSA shows that there is a linear structure to the majority of the variables in the Damage region, but that 'spree' and 'finance' do not appear to have as close an affinity



as the other variables. This is possibly due to 'spree' relating not so much to the actual nature of Damage arsons, but to a tendency for more than one such arson to occur during a single episode of firesetting. As well as being the lowest frequency item, the variable 'finance' does not really have the same underlying meaning as the other variables in this region.

The outlying conceptually distinct nature of these variables is confirmed by examining the association matrix on which the SSA is based. This reveals that while all the other variables have an association of at least 0.35 with at least one other variable, the highest associations for 'spree' and 'finance' are 0.22 (with 'public view') and 0.12 (with 'material brought') respectively. Furthermore the association between 'spree' and 'multiple offender' is only 0.21, while 'multiple offender' and 'illegal entry' is 0.36 and 'multiple offender' and 'other crime' is 0.38. For 'finance' the associations are even lower. An examination of the Cronbach's alpha output also reveals that 'finance' has a slightly negative correlation with the scale (-.01) whereas 'spree' has a low positive correlation (.23). This would seem to be a valid justification for the non-inclusion of these two variables in the Partial Order Scalogram analysis (POSA).



**Figure 6.2.b:** SSA of variables in Display

The SSA in Figure 6.2b again shows a linear structure to the variables, with 'drugs' and 'crusade' as outliers. These variables both had low associations with the other items in the theme (highest values 0.16 and 0.15 respectively). However, an examination of the item correlations on the alpha scales revealed that although 'drugs' had the lowest correlation of 0.07, 'crusade' had a reasonably high correlation of 0.19. Also, because 'crusade' was originally included to signify the most extreme form of Display arson, this justified retaining it in the POSA analysis.

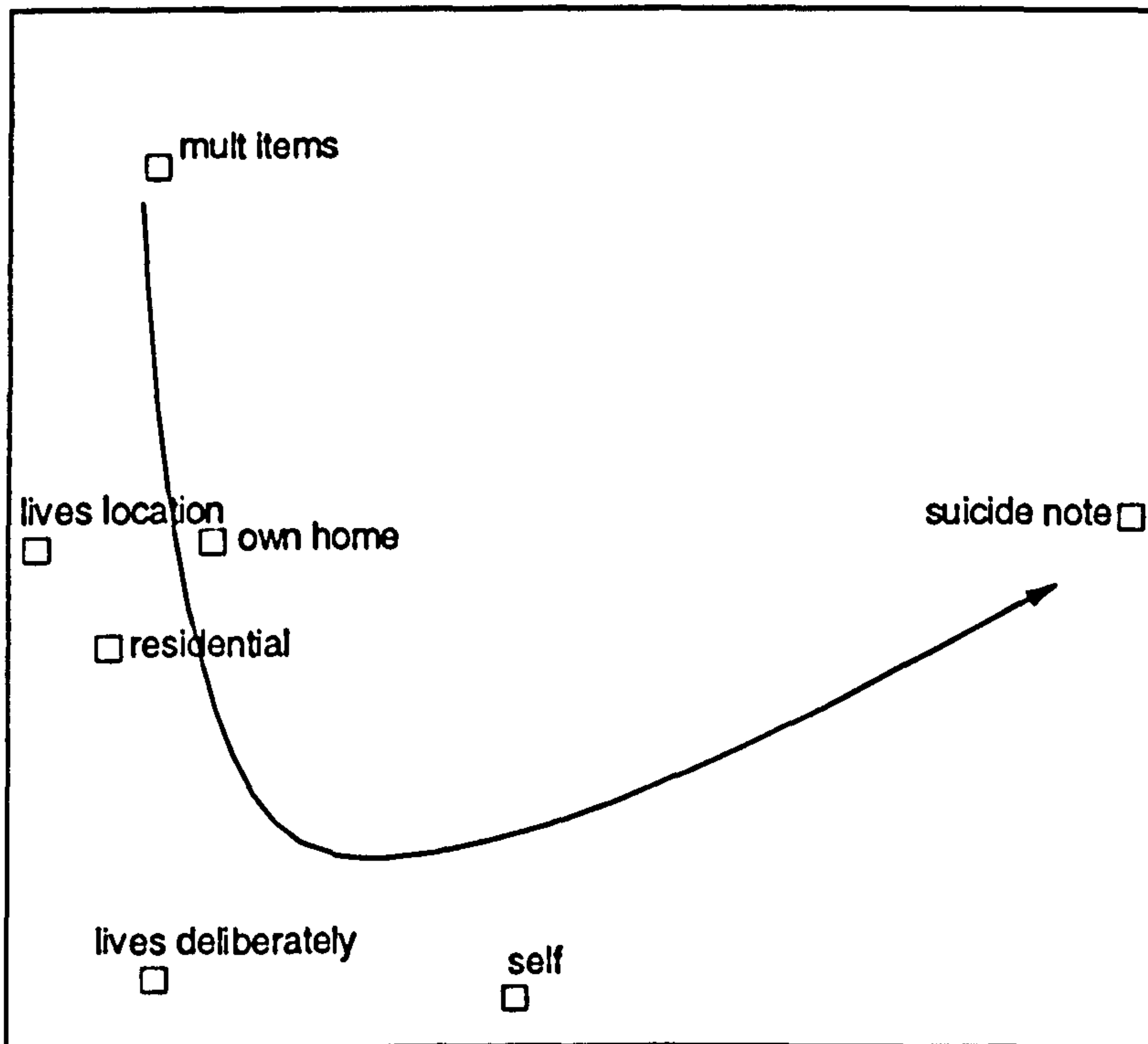


Figure 6.2.c: SSA of variables in Despair

The structure of the Despair SSA was rather different from the first two in that the variables formed a horse-shoe shape. This structure is indicative of quantitative differences existing among the variables (Borg and Shye, 1995) in the same way as a linear scale. The associations between all of these variables were reasonably high, although 'self' and 'suicide note' were slightly lower (0.29 with 'lives deliberately'; and 0.27 with 'self' respectively) which is probably due to their low frequency. The



Cronbach's alpha correlations of these items with the Despair scale were also quite low (0.41 and 0.29 respectively). These were nevertheless included in the POSA as they represent the most extreme form of Despair, where the arsonist actually sets fire to him/herself, and would therefore be hypothesised to form the upper end of the POSA scale.

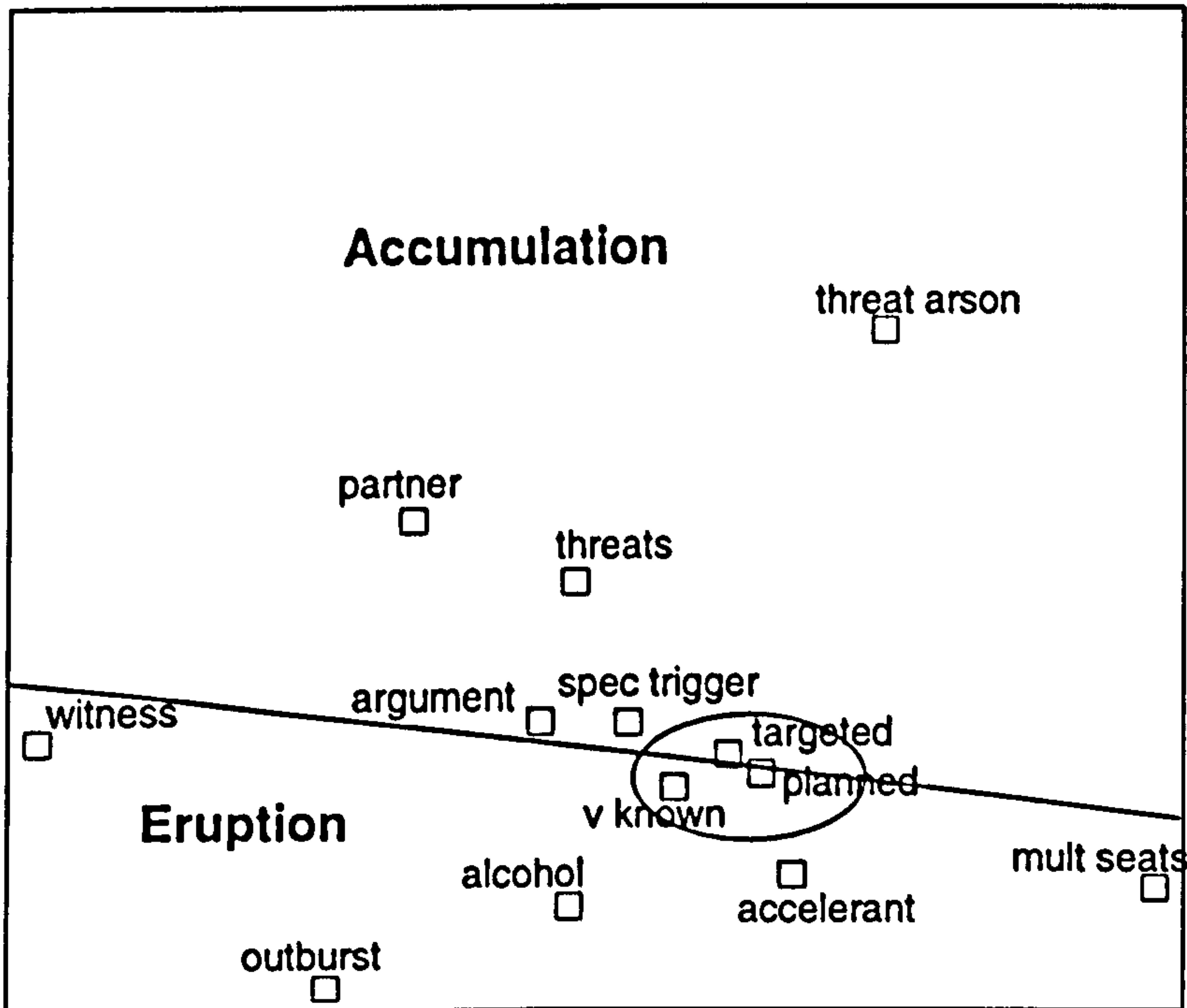


Figure 6.2.d: SSA of variables in Destroy

Finally, when the variables in Destroy were analysed separately, the resulting SSA indicated that there are in fact two separate forms of this type of arson. The variables at the top half of the SSA are as follows: argument, partner, specific trigger, threats and threat of arson. These items would seem to represent a situation in which there is a gradual build up of resentment and hostility, marked by a series of arguments and threats. These accumulate and eventually result in an act of firesetting, perhaps with a 'specific trigger' acting as the final precipitator.

However, the variables at the bottom of the SSA plot: alcohol, accelerant, multiple seats,

outburst and witness, seem to represent a different sort of Destroy arson. Here the firesetting seems to occur as a sudden eruption, with no apparent build up or warning threats. Alcohol may act as a disinhibitor, or may in fact trigger the firesetting by exaggerating the feelings of resentment which the offender harbours towards the victim. These fires involve a frenzied outburst, often marked by the arsonist spreading accelerants extensively throughout the targeted building and then setting it on light, sometimes in front of a witness who is unable to intervene.

A meaningful distinction can be made between these two forms of Destroy arson, therefore it was examined whether two separate scales could be identified indicating quantitative and qualitative differences underlying both Accumulation and Eruption arsons.

Table 6.2.1 below shows the variables which were used in the POSA analysis of the five themes of arson actions. For all of the themes, the highest frequency variables (occurring in over 50% of cases) were excluded because their high frequency meant that they had less of an affinity specifically to one particular theme.

**Table 6.2.1: Variables used in POSA analysis**

<b>Damage</b>	<b>Display</b>	<b>Despair</b>	<b>Accumulation</b>	<b>Eruption</b>
illegal	prior arson	self	partner	victim known
theft	serial	own home	argument	mult seats
mult ofndr	remained	mult item	threats	accelerant
outside	non spec trig	lives deliberate	threats of arson	alcohol
	crusade	lives location	spec trigger	witness
		suicide note		outburst

Before going on to describe the POSAC analysis, it is interesting to note that by placing the four individual SSA's together, there emerges a very similar structure to the original SSA with all the variables together.

Figure 6.2.e shows how that four separate plots can be placed together to approximate



the initial structure of the SSA originally presented in Figure 5.2a in the previous chapter.

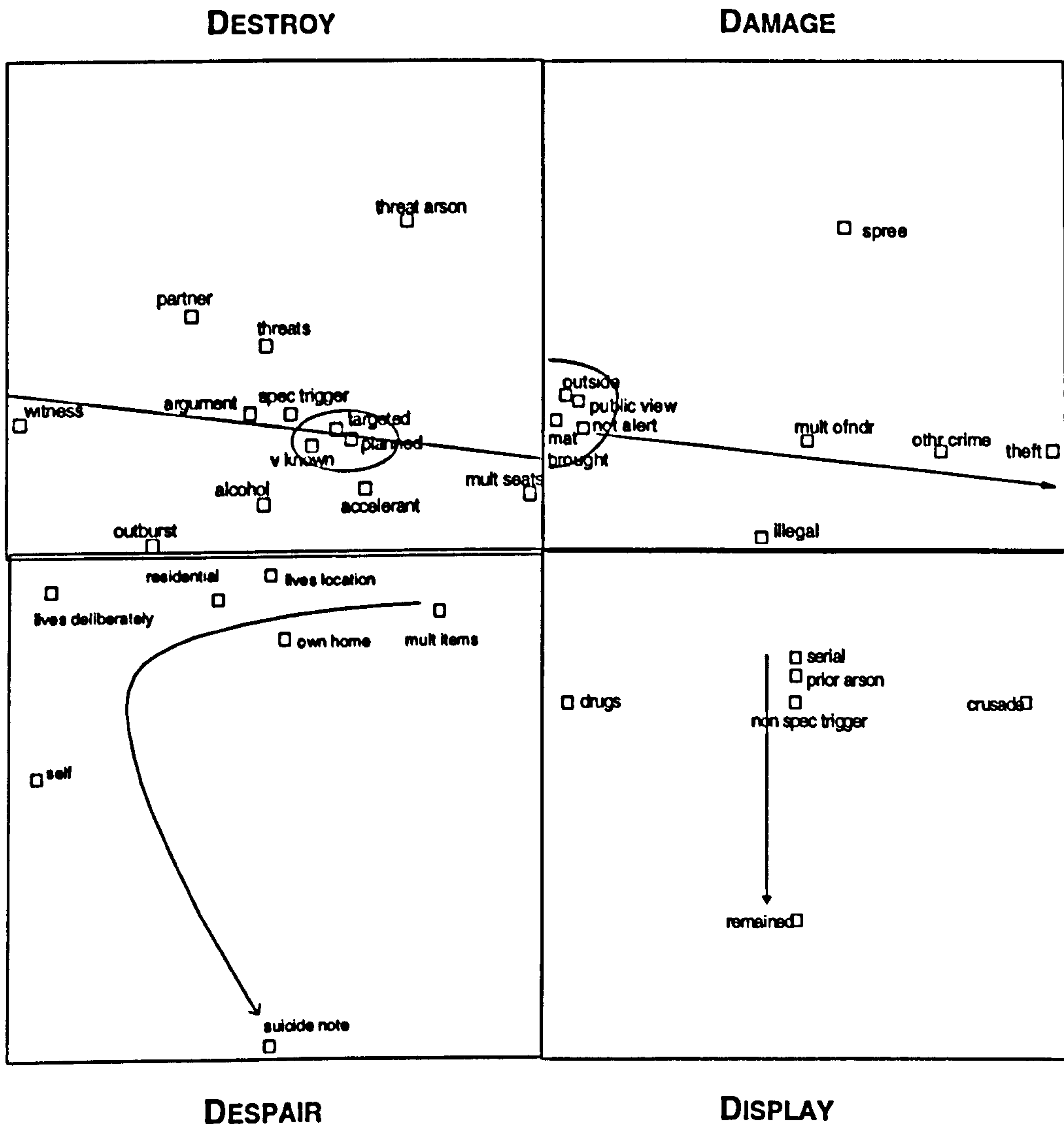


Figure 6.2e: Individual SSA plots approximating aggregate SSA

Although the overall structure of these four plots remains essentially the same as the original SSA, there are some noteworthy changes. These differences exist mainly in terms of the positioning of variables in relation to their frequency of occurrence. In the Destroy region, the high frequency region is in the lower right-hand corner of the plot which reflects both its position and content in the original SSA. The only variable which has significantly changed position relative to the high frequency variables is 'multiple

seats'. This reflects the affinity that this variable has to the Despair region (e.g. coefficient of association of 0.35 with 'multiple items') which is positioned below Destroy. The Damage region remains essentially the same as in the aggregate SSA with the high frequency region in the lower left-hand corner of the plot. Despair also retains the same overall structure although the spread of variables has increased with a concomitant decrease in the coefficient of alienation from 0.18 to 0.14, indicating that the low associations between low frequency variables has been more accurately represented. In the Display region, the variable 'remained' was originally one of the higher frequency variables. The explanation for its movement is similar to that for 'multiple seats'; namely that 'remained' also has an affinity with Despair arson and is therefore not as highly associated with the other variables in Display.

### 6.3 POSA analysis

As previously mentioned, POSA scaling captures both qualitative and quantitative distinctions within a concept by examining individuals' scores on variables that are assumed to relate to that concept. In other words, all variables entered into the analysis are assumed to have a common, meaningful order which will form a conceptual scale.

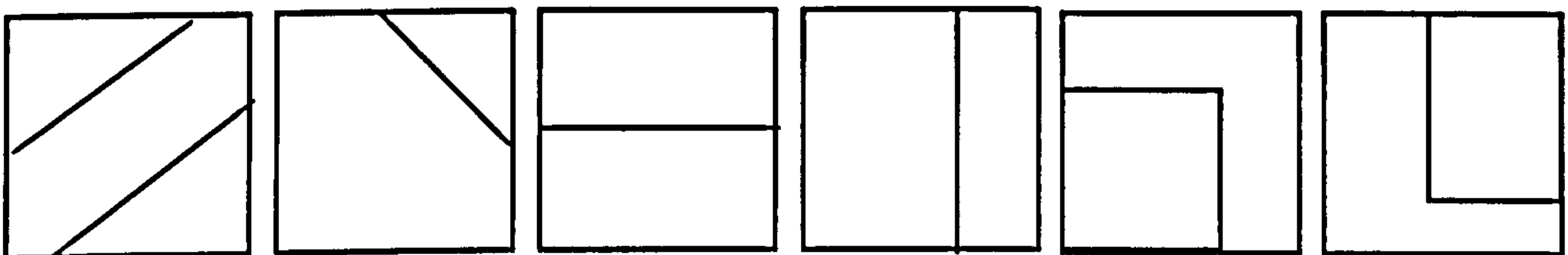
POSA takes the profiles generated by each case for the selected variables and scales them in relation to their overall cumulative scores across all of the variables. These cumulative scores are a measure of the 'quantitative' variation between the cases. This type of one-dimensional scale by common order is termed the Guttman scale or cumulative scale. In this scale, the profiles display complete order and are all comparable to one another. One profile is said to be greater than another only if it is greater or equal to the other in each and every score. Such a restrictive profile pattern is rarely produced and is highly improbable when working with data in the behavioural sciences (Shye *et al.*, 1994). Instead, it is more likely that the profiles will display qualitative distinctions as well as quantitative ones. This is the inherent structure of POSA, which allows profiles



which have the same quantitative measure but differ in their qualitative structure to be represented within the same analysis.

The main plot produced by POSA analysis displays all of the profiles in relation to each other along two diagonal axes called the Joint (J) axis and Laternal (L) axis. The J-axis ranges from the bottom left hand side of the plot to the top right, and defines the quantitative structure of the profiles. The L-axis defines qualitative variations by spreading profiles from the bottom right to the top left hand side of the plot.

In order to understand this qualitative variation, the individual item plots for each variable must be examined and interpreted. These item plots are partitioned into two regions; one of which contains the majority of profiles where the particular variable was present (2's), and the other containing profiles where the variable was absent (1's). Essentially, there are six possible ways of partitioning these plots:



L-partition

J-partition

X-axis

Y-axis

Q-partition

P-partition

A J-partition represents the quantitative distinction so is not qualitatively meaningful. A partition along the X or Y-axis indicates an essential factor underlying the phenomenon being investigated, while a P or Q-partition respectively, either attenuates or accentuates these essential factors (Shye *et al.* 1994). In other words a variable with a high P-value reduces the overall effect of the identified factor, whereas one with a high Q-value magnifies that factor's role in partitioning the plot (Shye, 1985). If the partitioning of a particular item plot is not immediately clear, the POSA output lists the coefficient of monotonicity (i.e. correlation) between each item and the six ideal factors (J, L, X, Y, P, and Q). This indicates the 'loading' that each variable has on the axes. The highest value suggests the division to be made. X and Y items form the partial order structure

and are the lowest correlated item pairs.

### 6.3.1 Results of POSA analyses

#### Damage

There were 13 profiles produced in the analysis of the damage variables. The distribution of these profiles is indicated on the composite plot in Figure 6.3.1.a.

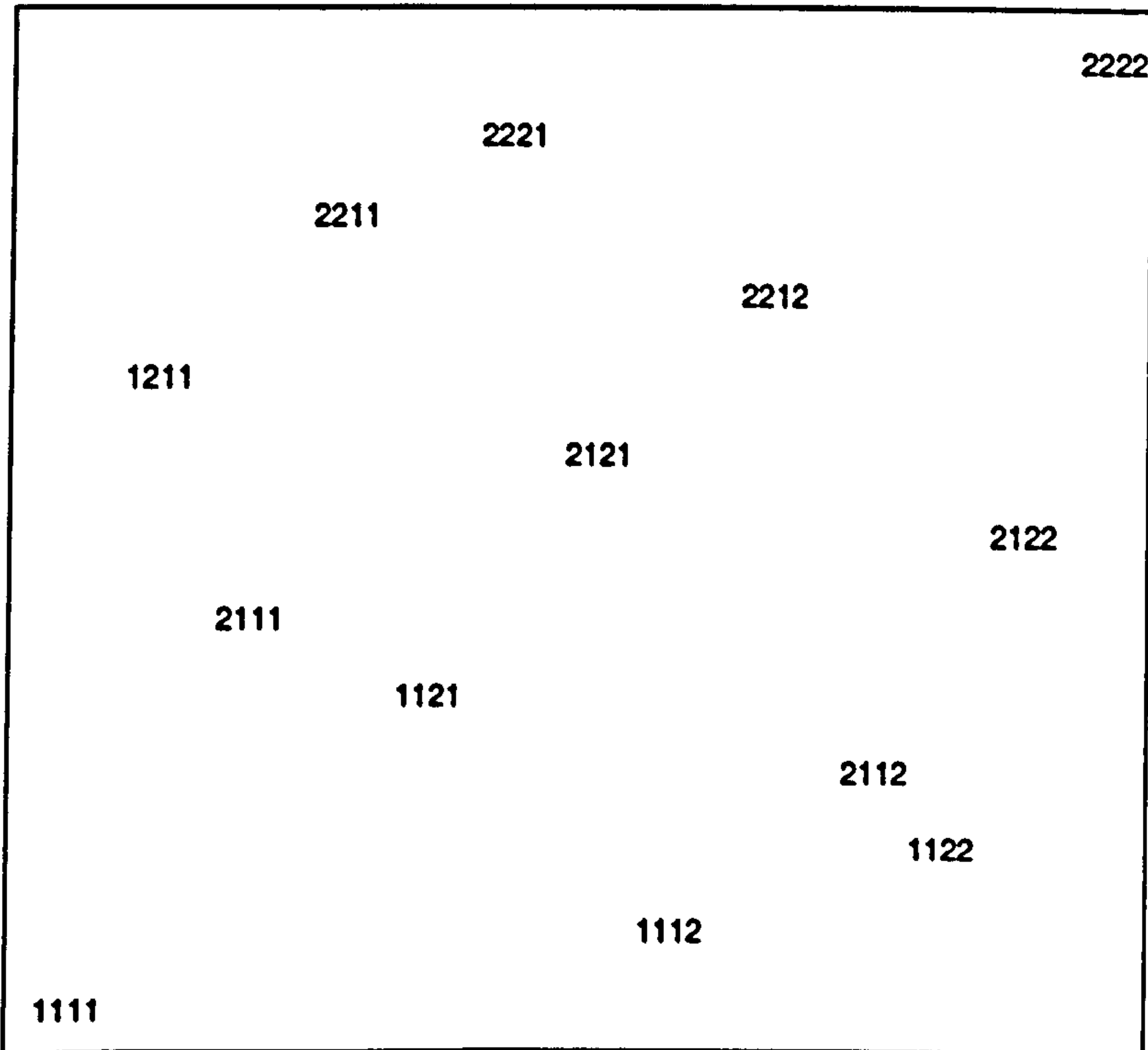
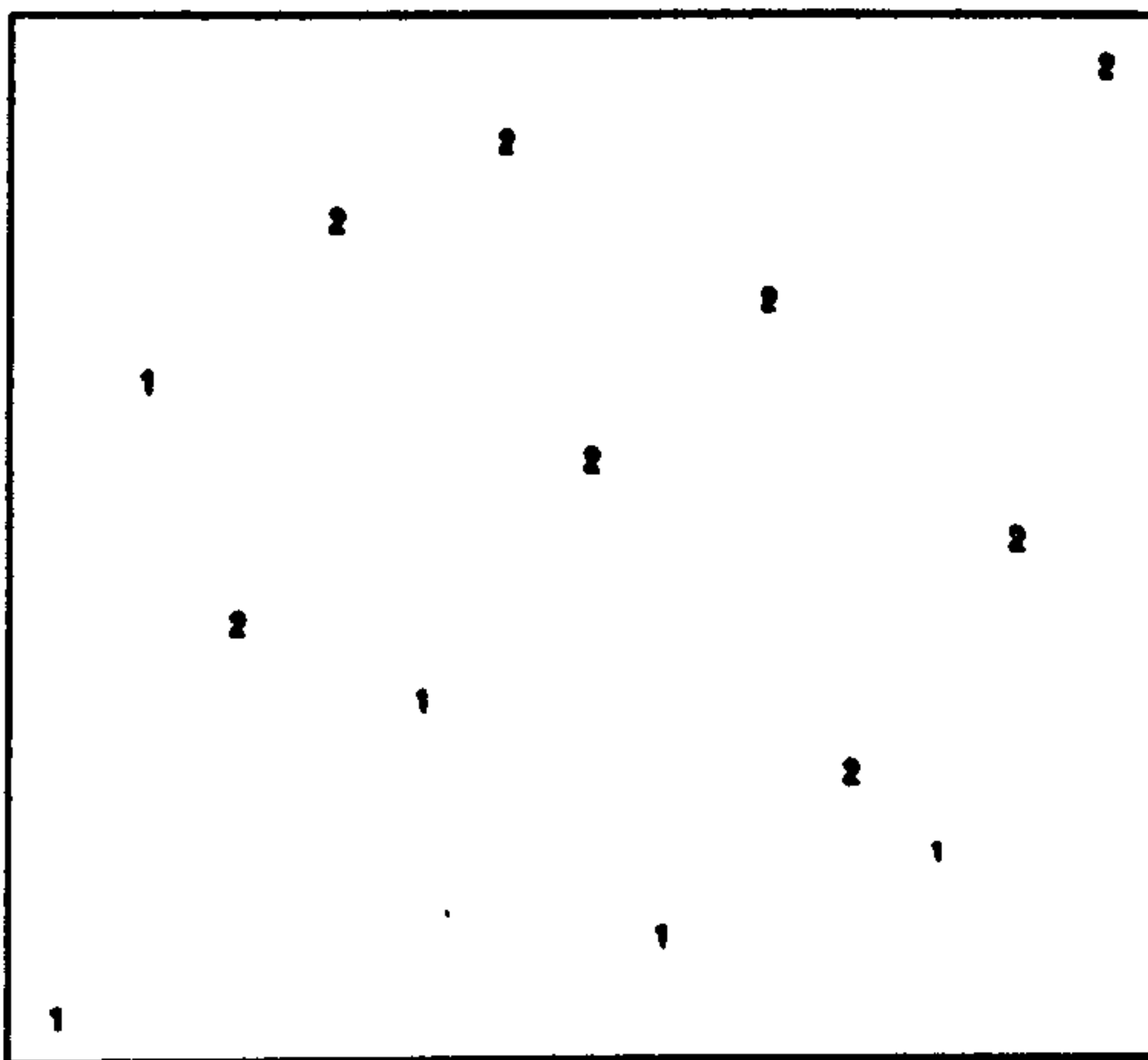


Figure 6.3.1.a. POSA of Damage

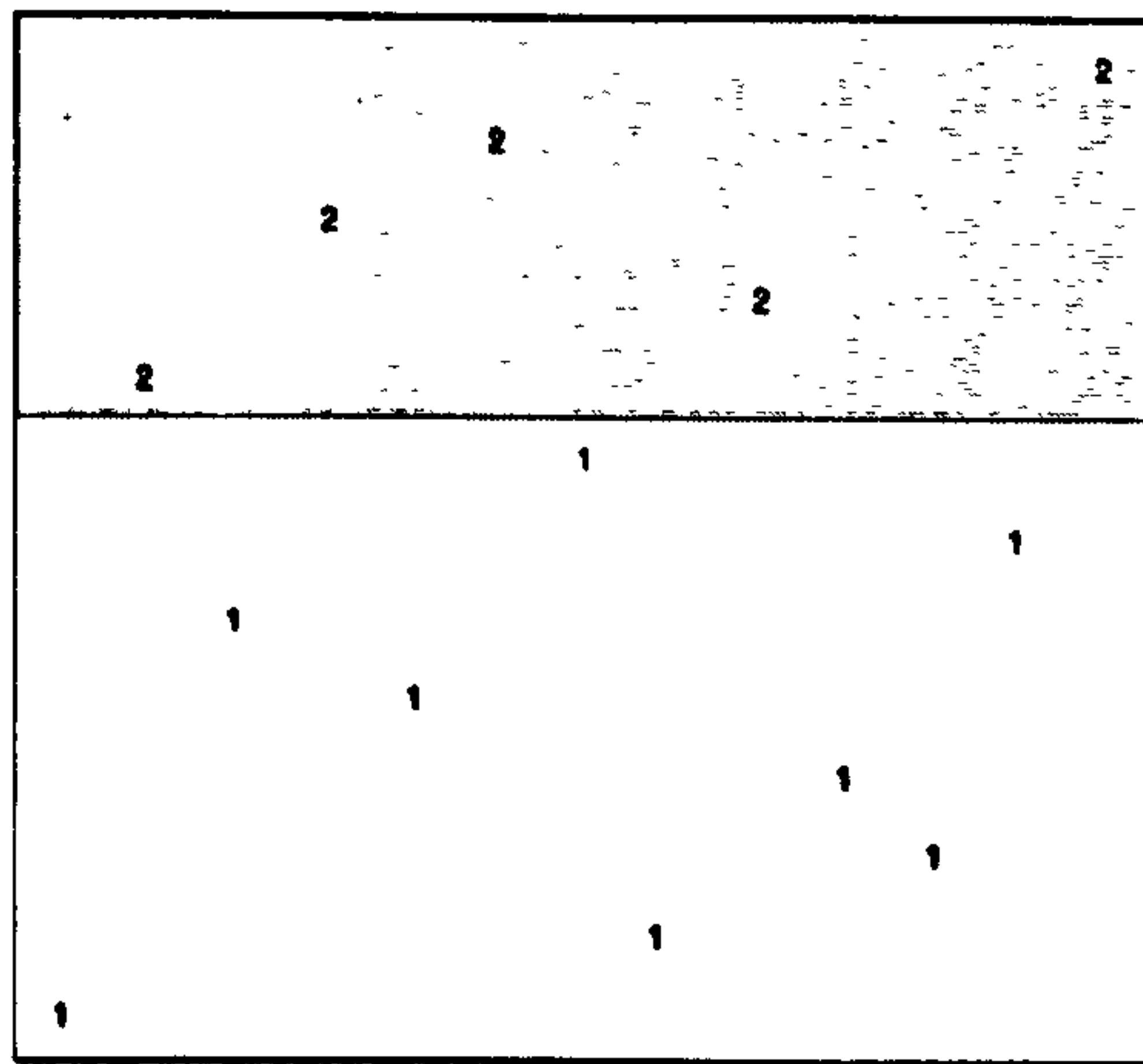
The coefficient of correct representation was .87 indicating that 87% of profiles were correctly represented in the POSA plot.



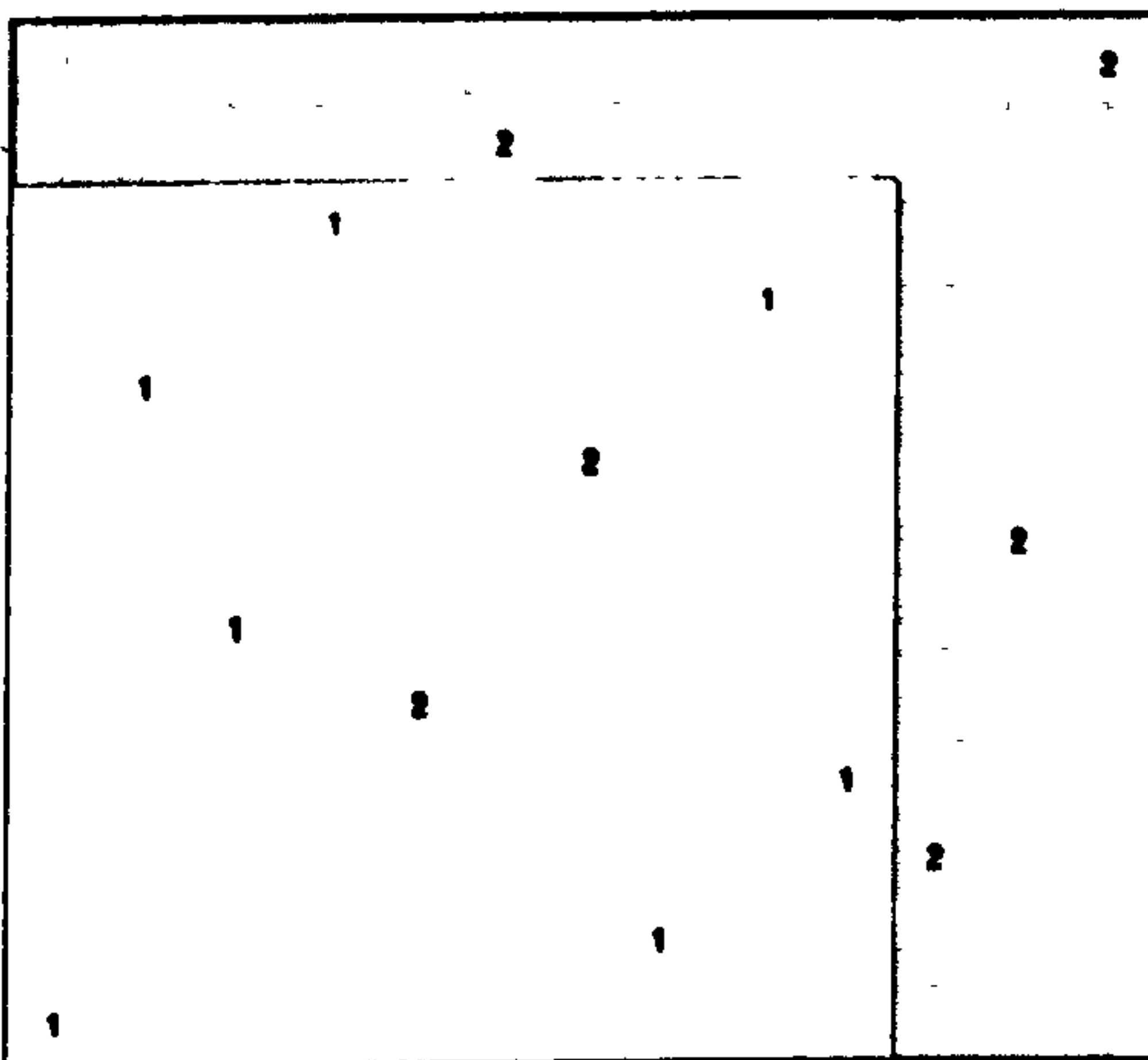
## Item Plots



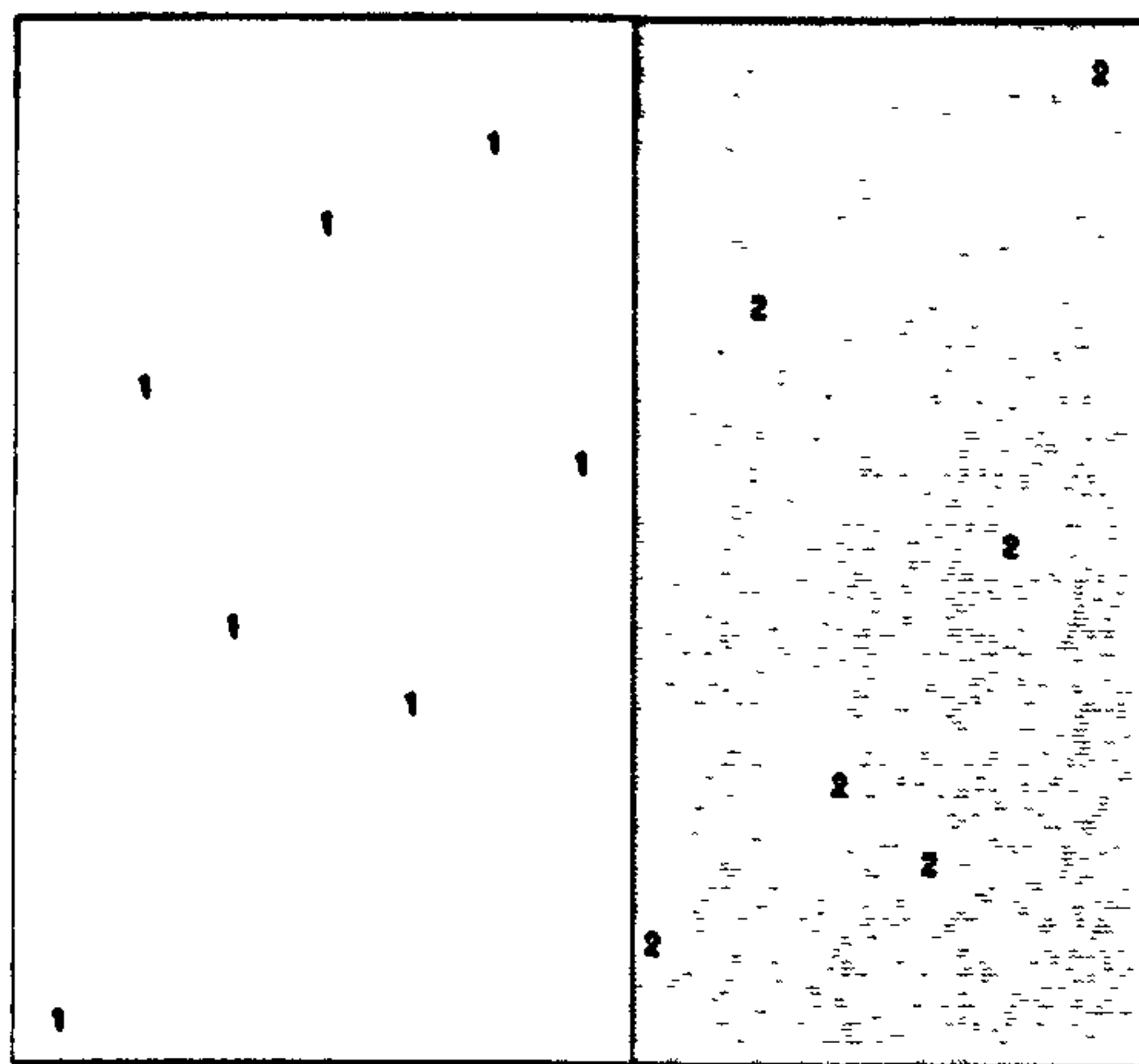
illegal



theft



multiple offender



outside

The loading of theft on the  $y$ -axis (1.00) and outside on the  $x$ -axis (1.00) indicates that Damage arson is made up of essentially two conceptually distinct factors. The first is where the firesetting occurs as part of other illegal activity involving theft. The second is where the fire is set outside. Multiple offenders accentuates these two variables, in other words arsons involving multiple offenders are always either set outside or involve theft. The central process underlying this form of arson is illegal activity.

Both of these forms of Damage arson can be seen as Adaptive in terms of the action systems framework. Where the firesetting occurs following theft, the adaptive function is the destruction of evidence of the theft. On the other hand, when it occurs outside, the

adaptiveness is in relation to taking advantage of an environmental opportunity for firesetting, e.g. spotting a waste bin full of combustible material, or while in the act of vandalising an area of wasteland.

### **Case examples:**

#### **Adaptive I: *theft***

An example of this form of arson is a case involving an office administrator who stole £700 from the petty cash at his place of work and set fire to the premises in an attempt to destroy the evidence. Prior to his arrest there had been two previous fires in the property, both of which had appeared to be accidental. The third fire was also initially regarded as accidental until it was discovered that money was missing. As the offender had the only set of keys to the petty cash box, his car was searched and a can of petrol was found.

This case can be seen as adaptive in that both the source and target of the offence were external to the offender, his purpose being to cover up evidence of his theft.

#### **Adaptive II: *outside, multiple offender***

An example of this form of Damage arson is a case where three brothers aged 8-13 years were playing with a cigarette lighter and ended up setting fire to some conifer trees.

This is typical of the sort of vandalistic activity which represents most adaptive arson, in that opportunities for firesetting are not necessarily sought, but simply taken advantage of.

### **Display**

There were 18 different profiles produced by this analysis. The composite plot is shown in **Figure 6.3.1.b**.



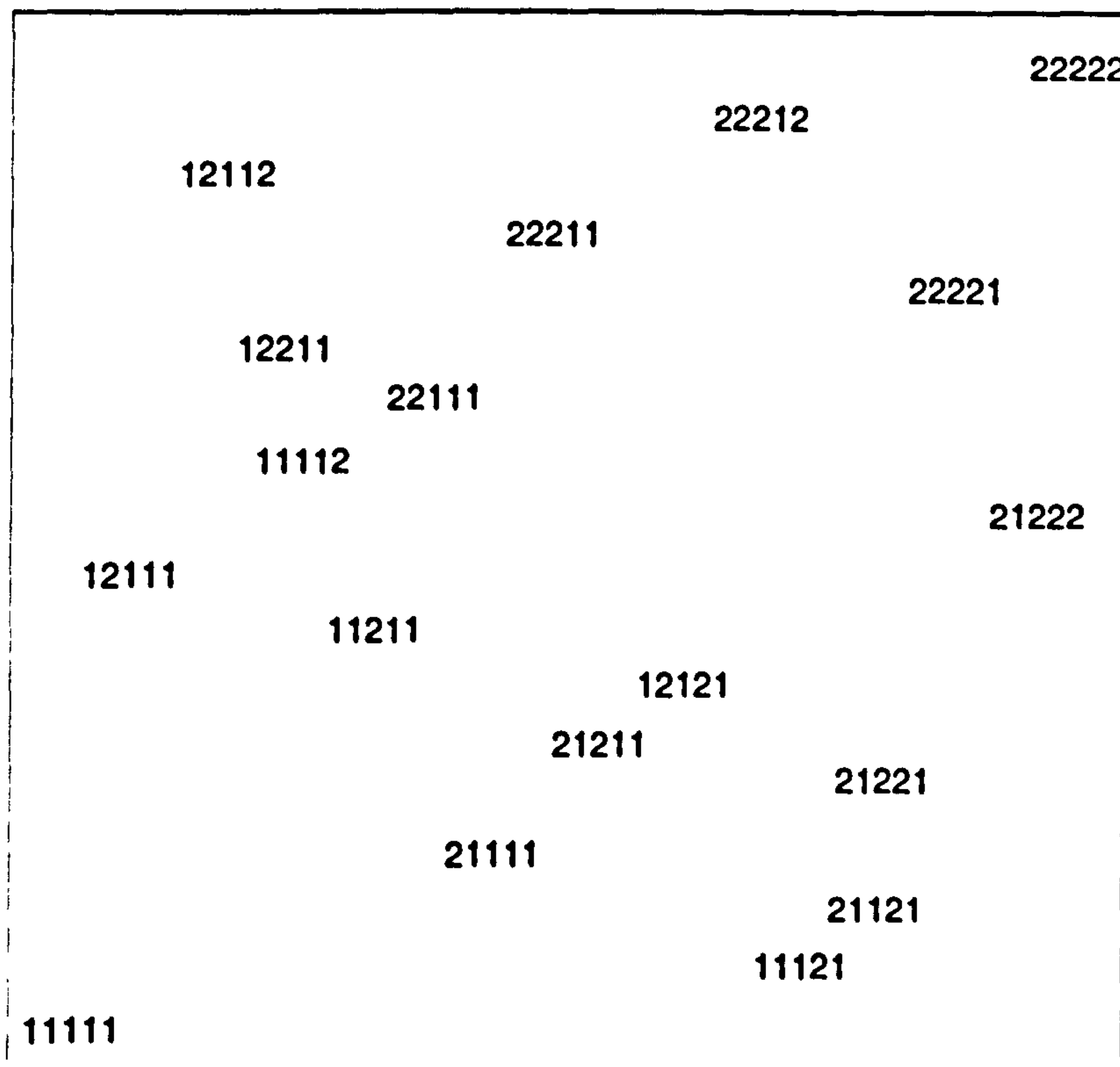
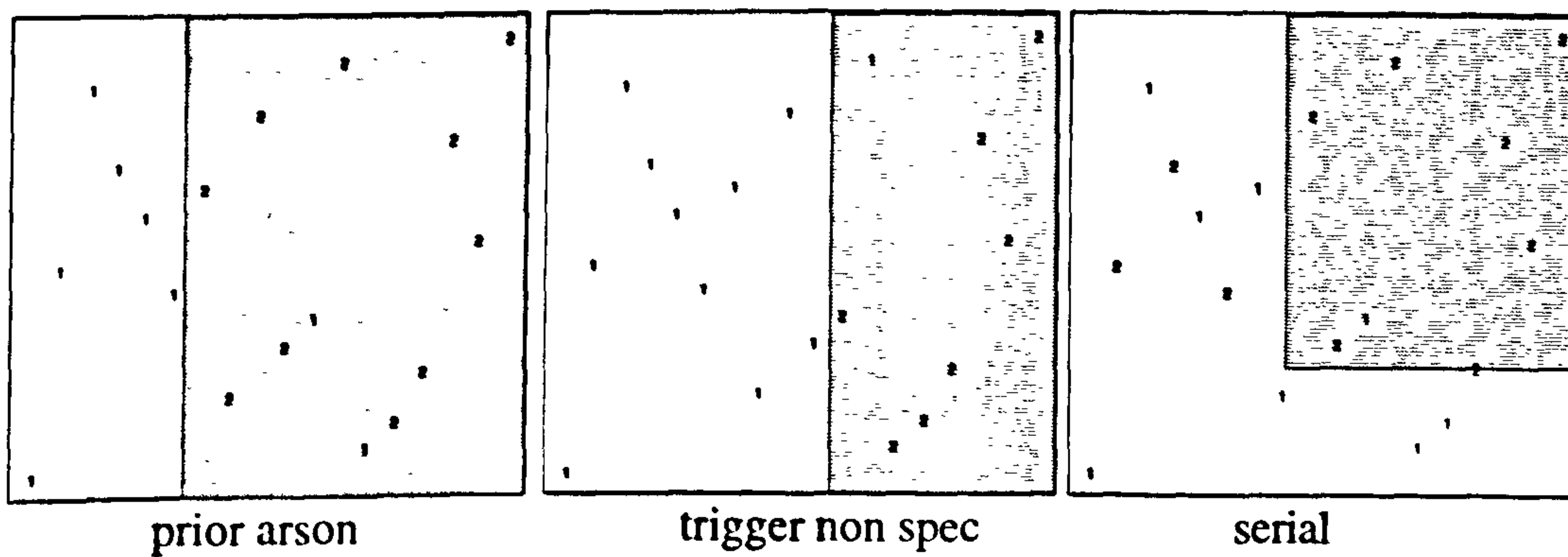
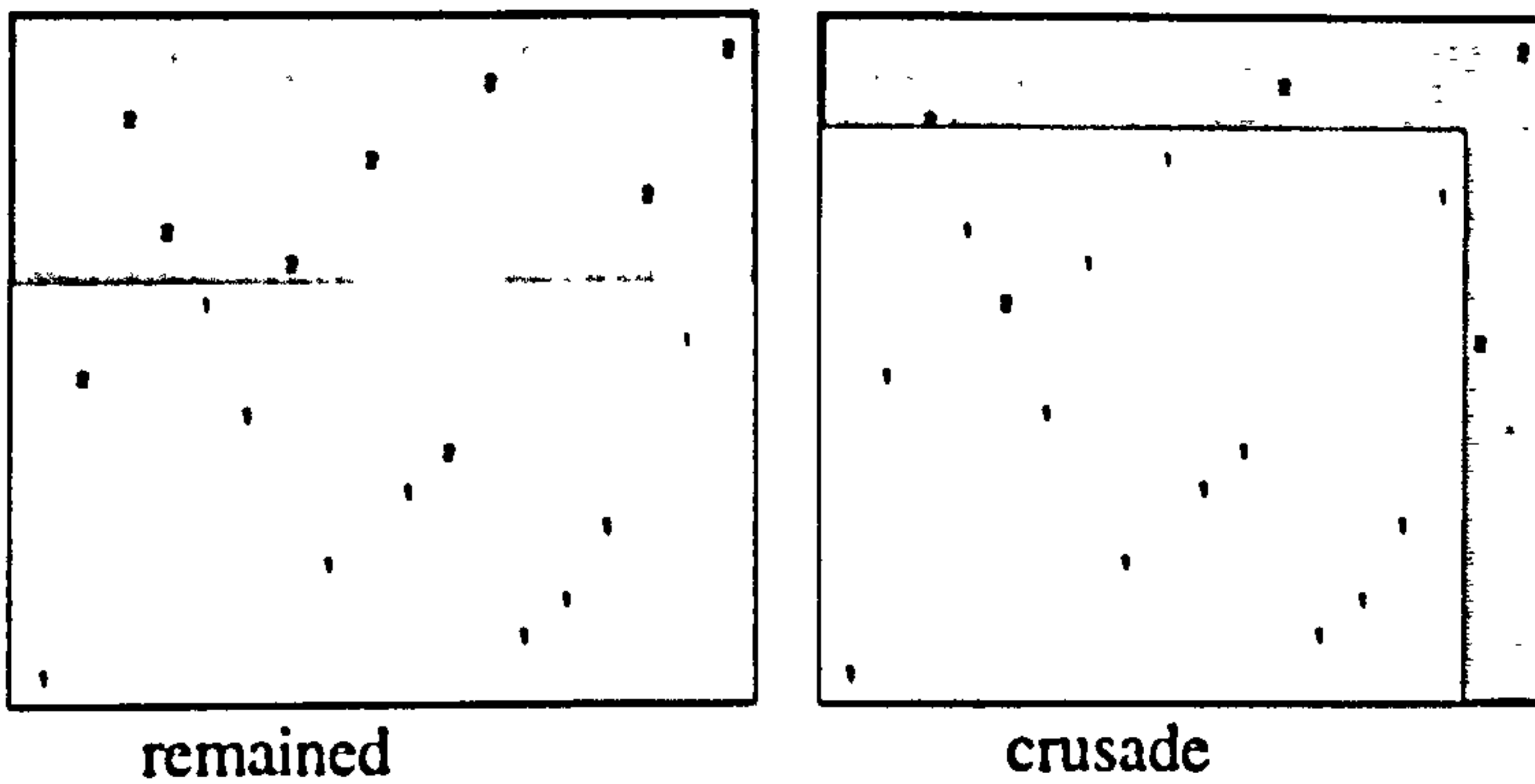


Figure 6.3.1.b: POSA of Display

The coefficient of representation for this plot was .79.

Item Plots





Again, these diagrams indicate that there are two distinct processes underlying Display arson. Individuals involved in this form of firesetting either show a fascination for fire, as represented by the variable 'remained' which has a high loading on the y-axis (0.97); or there is some sort of emotional trigger which sets off the firesetting series. The latter group is a sub-set of individuals with prior arson histories, in other words if a fire is preceded by a trigger, then the arsonist will have a history of fire involvement. Both of these processes are 'expressive' in the action systems sense. In the former case the firesetting is an expression of an intrinsic fascination for fire, whereas in the latter case the expressiveness is in relation to the emotion which triggered the firesetting. The attenuating factor for both of these cases is whether or not the fire forms part of a series, which represents the most extreme form of Display arson. Individuals who are seeking recognition from their firesetting, as represented by the variable 'crusade', will either remain at the scene, or will have committed previous arson.

### Case examples:

#### Display I: *fascination for fire*

A good illustration of this form of Display arson is the case of the 13-year old boy who is a self-confessed firebug and has been repeatedly setting fires since the age of 9. His mother feels that this behaviour is attention-seeking in that the boy has several times expressed the desire to go and live with his father. The fires started following the divorce of his parents and the boy often remains at the scene of his fires, stating that he gains comfort from their warmth. His fires therefore contain all of the elements of



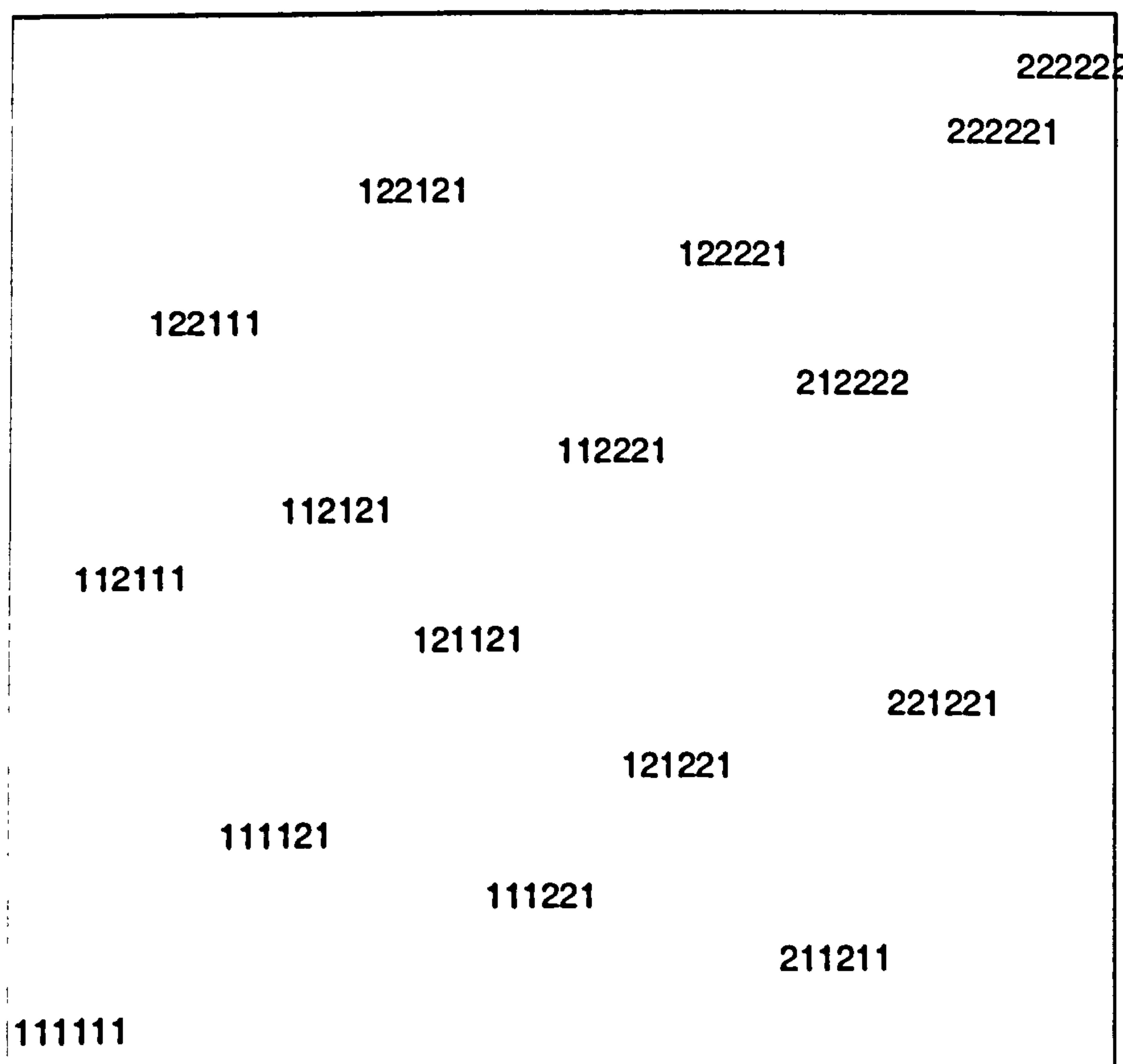
Display arson and he represents an extreme case of this form of arson.

### Display II: *remained, crusade*

An example of this second form of display is a case where a girl in social services accommodation set fire to the room adjacent to hers while the occupant was asleep. She then immediately reported the fire. The victim of the fire was the current partner of the arsonists' ex-boyfriend and it seems that she wanted to cast herself as a hero in his eyes by 'saving' his new girlfriend.

### Despair

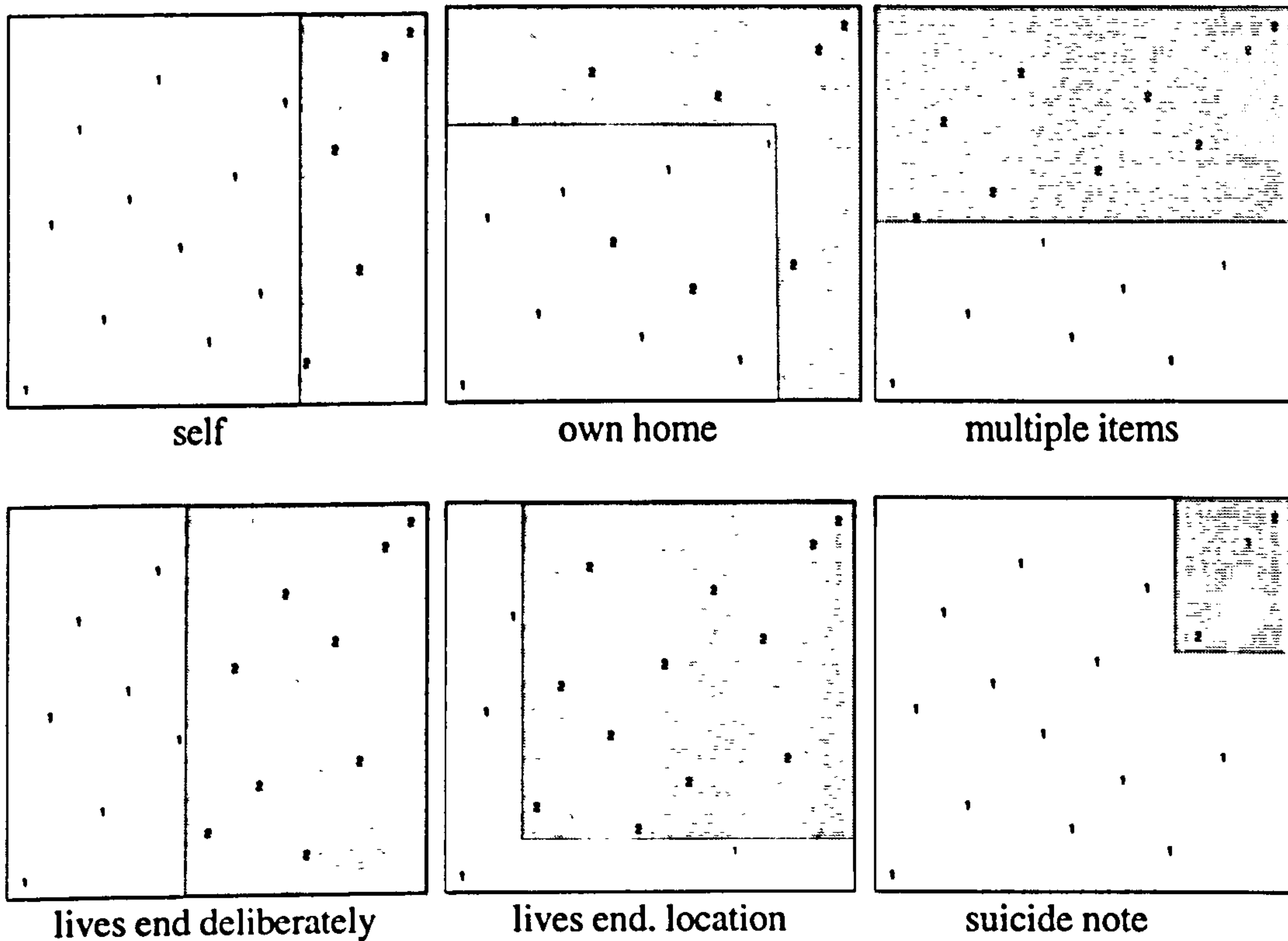
There were 16 different profiles produced by the POSA based on the distribution of scores on each of the six variables. The overall plot is shown in **Figure 6.3.1.c**.



**Figure 6.3.1.c: POSA of Despair**

The proportion of profiles correctly represented in this POSA is very high, indicated by the coefficient of .89.

### Item Plots



Taken together these item plots indicate that within the Despair arsons, there is a distinction to be made between the focus of the fire and the process involved. The variable 'self' partitions along the x-axis with a loading of 1.00, and 'multiple items' has the highest value on the y-axis (1.00). These two variables are therefore most important to the underlying Despair factor. This form of arson can be seen as essentially attention-seeking, with the individual wishing to draw attention to emotional distress. The results of this POSA analysis indicates that this can be done either by creating a big fire using multiple items, or by making themselves the focus of the fire. These can both be seen as Integrative in the sense that both loci of source and impact of the action are focused on the arsonist him/herself. An arsonist who creates a big fire wishes to draw attention to



themselves indirectly, whereas by making themselves the target of the fire the attention seeking is more directly focused on themselves. The distinction between these two forms of arson and the impact which is desired is accentuated by the variable 'own home'.

The variable 'lives endangered deliberately' also partitions along the x-axis with a loading of 1.00, indicating that where the arsonist sets fire to him/herself, they are by definition deliberately endangering lives.

Finally, the variables 'lives endangered by location' and 'suicide note' both partition along the quantitative L-axis. As expected, 'suicide note' represents the most extreme form of Despair arson, whereas the majority of these fires endangered lives because of where they took place. This variable therefore represents the lower end of the Despair scale, and is almost a prerequisite of this form of firesetting.

### **Case Examples**

#### **Despair I: *self***

A case which illustrates this form of despair arson is that of an afro-caribbean homosexual man who set fire to his apartment after his partner ended the relationship. Prior to setting the fire, the man drank a whole bottle of gin and took a handful of paracetamol tablets. The fire was discovered when the smoke detector in his apartment triggered the communal detector in the hallway and fire officers broke down his door to find him lying on the floor next to his sofa which was ablaze.

#### **Despair II: *multiple items***

A case of despair arson which is less extreme than the above example involves a woman with a history of depression who set fire to the entire upstairs floor of her house after her husband complained that his food was cold when he got home from work. Individual small fires were lit in one of the bedrooms using her husbands' clothing and aftershave, in a second bedroom by burning a flammable cover and in the bathroom by setting fire to

toilet rolls. There was no actual argument prior to this, and it appears that the woman set the fires to draw attention to her distress rather than out of a desire for revenge.

### Accumulation

There were 21 different profiles produced by this POSA analysis. These are shown in Figure 6.3.1.d.

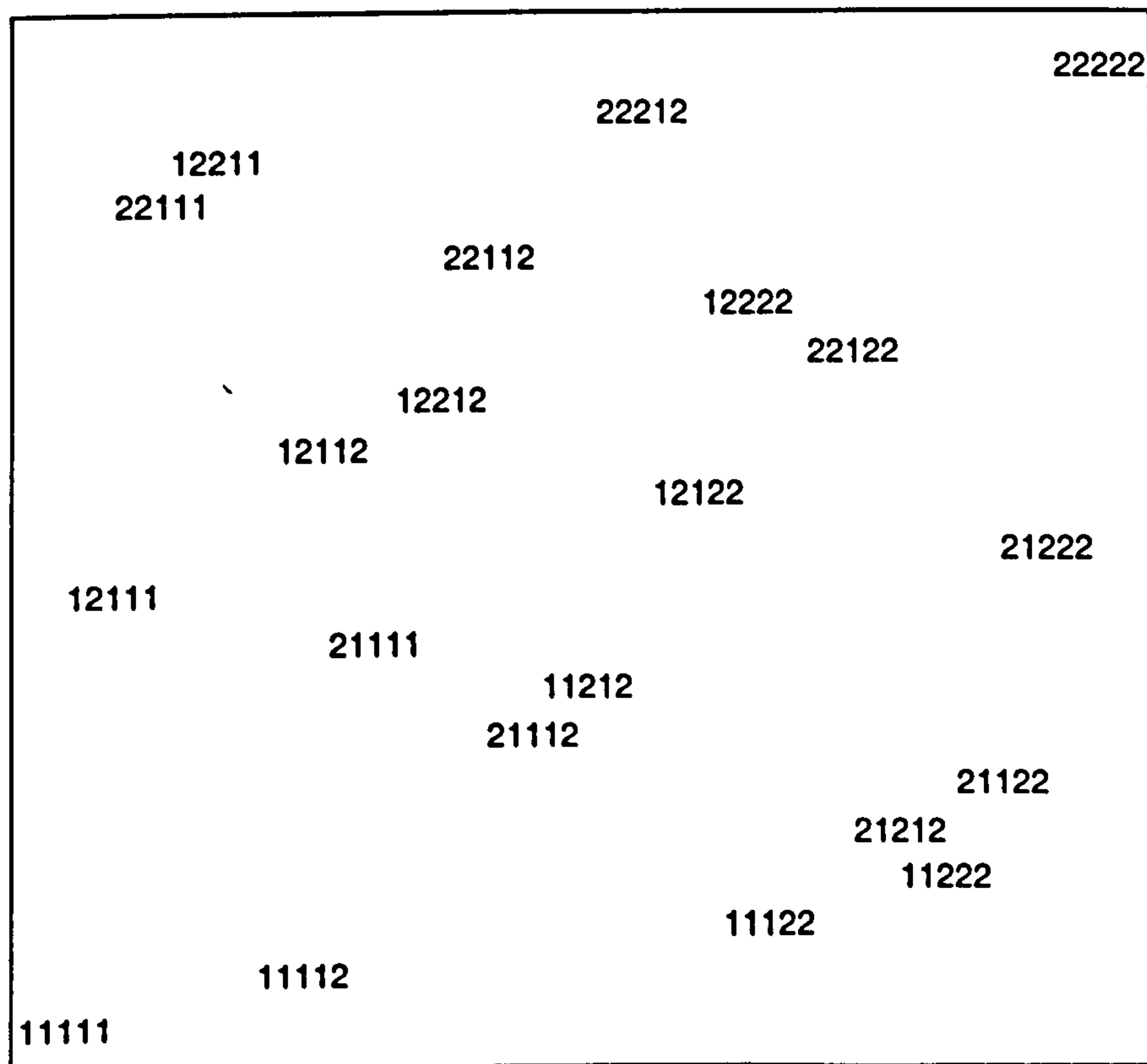
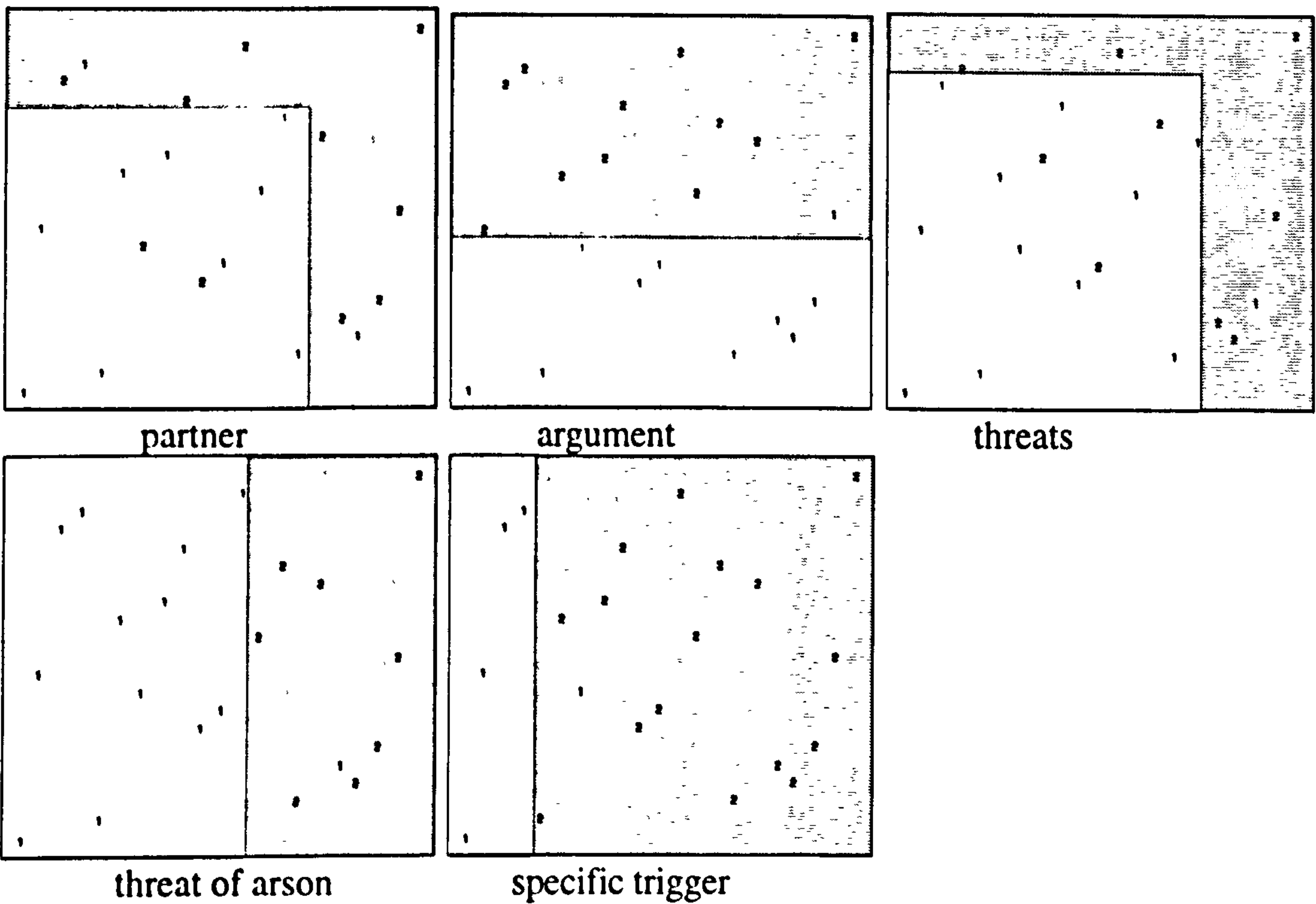


Figure 6.3.1.d: POSA of Accumulation

The coefficient of representation for this POSA was .75.

## Item Plots



The most important items making up the Accumulation scale are 'argument', 'threat of arson' and 'specific trigger', which have the highest loading on the y- and x-axes, respectively. This indicates that this form of arson either directly follows an argument with the victim, or it occurs after the offender states his intention to start a fire, which he then does following a trigger relating directly to the victim. These are both Conservative forms of action in that the source locus is external (the victim) and the locus of effect is internal, in the sense of wishing to ameliorate the emotions aroused by the victim. These two processes are accentuated by the variables 'partner' and 'threats', such that arsonists who target their partners and/or have made general threats, will either have had an argument prior to the firesetting or will have made specific threats relating to their intention to set a fire.



## Case Example

### Accumulation: *threats, specific trigger*

A case which reveals the process underlying this form of arson concerns an ongoing dispute between neighbours. Over a period of years there had been a rising sense of animosity between the two families concerning a fence which had been erected by family A which allegedly encroached onto the parking area of family B. A series of threats had been issued including the warning that if the offending article wasn't removed it would be set alight. Things came to a head when a flower bed was vandalised in family B's garden. Suspecting family A, the eldest son of family B placed a firework through their door.

## Eruption

Finally, the number of profiles produced for this form of arson was 38. The composite plot is shown in Figure 6.3.1e.

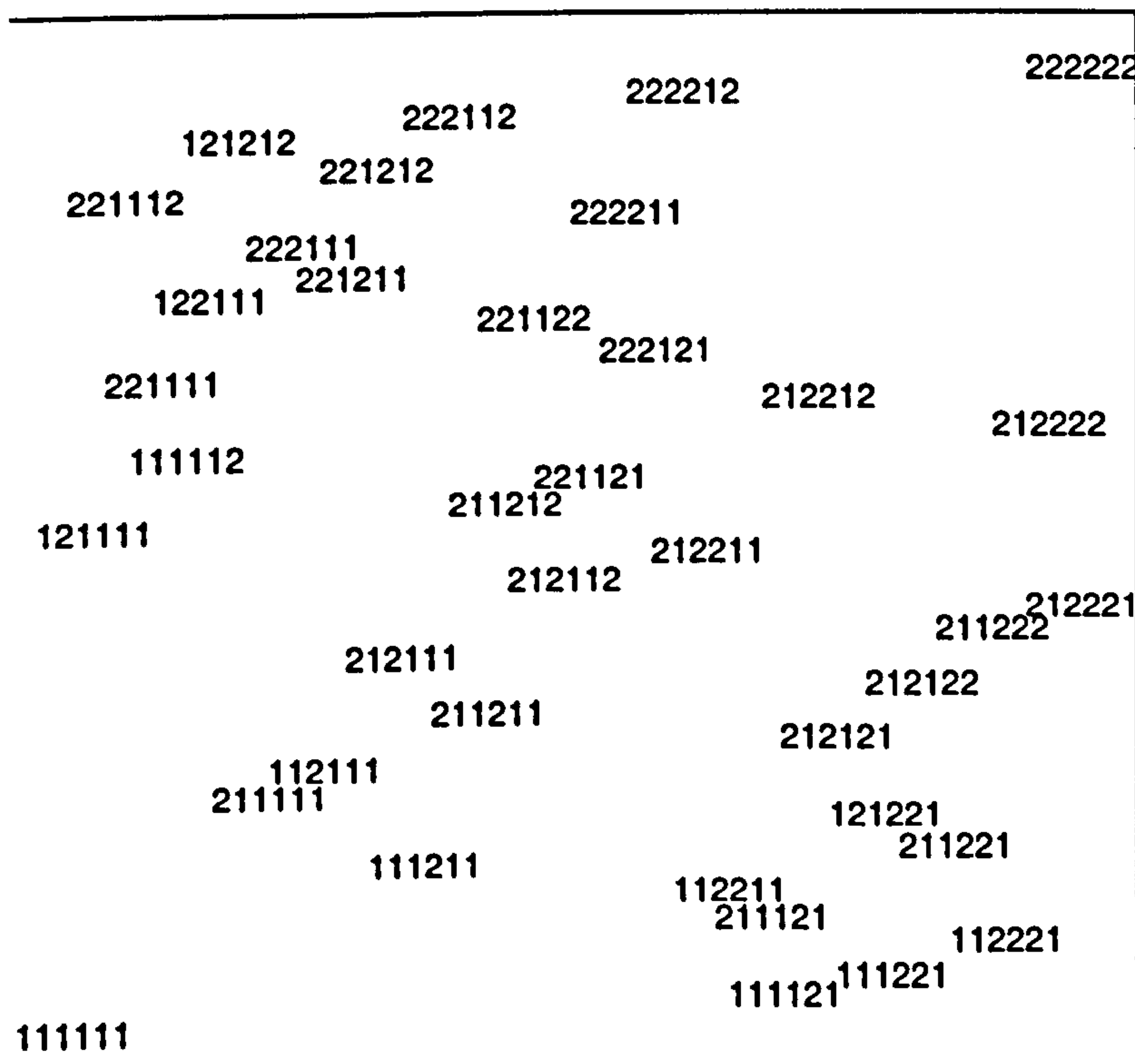
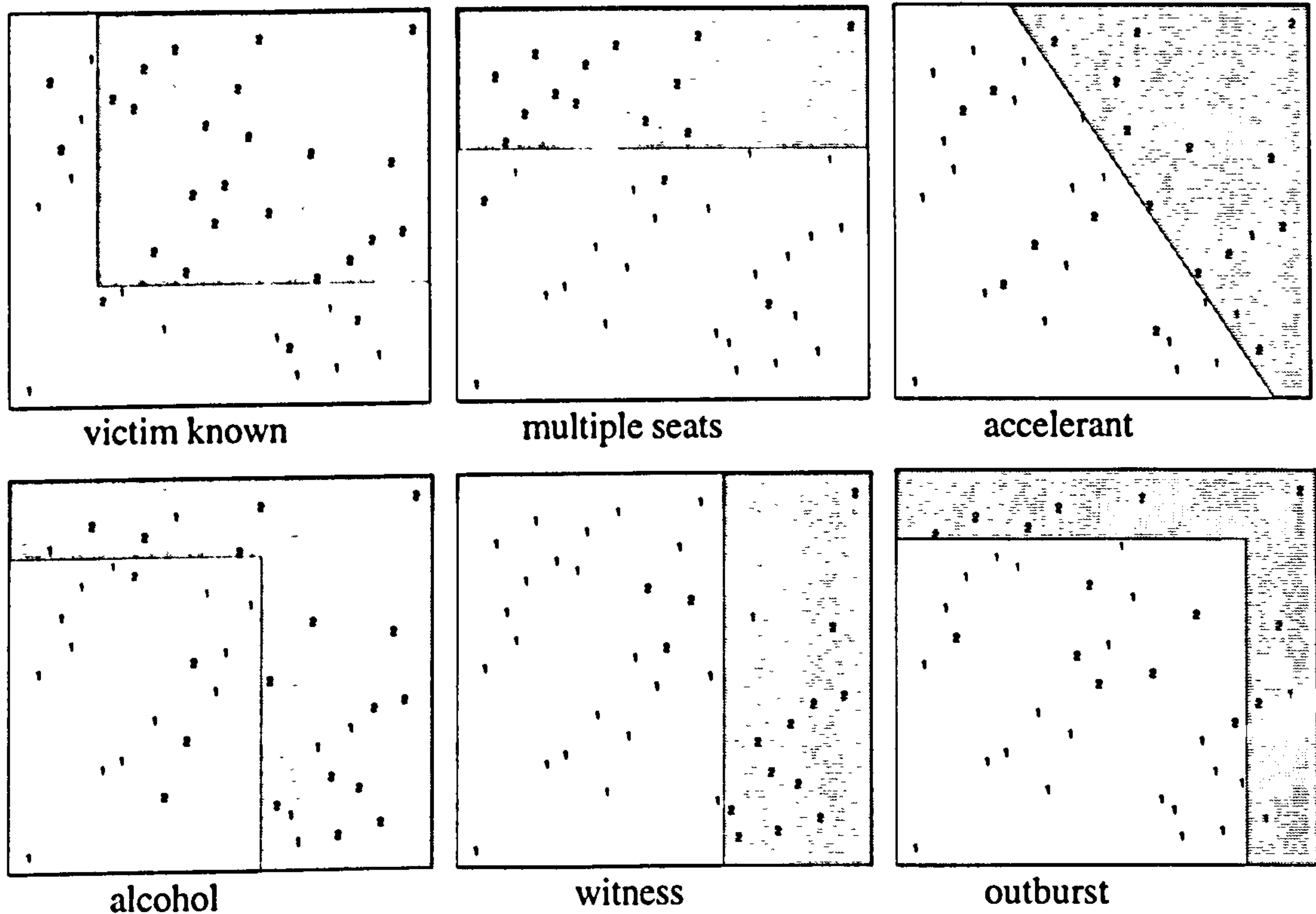


Figure 6.3.1.e: POSA of Eruption

This POSA had the lowest coefficient of representation of .71 which is probably due to the fact that it had the highest number of profiles. This indicates that there is a lot of variation within this type of arson, in other words a number of different combinations in ways of performing these actions.

### Item Plots



These item plots reveal a similar distinction between process and target as was found for the Despair form of arson. In this case, the process is represented by 'multiple seats' which loads on the y-axis (.96), and the target is the 'witness' who is usually the owner of the fired property, which has the highest loading on the x-axis of .98. In other words the process of this form of arson is either achieved by setting a large fire, or by involving the victim directly as a witness. Again, these are essentially Conservative forms of action in that the trigger for the firesetting is external and the arsonist wishes to change an internal state. In both cases of fires involving either 'multiple seats' or a 'witness' this is

achieved by drawing attention to themselves. These factors are accentuated by the consumption of alcohol, and/or the offender having an outburst. This means that in order for these two variables to be present, the fire must either have multiple seats or be set in the presence of a witness. Accelerant partitions along the quantitative axis; it is present in approximately half of the eruption cases.

Finally, 'victim known' is a 'softer' indicator of this form of arson as it requires the presence of either multiple seats or a witness in order for it to be present. This is an attenuating variable.

### **Case Examples:**

*Eruption: alcohol, multiple seats, victim known, outburst*

An extreme case of this form of arson involves a man from Glasgow who destroyed and set fire to the bedsit shared by himself and his girlfriend following an all-day drinking session. The man was unemployed and had failed to attend a job interview on the day in question, choosing instead to spend his day drinking in the pub. When he returned home his girlfriend had just received a phone call from the prospective employer, and she confronted him with this. He flew into a violent rage and punched her in the face, whereupon she left. He then barricaded the door and proceeded to destroy the bedsit by smashing up furniture and ripping clothing. When his girlfriend returned he informed her that he had just set fire to the flat. She called the police and fire brigade who arrived to find smoke issuing from under the door.

## **6.4 Summary of Chapter**

This chapter has explored the structure of actions within each of the four forms of arson identified in Chapter 5. POSA analyses has shown that there are variations of both kind and degree within the 4D model. These variations within each of the POSA scales have



also been shown to conform to the action systems framework; in other words the same underlying process results in arsons of slightly different forms. These have been illustrated with vignettes of cases typical of each of the distinct processes involved.

Overall, the results of this chapter give a richer understanding of the underlying meanings of each of the four action systems modes of functioning in relation to arson. The adaptive mode has been shown to consist of essentially two different processes; one is where offenders break into properties and set fires either in order to cover up evidence of theft, or as part of the general process of vandalising the property. The second occurs outside and may either involve offenders stealing a car which is then abandoned and fired, or setting fire to areas of waste land or skips also as acts of vandalism.

The expressive mode of functioning is exhibited by arsonists who are either fascinated by fire, or who use it as a way of drawing attention to themselves. This can result in several fires being set by the same individual making this Display form of arson the most likely to be serial.

The integrative form of arson is also attention-seeking, but is more directly focused on the individual him/herself. Here, the desire is to draw attention to emotional distress and the arsonist does this either by setting fire to themselves, or by setting a large fire. This distinction between the focus and the process of the firesetting is also drawn in one of the conservative forms of firesetting, Eruption. Here the effect which is desired is to redress a feeling of having been wronged by someone close to the arsonist. This palliative effect of firesetting is achieved by either setting a large fire with multiple seats, or by involving the victim as a witness to the fire. The same basic function also underlies the second form of conservative firesetting, Accumulation. The difference, here, however, is in the build-up to the actual act of firesetting which in this case occurs over a longer time-span. The POSA analysis indicates that there are essentially two distinct processes of accumulation. The arson attack either occurs following an argument with the victim, or there is a series of threats of arson followed by a specific triggering event.

## Chapter 7 Serial Arson: Continuation and Escalation

It has been shown in the previous chapter that the most extreme form of Display arson involves repetition of firesetting across a series. However, serial arson does not exclusively fall in the domain of offences classified as Display; a series of fires can potentially be set by individuals operating in any of the four modes of action. The examination of behaviour over time is a new application of action systems theory in that the issue of consistency and change in dominant modes of action has not previously been examined.

### 7.1 Why repeat?

The issue of why some offenders repeat certain offences is an important question, both psychologically and practically. The literature contains some suggestions, although these apply primarily to crimes which have a clear instrumental purpose. For example, some writers on burglary have adopted a rational choice perspective to explain this offence. According to this theory, the decision to commit a burglary is arrived at by weighing up the costs, in terms of the risk and effort associated with the offence, with the benefits, in terms of the monetary reward (Cornish and Clarke, 1986). This view would suggest that once an offender has decided that burglary represents an optimal way to make money on one occasion, he will presumably continue with this behaviour until one of the factors that caused him to make that choice changes. In terms of arson, however, the reasons for repetition are perhaps less obvious. Of all the explanations outlined in Chapter One, the only one which makes explicit the mechanism by which firesetting might become habitual is the social learning perspective (Jackson, Hope and Glass, 1987). In summary, this model proposes that certain personality and environmental factors predispose an individual to set fires. Given that such an individual possesses a poor repertoire of social skills, arson becomes a means of achieving goals and influencing the environment. Assuming that the arsonist does not learn other equally effective means of achieving



these goals, or becomes discouraged from setting fires, then the behaviour may be expected to continue.

This chapter examines the sub-group of offences which formed part of a series. Although by definition the majority of these cases were classified as Display arson, the thematic approach adopted in this thesis recognises that the crime-scene behaviour of an individual arsonist does not conform rigidly to types. Therefore, it would be expected that by examining all the peripheral activities that co-occur with the actions specific to the Display form of arson, the overall structure of behaviours should broadly correspond to that of the general action systems model.

Following this general analysis of the structure of firesetting actions in serial arson the chapter explores the development of firesetting behaviour across a series in order to determine whether the actions performed during these fires tend to remain fairly consistent, or whether there is a change over time.

## **7.2 Consistency in Offence Behaviour**

The issue of consistency and change in criminal behaviour over time has been the subject of extensive debate within the criminological literature. This issue is examined in Chapter 9 in relation to the types of crimes that are committed by arsonists over the course of their criminal career.

However, the focus of this chapter is not so much whether an offender tends to commit the same crime types over the course of his offending history - in terms of a serial arsonist the answer to this question is already known to be 'yes' - but whether the specific actions performed in relation to a particular instance of that offence form a recognisable pattern when compared with the second or third occasion that the offence is committed.

The notion of consistency in the nature of criminal behaviour has been formalised in Canter's (1995) Consistency Hypothesis. This argues that "the way an offender



carries out a crime on one occasion will have some characteristic similarities to the way he carries out crimes on other occasions” (p.5). He extends this notion beyond the concept of *modus operandi* by focusing on a more ‘thematic’ interpretation of crime scene behaviour. According to this hypothesis, therefore, not only may an arsonist demonstrate a preference for property related crime, he or she may also reveal a tendency to commit a particular style of arson. Central to this hypothesis, however, is the role of the situation in influencing a particular behaviour. If the variations caused by different situations are greater than the variations between people, then it is unlikely that clear differences between individuals will be found for those behaviours. Therefore, in order to produce a reliable method for examining consistencies in serial arson behaviour, it is important to determine which aspects of the offence are most inherent to the offender as opposed to being predominantly context-specific.

Previous literature on serial arson has identified a number of features which are found more frequently in such offences than in cases where an individual commits a single act of arson. For example, in a study of 83 serial arsonists, Sapp *et al* (1992) found that such offenders were more likely to select their targets randomly and for convenience (e.g. close to home). They tended to use available material, specifically matches and cigarette lighters and would often remain or return to the scene after lighting the fire. A third of the serial arsonists used drugs before setting fires, while around half (48%) used alcohol. Slightly fewer reported that a significant life event had immediately preceded their firesetting (45%). The most common motive for serial firesetting cited in this study was revenge. The precise nature of this revenge, however - which was stated to be retaliation against society - makes it more similar to Display arson within the terms of the present thesis, rather than Destroy which would correspond to a more conventional notion of revenge arson. Finally, a significant proportion reported that the severity of their offences increased over time (65%), although it was not clear what was meant by severity. The above findings - that serial arson occurs close to home and is associated with drugs and the presence of triggers - are all supported by the results of the present thesis, and therefore provide good indicators of variables which may be regarded as particularly salient to

serial arson and potentially useful for examining consistency in these types of offences. However, research has shown that very few offenders have a unique 'signature' behaviour associated with the way they commit their crimes (e.g. Canter and Heritage, 1990); therefore consistency in offence behaviour is more likely to be expressed through the common themes underlying different combinations of actions rather than through single salient actions. Identifying the combinations of variables which can account for an offender's individuality would therefore be an important step in facilitating an understanding of consistency and development in offending behaviour over time.

The action systems framework adopted in this thesis does not explicitly provide specific hypotheses for examining whether a person who sets a fire according to a particular mode of action on one occasion, is likely to continue to set fires in a similar style on future occasions. However, the issue of consistency and change has been widely debated within the literature on personality, particularly in relation to trait theories of personality. The central notion of a trait is that it is a "disposition to behave in a particular way which is evident by one's behaviour over many situations" (Pervin, 1989, p.287). According to this view, then, an individual who, for example, tends to act in response to environmental rather than internal cues, will do so across a number of situations, including setting a fire. With regard to criminal behaviour generally, the debate has centred largely around the stability of the 'aggressive personality', with so called 'aggressive types' supposedly making up the majority of the population of dangerous criminals. Although other personality theorists such as Mischel (1968) have argued strongly against the notion of non-cognitive personality traits that remain constant over an individuals' life-time, trait researchers have demonstrated that consistencies do exist, particularly in relation to aggression (e.g. Olweus, 1979; Huesmann *et al*, 1984). The tendency to behave aggressively has been found to be a very stable characteristic, with individuals tending to show similar levels of aggressiveness over very long follow-up periods. In relation to criminal behaviour, then, support has been found for the notion of consistency, at least in terms of the tendency to act aggressively. In a non-criminal context consistency in personality has also been identified, for example, in a study of Navy officers (Winter,



1978). This study found that the best consistency measure could be obtained by taking into account officers' motives (in terms of power and affiliation), schemas (ideal working conditions) and traits (management style). These three factors combined predicted success as a commanding officer with a multiple  $r$  of .68,  $p < .001$ . Based on this study, McClelland (1980) argues that in order to predict behaviour successfully, measures of motives, schemas and traits must all be considered together.

This last finding is perhaps particularly relevant to the current thesis, as the action systems approach can be seen to encompass the three factors of motives, schemas and traits. By taking the simple definition of a motive as the source of behaviour, the action systems framework explicitly states that this is either internal or external to the person. In terms of schemas and traits, these might implicitly be expected to influence a person's *tendency* to behave in response to internal or external cues, and their tendency for the behaviour to be focused internally or externally. If the prediction of behaviour must account for motives, schemas and traits, therefore, then action systems potentially provides the ideal framework for an examination of consistency over time. In these terms, then, it is proposed that the mode of functioning which an individual arsonist expresses during one act of firesetting, might be expected to also be communicated in further offences.

## **7.3 Comparing the Actions of Single versus Serial Offenders**

### **7.3.1 Frequency Analysis**

The first stage of analysis was to compare the frequencies of actions committed by serial offenders, to those committed by single offenders, in order to examine which actions were more or less characteristic of these individuals compared to one-off arsonists. This and all subsequent analysis used the same variables as the previous chapter, except for the variable 'serial'. This was omitted here because it defined the current sample. The number of serial offenders was 46, and they were responsible for 136 cases of arson. The mean number of cases per offender was 2.9 ranging from



2 through to 11. There were nine cases where detailed information was recorded in the police file for only one of the offences in a series, although the offender was known to have previously set at least one other fire. These were nevertheless included in the analysis of the underlying structure in the actions associated with serial arsons, although obviously not in the analysis of consistency across a series. The results of the frequency analysis is presented in Table 7.3.1.1 below. Of course, as already mentioned, caution must be applied when considering any results based on a sample of convicted offenders. This is particularly so when differentiating between single and serial offenders because any differences found between the two groups must be weighted against the possibility that offenders classified as 'single' may in fact have committed several arsons, but only been convicted of one.

**Table 7.3.1.1: Comparison of actions committed by serial and single arsonists**

Theme	Action	Serial Frequency (%) n=125	Single Frequency (%) n=187	Chi Square	Sign. (p)
<b>DAMAGE</b>	business	20 (16)	15 (8)	5.72	p<.05
	school	4 (3.2)	15 (8)	2.33	n.s.
	car	7 (5.6)	33 (17.6)	9.35	p<.005
	miscellaneous	21 (16.8)	41 (21.9)	1.75	n.s.
	mat. brought	87 (69.6)	101 (54)	8.61	p<.005
	spree	32 (25.6)	30 (16)	4.5	p<.05
	weekday	87 (69.6)	98 (52.4)	9.75	p<.002
	illegal	27 (21.6)	54 (28.9)	1.91	n.s.
	theft	13 (10.4)	16 (8.6)	.58	n.s.
	other crime	14 (11.2)	29 (15.5)	1.26	n.s.
	multiple offender	15 (12)	59 (31.6)	14.76	p<.001
	outside	53 (42.4)	85 (45.5)	.29	n.s.
	public view	79 (63.2)	106 (56.7)	1.5	n.s.
	finance	6 (4.8)	15 (8)	1.12	n.s.
<b>DESTROY</b>	targeted	76 (60.8)	115 (61.5)	.00	n.s.
	planned	79 (63.2)	105 (56.1)	2.28	n.s.
	victim known	74 (59.2)	130 (69.5)	3.96	p<.05
	partner	7 (5.6)	38 (20.3)	14.4	p<.001
	argument	13 (10.4)	73 (39)	32.85	p<.001
	threats	9 (7.2)	49 (26.2)	18.78	p<.001
	threat of arson	4 (3.2)	20 (10.7)	6.5	p<.01
	multiple seat	17 (13.6)	39 (20.9)	1.59	n.s.
	accelerant	29 (23.2)	76 (40.6)	10.43	p<.005
	alcohol	37 (29.6)	91 (48.7)	11.29	p<.001
	witness	5 (4)	41 (21.9)	18.98	p<.001
	specific trigger	30 (24)	87 (46.5)	18.37	p<.001
	outburst	6 (4.8)	36 (19.3)	13.86	p<.001

Theme	Action	Serial Frequency (%) n=125	Single Frequency (%) n=187	Chi Square	Sign. (p)
DESPAIR	residential	66 (52.8)	85 (45.5)	1.33	n.s.
	self	9 (7.2)	10 (5.3)	.31	n.s.
	own home	27 (21.6)	48 (25.7)	.72	n.s.
	lives end. del.	37 (29.6)	40 (21.4)	11.29	p<.001
	lives end. loc.	87 (69.6)	106 (56.7)	6.06	p<.05
	multiple item	58 (46.4)	72 (38.5)	1.51	n.s.
	suicide note	1 (0.8)	4 (2.1)	.95	n.s.
DISPLAY	daytime	33 (26.4)	54 (28.9)	.18	n.s.
	drugs	16 (12.8)	21 (11.2)	.32	n.s.
	remain	90 (72)	69 (36.9)	37	p<.001
	public	9 (7.2)	11 (5.9)	.31	n.s.
	Institution	8 (6.4)	9 (4.8)	.25	n.s.
	prior arson	101 (80.8)	17 (9.1)	175.48	p<.001
	non-spec trig	36 (28.8)	17 (9.1)	21.77	p<.001
crusade	30 (24)	11 (5.9)	21.65	p<.001	
CENTRAL	set fire	98 (78.4)	156 (83.4)	1.08	n.s.
	not alert	96 (76.8)	146 (78.1)	.07	n.s.
	less than mile	101 (80.8)	135 (72.2)	3.14	n.s.

This table indicates that a number of significant differences exist between the single and serial arsonists. Overall, the largest differences are in relation to those variables associated with the Destroy form of arson. The variables, 'partner', 'arguments', 'threats', 'accelerant', 'alcohol', 'witness', 'specific trigger' and 'outburst' are all significant at the  $p<.001$  level, and 'victim known' and 'threat of arson' are significant at  $p<.05$  and  $p<.01$  respectively. These are all actions which are less likely to be exhibited by serial offenders.

Some differences are also apparent in variables associated with the other three forms of arson, Damage, Destroy and Despair. In relation to Damage arsons, these results indicate that serial arsonists are more likely to target businesses ( $p<.05$ ), but less likely to set fire to cars ( $p<.005$ ). The serial arsonists are also more likely to bring material with them to start a fire ( $p<.005$ ) and to set more than one fire on the same occasion ( $p<.05$ ). They are, however, less likely to set fires in groups ( $p<.001$ ). It is interesting to note the position of these variables in the SSA in Figure 5.2a of Chapter 5. The variables which are more frequent in serial offences than in single; 'business', 'material brought' and 'spree' have less affinity with the Damage region overall, being either close to the regional boundary with Display, or to the central



high frequency core of actions. In contrast the variables 'cars' and 'multiple offenders' which are both less common in serial offences, are positioned further from the Display region in the SSA.

The Destroy region of the SSA discussed in the previous chapter epitomises serial arson, and so differences in the variables associated with this form of arson would be predicted to be particularly pronounced. As expected the frequencies for 'prior arson', 'remain', 'non-specific trigger' and 'crusade' are all much higher for the serial arsonists than the singles, significant at the  $p < .001$  level. There were no significant differences, however, in terms of the targets found previously to be associated with this form of arson. This reinforces the point made in Chapter 5, that the target variables are not in themselves solely responsible for defining the regions of the SSA plot.

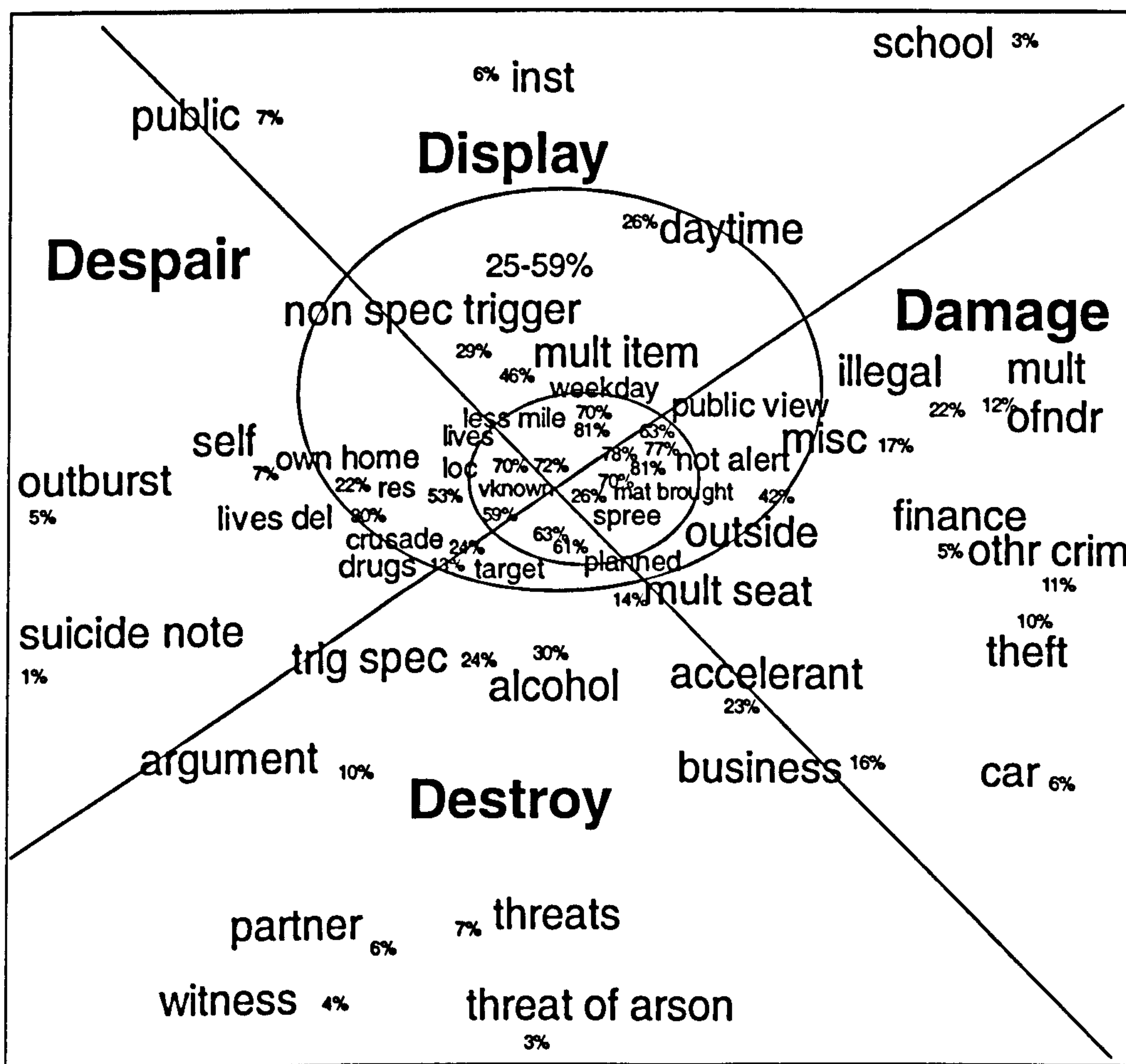
Finally, differences were found for the variables 'lives endangered deliberately' ( $p < .001$ ) and 'lives endangered by location' ( $p < .05$ ). These were all in the direction that the serial fires were more serious in terms of potential loss of life. This indicates the expressive nature of serial arson, suggesting that these individuals' fascination for fire makes them extremely dangerous and reckless as to the potential consequences of their behaviour.

These differences in frequencies suggest that certain forms of arson are more likely to be engaged in by serial offenders than those who set fire on only one occasion, and vice versa. However, identifying that certain actions are markedly more common in serial offences, does not tell us about the relationships among the variables, and whether similar patterns of association might exist for the serial offences as were found in the sample as a whole. It is from these associations that meaning is derived and the processes underlying serial arson may be revealed. As previously mentioned, it is the identification of thematic patterns of behaviour which is central to the approach adopted by the current thesis to the issue of consistency. The aim of this analysis is to give further insight into why certain forms of arson are serial.



### 7.3.2 Themes in Actions associated with Serial Arson

In order to look for patterns underlying the behaviours performed by the serial arsonists during the commission of their offences, a Smallest Space Analysis was performed on the variables. The results of this analysis are presented in Figure 7.3.2.a below. The coefficient of alienation for this analysis was 0.13 in 8 iterations which is similar to the one for the analysis of all the cases. The frequencies of occurrence are also shown on the diagram.



81% prior arson  
78% set fire  
72% remain

Figure 7.3.2.a: SSA of actions performed by serial arsonists

This SSA is very similar to the one presented in the previous chapter indicating that despite displaying a preference for certain sorts of behaviours, the serial arsonists do

tend to engage in similar patterns of behaviour as arsonists as a group. The frequency contours on the diagram do however show that instead of the uniform circular distribution of frequencies found for the SSA of the whole sample, the actions of serial arsonists show a bias towards Display activities.

The SSA in Figure 7.3.2.a is partitioned into the same four regions discussed previously: Destroy, Damage, Display and Despair. These categories contain more or less the same variables as in the general model, as shown in Table 7.3.2.1 below.

Variables which have moved are highlighted in different ways depending on their original region. Those from *Destroy* are indicated in italics, those from **Display** are in bold, DESPAIR is small capitals and **Damage** is in a different font.

**Table 7.3.2.1: Comparison of items in SSA of all cases and SSA of serial cases**

	<b>all cases</b>	<b>serial</b>
<b>DESPAIR</b>	own home lives location lives deliberate suicide note residential self MULTIPLE ITEMS	own home lives location lives deliberate suicide note residential self <b>crusade</b> <b>drugs</b> <i>outburst</i> <i>victim known</i>
<b>DESTROY</b>	targeted planned partner arguments threats threat of arson mult seat accelerants alcohol witness specific trigger <i>outburst</i> <i>victim known</i>	targeted planned partner arguments threats threat of arson mult seat accelerants alcohol witness specific trigger



	<b>all cases</b>	<b>serial</b>
<b>DAMAGE</b>	business car misc material brought spree illegal theft other crime multiple offenders outside public view finance not alert <b>school</b> <b>weekday</b>	business car misc material brought spree illegal theft other crime multiple offenders outside public view finance not alert <b>prior arson</b>
<b>DISPLAY</b>	inst public building remained serial daytime non-specific trigger <b>prior arson</b> <b>drugs</b> <b>crusade</b>	inst public building remained serial daytime non specific trigger MULTIPLE ITEMS <b>weekday</b> <b>school</b>

It is clear from this table that with a few minor exceptions, almost all of the variables have remained in the same regions as in the original SSA. This indicates that although certain actions are more *frequent* in serial arson, the overall *pattern* of associations between actions that make up the four conceptual themes is consistent across arson as a whole.

An interesting change in the associations of variables is that 'crusade' has moved from the Display to the Despair region. As noted in Appendix B, this variable is associated with attention-seeking which reinforces the argument made previously that Despair firesetting does not usually represent a serious suicide attempt. The current analysis shows that this is particularly true when this form of arson is part of a series. The use of drugs has also moved from Display to Despair. It would be difficult to disentangle the role of drug taking in this form of arson. One possibility is that individuals who decide to express their emotional distress by setting fire to themselves take drugs as a facilitator of this extreme behaviour. Alternatively, a drug

user who also has a fascination for fire may set fire to him/herself while experiencing drug-induced hallucinations or delusions.

The other two variables that have moved to Despair are both from the original Destroy region; 'outburst' and 'victim known'. These two forms of arson are both aimed at changing the internal state of the arsonist, and it may be that changes in the position of these items is simply due to overall variations in the relative frequencies of the other variables in these regions.

The other main changes relate to items that have moved from other regions into the Display region of serial arson. These are: 'school', 'multiple items' and 'less than a mile'. The former two variables most likely reflect to the desire to create a big fire which relates to the attention-seeking aspect of Display arson, particularly when it forms part of a series. The fact that serial arsonists do not travel far from home to set Display arsons is somewhat surprising given the increased likelihood of being caught when setting a number of fires in a familiar area. This finding probably reflects the emotional aspect of this form of arson. As discussed in Chapter 11, offenders who commit expressive crimes tend to travel shorter distances.

## **7.4 Development of Arson Behaviour across a Series**

The next stage in the analysis was to explore whether individuals who commit an arson in a particular way on one occasion, tend to commit subsequent offences in a similar way. The results of the previous section indicated that there were four conceptual themes underlying the offence behaviour of serial arsonists. One simple way of looking at consistency across a series, therefore, is to examine whether an offender consistently displays behaviour from the same thematic group in each of his offences. This is similar to the exercise of assigning cases to themes, in that for each individual offence the number of behaviours from each of the four themes is calculated. The offence is classified as belonging to one of the four themes if it contains a majority (at least 25% more) of variables from that theme. Offences



committed by the same individual are then compared to examine whether they are consistently classified as belonging to a particular mode of action.

### 7.4.1 Thematic Consistency

Scales of each of the four serial offence themes were constructed in the same way as in Chapter 5. Table 7.4.1.1 below shows the variables contained in the scales and their Cronbach's alphas. The Destroy theme has not been split into its' two sub-groups (Eruption and Accumulation) as we are examining modes of action system functioning, and both of the sub-groups were shown by the POSA analysis to reflect the Conservative mode of functioning.

**Table 7.4.1.1: Scales of Actions committed by serial arsonists (n=136)**

	<b>Destroy</b>	<b>Damage</b>	<b>Display</b>	<b>Despair</b>
<b>ITEMS</b>	accelerant	business	inst	crusade
	alcohol	car	multiple items	drug use
	argument	finance	nonspec trigger	lives location
	multiple seats	illegal entry	remain	lives deliberate
	planned	mat. brought		outburst
	targeted	misc. property		own home
	threats	mult. offenders		residential
	threat of arson	not alert		self
	specific trigger	other crime		suicide note
	victim partner	outside		victim known
	witness	prior arson		
		public view		
		spree		
	theft			
<b>α VALUES</b>	<b>.71</b>	<b>.53</b>	<b>.51</b>	<b>.76</b>

In order to examine consistency in terms of these four scales, then, the proportion of actions from each of the scales was calculated for each offence, and the offence was classified according to which theme predominated. In order to be classified as a pure type, the offence must contain at least 25% more behaviours from that type than for any of the others. Hybrids between two types exist when there are 25% more variables in each of those two themes than in any other. In this way the offences of each serial arsonist could be compared in terms of the dominant style which was exhibited. Table 7.4.1.2 shows the result of this classification.



Table 7.4.1.2: Classification of all offences committed by each serial arsonist

Offender	Offence	Destroy	Damage	Display	Despair	Type
1	a	3(.27)	3(.21)	0	3(.30)	
	b	4(.36)	4(.29)	2(.50)	4(.40)	
2	a	2(.18)	5(.36)	4(1.00)	2(.20)	3.0
	b	4(.36)	2(.14)	3(.75)	8(.80)	3.4
	c	3(.27)	5(.36)	2(.50)	2(.20)	3.0
3	a	4(.36)	6(.43)	1(.25)	1(.10)	1.2
	b	4(.36)	7(.50)	1(.25)	1(.10)	2.0
	c	4(.36)	6(.43)	1(.25)	1(.10)	1.2
4	a	0	5(.36)	1(.25)	2(.20)	2.0
	b	0	6(.43)	1(.25)	2(.20)	2.0
	c	0	5(.36)	1(.25)	2(.20)	2.0
	d	0	5(.36)	1(.25)	2(.20)	2.0
	e	0	6(.43)	1(.25)	3(.30)	2.0
	f	0	6(.43)	1(.25)	3(.30)	2.0
	g	0	5(.36)	1(.25)	2(.20)	2.0
	h	0	4(.29)	1(.25)	3(.30)	2.0
5	a	0	4(.29)	0	0	2.0
	b	0	4(.29)	0	0	2.0
	c	0	4(.29)	0	0	2.0
	d	0	6(.43)	0	0	2.0
	e	0	3(.21)	0	1(.10)	
	f	0	6(.43)	0	0	2.0
	g	0	4(.29)	2(.50)	4(.40)	3.4
6	a	5(.45)	5(.36)	1(.25)	2(.20)	1.2
	b	7(.64)	3(.21)	1(.25)	2(.20)	1.0
7	a	3(.27)	1(.07)	2(.50)	6(.60)	3.4
	b	1(.09)	4(.29)	1(.25)	4(.40)	4.0
	c	2(.18)	5(.36)	3(.75)	4(.40)	3.0
8	a	2(.18)	5(.36)	0	0	2.0
	b	0	3(.21)	1(.25)	1(.10)	
	c	0	7(.50)	1(.25)	1(.10)	2.0
	d	2(.18)	4(.29)	1(.25)	0	
9	a	4(.36)	2(.14)	2(.50)	5(.50)	3.4
	b	0	4(.29)	4(1.00)	3	3.0
10	a	4(.36)	4(.29)	0	1	1.0
	b	5(.45)	7(.50)	1(.25)	2	1.2
11	a	0	4(.29)	4(1.00)	2	3.0
	b	0	4(.29)	4(1.00)	2	3.0
	c	0	4(.29)	4(1.00)	2	3.0
	d	0	4(.29)	4(1.00)	2	3.0
	e	0	4(.29)	4(1.00)	2	3.0
12	a	1(.09)	5(.36)	1(.25)	3	
	b	0	6(.43)	3(.75)	0	3.0
13	a	2(.18)	11(.79)	2(.50)	0	2.3
	b	2(.18)	11(.79)	2(.50)	0	2.3
14	a	3(.27)	9(.64)	0	0	2.0
	b	3(.27)	10(.71)	0	0	2.0
15	a	5(.45)	2(.14)	2(.50)	4(.40)	
	b	4(.36)	3(.21)	2(.50)	3(.30)	3.0
	c	7(.64)	4(.29)	2(.50)	4(.40)	1.0
16	a	1(.09)	6(.43)	2(.50)	1(.10)	2.3
	b	1(.09)	6(.43)	1(.25)	1(.10)	2.0
	c	1(.09)	10(.71)	0	0	2.0
	d	0	7(.50)	1(.25)	0	2.0
	e	0	7(.50)	1(.25)	0	2.0
	f	0	5(.36)	0	0	2.0

## Serial Arson: Continuation and Escalation

Offender	Offence	Destroy	Damage	Display	Despair	Type
17	a	3(.27)	3(.21)	2(.50)	5(.50)	3.4
	b	3(.27)	4(.29)	2(.50)	5(.50)	3.4
18	a	4(.36)	2(.14)	3(.75)	4(.40)	3.0
	b	6(.55)	7(.50)	1(.25)	2(.20)	1.2
19	a	0	7(.50)	2(.50)	0	2.3
	b	4(.36)	5(.36)	0	4(.40)	
20	a	3(.27)	2(.14)	3(.75)	7(.70)	3.4
	b	3(.27)	2(.14)	3(.75)	8(.80)	3.4
21	a	3(.27)	2(.14)	3(.75)	7(.70)	3.4
	b	3(.27)	2(.14)	3(.75)	7(.70)	3.4
	c	3(.27)	2(.14)	3(.75)	7(.70)	3.4
	d	3(.27)	2(.14)	3(.75)	7(.70)	3.4
22	a	0	5(.36)	0	0	2.0
	b	0	5(.36)	0	2(.20)	2.0
23	a	1(.09)	4(.29)	2(.50)	2(.20)	3.0
	b	1(.09)	10(.71)	0	0	2.0
24	a	1(.09)	5(.36)	1(.25)	1(.10)	
	b	3(.27)	7(.50)	2(.50)	1(.10)	2.3
25	a	3(.27)	3(.21)	1(.25)	3(.30)	
	b	3(.27)	3(.21)	0	4(.40)	4.0
26	a	5(.45)	5(.36)	1(.25)	5(.50)	1.4
	b	5(.45)	6(.43)	1(.25)	5(.50)	
	c	5(.45)	6(.43)	1(.25)	6(.60)	4.0
27	a	3(.27)	3(.21)	2(.50)	5(.50)	3.4
	b	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	c	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	d	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	e	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	f	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	g	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	h	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	i	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	j	3(.27)	4(.29)	2(.50)	5(.50)	3.4
	k	3(.27)	4(.29)	2(.50)	5(.50)	3.4
28	a	1(.09)	3(.21)	2(.50)	0	3.0
	b	2(.18)	4(.29)	2(.50)	0	3.0
	c	3(.27)	4(.29)	2(.50)	2(.20)	3.0
	d	4(.36)	3(.21)	3(.75)	6(.60)	3.4
29	a	2(.18)	6(.43)	2(.50)	2(.20)	2.3
	b	0	7(.50)	2(.50)	0	2.3
	c	2(.18)	6(.43)	2(.50)	2(.20)	2.3
30	a	4(.36)	2(.14)	2(.50)	5(.50)	3.4
	b	6(.55)	5(.36)	2(.50)	3(.30)	1.0
31	a	1(.09)	6(.43)	0	1(.10)	2.0
	b	1(.09)	6(.43)	1(.25)	1(.10)	2.0
32	a	3(.27)	3(.21)	1(.25)	5(.50)	4.0
	b	5(.45)	3(.21)	1(.25)	5(.50)	1.4
	c	5(.45)	5(.36)	1(.25)	5(.50)	1.4
	d	7(.64)	7(.50)	2(.50)	3(.30)	1.2
33	a	3(.27)	2(.14)	1(.25)	4(.40)	4.0
	b	5(.45)	4(.29)	1(.25)	6(.60)	1.4
34	a	3(.27)	6(.43)	0	0	2.0
	b	9(.82)	3(.21)	2(.50)	4(.40)	1.0
35	a	2(.18)	2(.14)	1(.25)	4(.40)	4.0
	b	2(.18)	3(.21)	1(.25)	4(.40)	4.0
	c	2(.18)	3(.21)	1(.25)	4(.40)	4.0
36	a	3(.27)	1(.07)	2(.50)	5(.50)	3.4
	b	3(.27)	1(.07)	2(.50)	5(.50)	3.4
37	a	2(.18)	1(.07)	2(.50)	5(.50)	3.4
	b	2(.18)	5(.36)	2(.50)	2(.20)	3.0



This table shows that the majority (57%) of the serial arsonists showed consistency across their entire series, in that their offences were either classified as the same type or were a mixture of one pure type and a hybrid between that type and another. A further 22% had all but one of their offences classified as the same type. This shows that there is a great deal of stability in the actions of arsonists over time. Furthermore, certain styles are more stable than others. Of the 29 arsonists who were either completely consistent or had only one inconsistent case in their series, the majority (39%) were Display arsons. The second most consistent form of arson was Despair (27%) followed by Damage (24%). The Destroy form of arson occurred consistently in only 4 series, which ties in with the results of a study by Rice and Harris (1991) which found that one-off firesetters were more likely than repeat firesetters to commit revenge arson. Only 19% of the offenders were completely inconsistent in that all of their offences were classified as different types or hybrids. Interestingly, these offenders tended to have only committed (or at least been convicted of) two offences and in many cases there was quite a long time gap between the two (at least a year). It may be that they had in fact committed other arsons which bridged the gap psychologically, i.e. could be classified as a hybrid between these very different known offences. The arsons of one offender (number 1 in the table) could not be classified as she exhibited too few behaviours from any theme.

#### **7.4.2 Chi Square of Consistency**

These results were also subjected to statistical test using Chi Square. This was done by calculating the expected and actual frequencies of the first and last offences in a series falling into each of the four themes.

The first and last cases were classified according to the dominant theme. Where only two cases were found, the first and second were classified. If there was no clear dominant theme for the last offence, then the theme for the second last offence was taken instead. This gave 32 classifiable serial offenders out of a possible 37 ie 86.4%. The results of this classification are shown in **Table 7.4.2.1**.

**Table 7.4.2.1: Classification of first and last offence in series**

Offence	Destroy	Damage	Display	Despair	Total
<b>First</b>	12.5 (4)	31.3 (10)	46.9 (15)	9.3 (3)	100 (32)
<b>Last</b>	28.1 (9)	28.1 (9)	37.5 (12)	6.3 (2)	100 (32)

Values are percentages, raw numbers in brackets

If there were no meaningful connection between the first and last offence, then offenders would be classified randomly into one of the four themes for these offences. In this case, the probability of an offenders' arsons being consistently classified as Destroy would simply be  $p(\text{Destroy first}) \times p(\text{Destroy last})$ , ie  $0.125 \times 0.281 = 0.035$ . Under this null hypothesis of no structure, this would mean that 3.5% of offenders would be consistently Destroy by chance. Similarly, the percentage of offenders committing an offence classified as Destroy followed by Display by chance would be  $0.125 \times 0.375 = 0.047$  ie 4.7%.

Therefore, the probabilities of assignment under the null hypothesis of no structure for all 16 combinations are given in Table 7.4.2.2.

**Table 7.4.2.2: Expected numbers of arsons in each of the four themes**

		Last Offence				Total
		Destroy	Damage	Display	Despair	
First Offence	Destroy	3.5	3.5	4.7	0.8	12.5
	Damage	8.8	8.8	11.7	2.0	31.3
	Display	13.2	13.2	17.6	2.9	46.9
	Despair	2.6	2.6	3.5	0.6	9.4
Total		28.1	28.1	37.5	6.3	100.0

Values are percentages

However, the results of the calculation of the actual percentages of the first and the last offence themes are shown in Table 7.4.2.3.



**Table 7.4.2.3: Actual numbers of arsons in each of the four themes**

		Last Offence				Total
		Destroy	Damage	Display	Despair	
First Offence	Destroy	9.4	-	-	3.1	12.5
	Damage	3.1	25.0	3.1	-	31.3
	Display	9.4	3.1	34.4	-	46.9
	Despair	6.3	-	-	3.1	9.4
Total		28.2	28.1	37.5	6.2	100.0

This table shows that the majority of serial offenders (23 out of 32 ie 72%) have identical first and the last offence themes, as can be seen by the shaded boxes. In other words, these serial offenders are more consistent across their offences than would be expected by chance - the null hypothesis of no meaningful structure must be rejected ( $X^2 = 37.3, p < 0.005, df=15$ ).

Within the 9 cases where the serial offenders were not consistent there is a further interesting pattern. In these cases, 6 out of 9 (ie 67%) finished their series with a Destroy offence. In many ways this is the most serious offence theme, containing the variables 'accelerants' and 'multiple items'. This would suggest that where there is a change in offence theme then it is in the direction of escalating seriousness. This possibility is now examined in more detail, in relation to a number of variables that can be considered as indicators of offence seriousness.

### 7.4.3 Development and Escalation

The above analysis has shown that in terms of thematic style underlying a series of arsons, an individual's crime-scene behaviour tends to remain very stable. However, where changes in this style do occur, it has been suggested that this may occur in the direction of subsequent fires being potentially more serious. It is usually difficult to judge what an offender intended the magnitude or consequences of his firesetting

behaviour to be, but certain inferences can reasonably be made in relation to the presence or absence of some of the variables used in the present study. For example, it is likely that if an offender uses accelerants he probably intends to create a bigger fire than if he sets a fire using only matches and paper. Similarly, if multiple items are fired, or if accelerant is distributed in multiple areas around the target, then these would all tend to result in a bigger fire. In relation to the seriousness of consequences, if an offender sets fire to a building which he knows is occupied at the time, or if an uninhabited target is adjacent to an occupied building then these actions both have implications for the potential seriousness of the fire.

This next analysis, then, examines changes in offence behaviour across a series in relation to six of the actions which relate directly to seriousness. These are: multiple items fired, multiple seats of fire, accelerants used, the offender did not alert anyone after setting fire, lives were endangered by the location of the fire, and lives were endangered deliberately by the offender. These variables were analysed using POSAC to examine whether they produce a cumulative scale of seriousness.

### **POSA of Escalation**

This analysis was performed on 125 cases committed by 37 serial offenders. These were all arsonists for whom detailed information was available for at least two of their offences. The POSA analysis reduced these 125 cases to 27 distinct profiles which are shown in Figures 7.4.3.a to 7.4.3.c below. These figures show the changes in escalation that occurred for each offender as he/she progressed across the series. The first plot shows those offenders who increased in escalation as their series progressed. The exact nature of this increase will be discussed in relation to the individual item plots in the next section. The second plot shows those offenders who decreased from a more serious, to less serious offence over time. Finally, the third plot shows the remaining two sets of offenders; those who were completely consistent in seriousness across their series, and those who were inconsistent, i.e. either increased and then decreased, or vice versa.



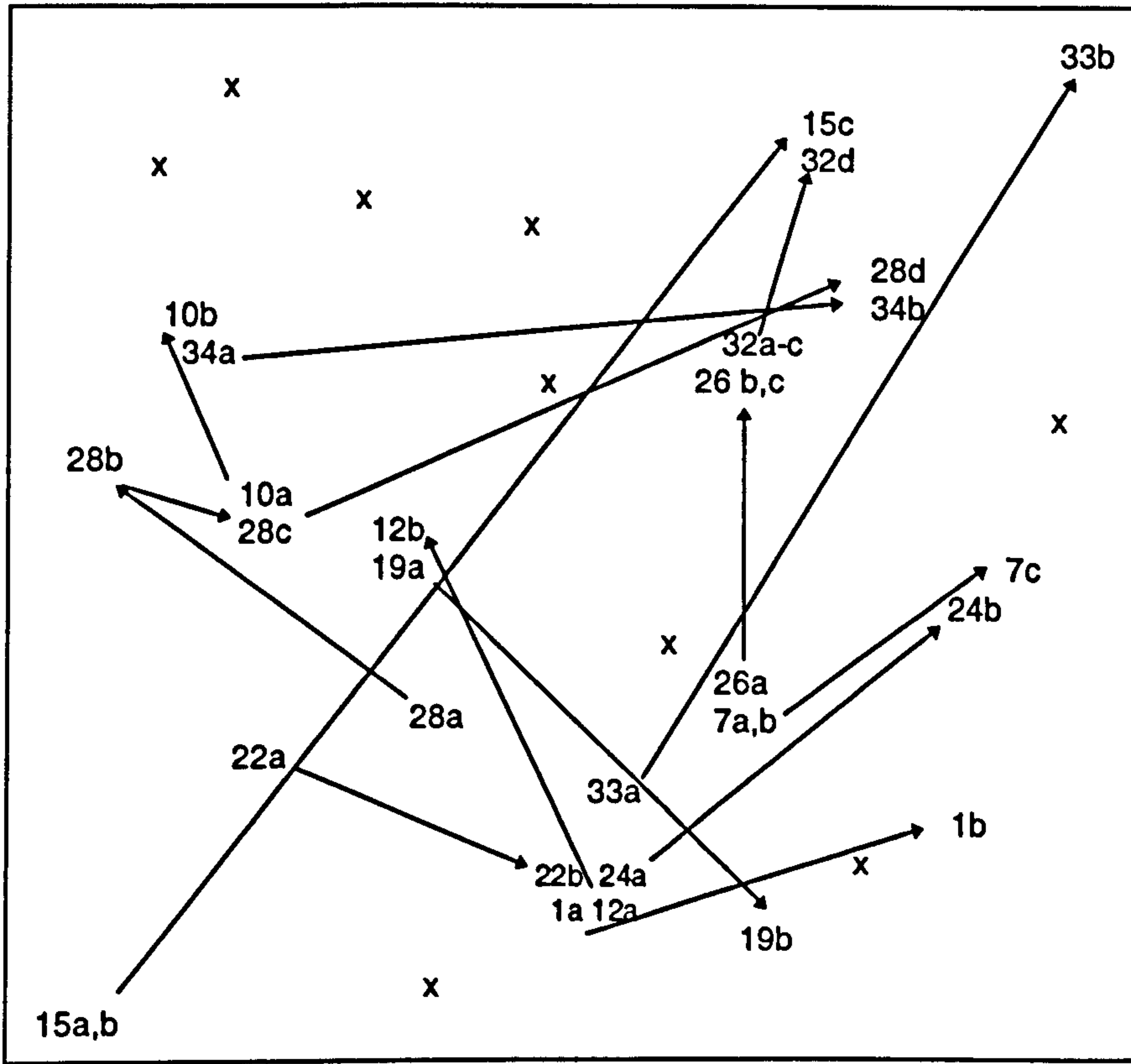


Figure 7.4.3.a: POSA showing offenders who increase in seriousness

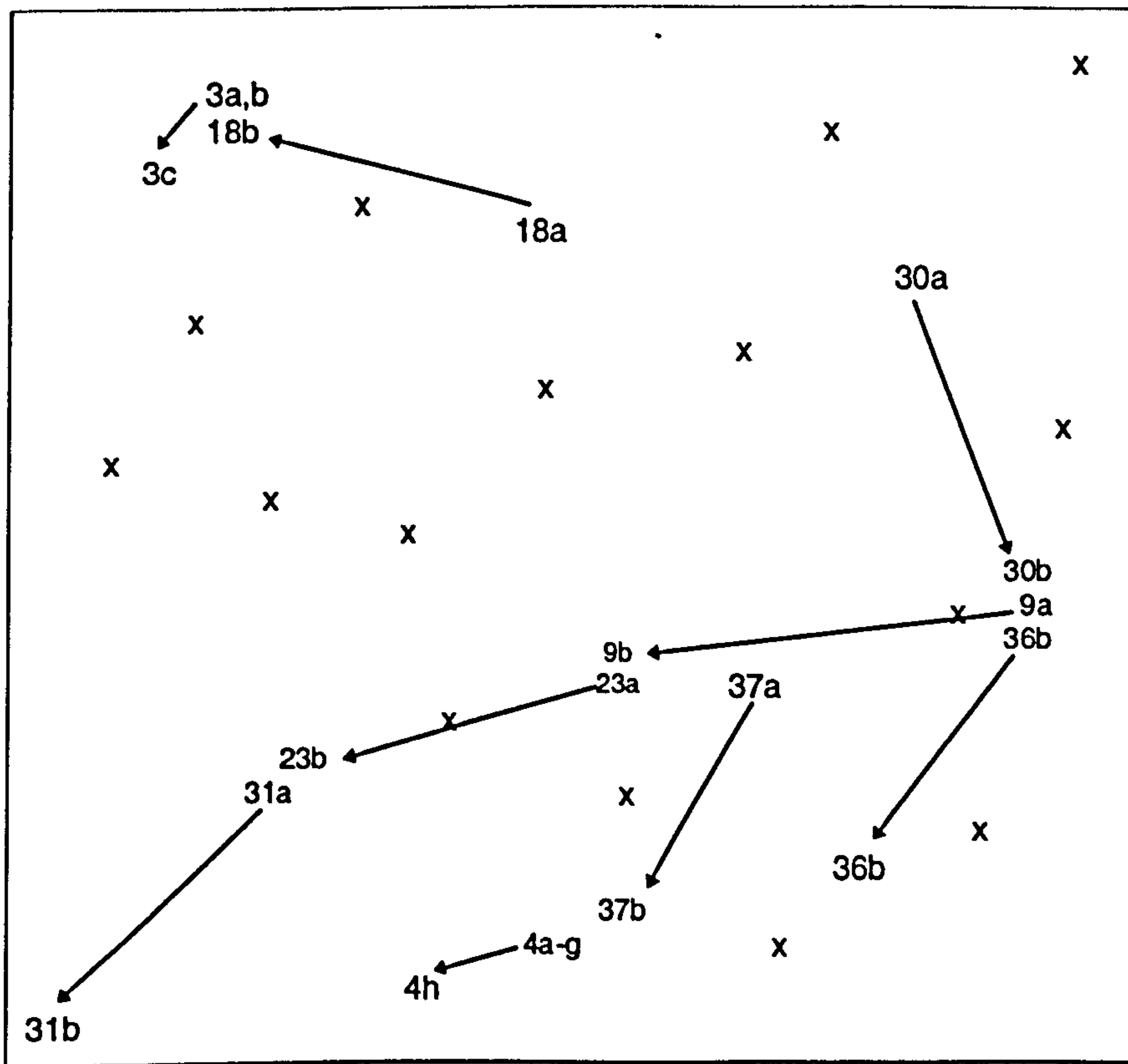


Figure 7.4.3.b: POSA showing offenders who decrease

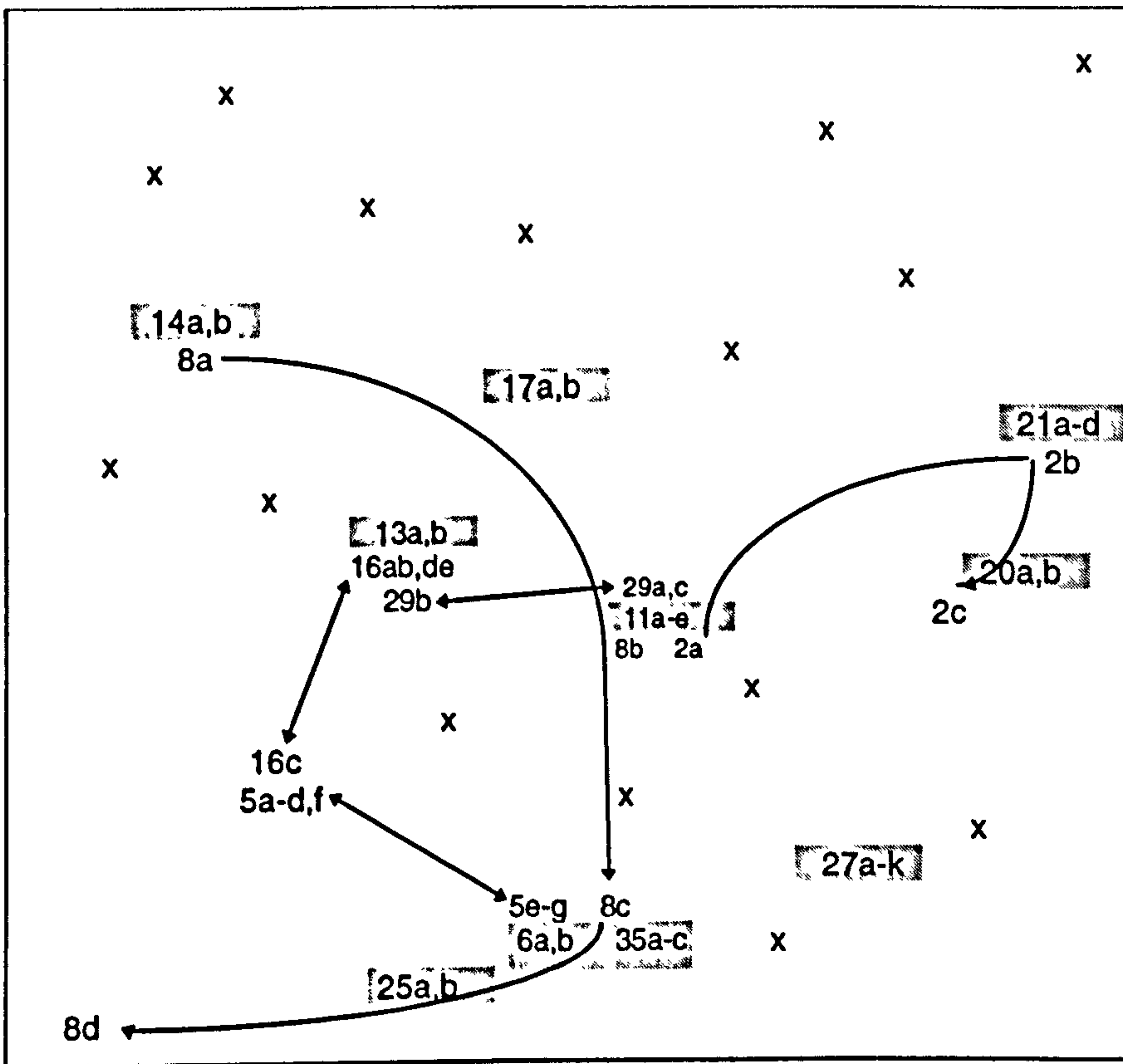
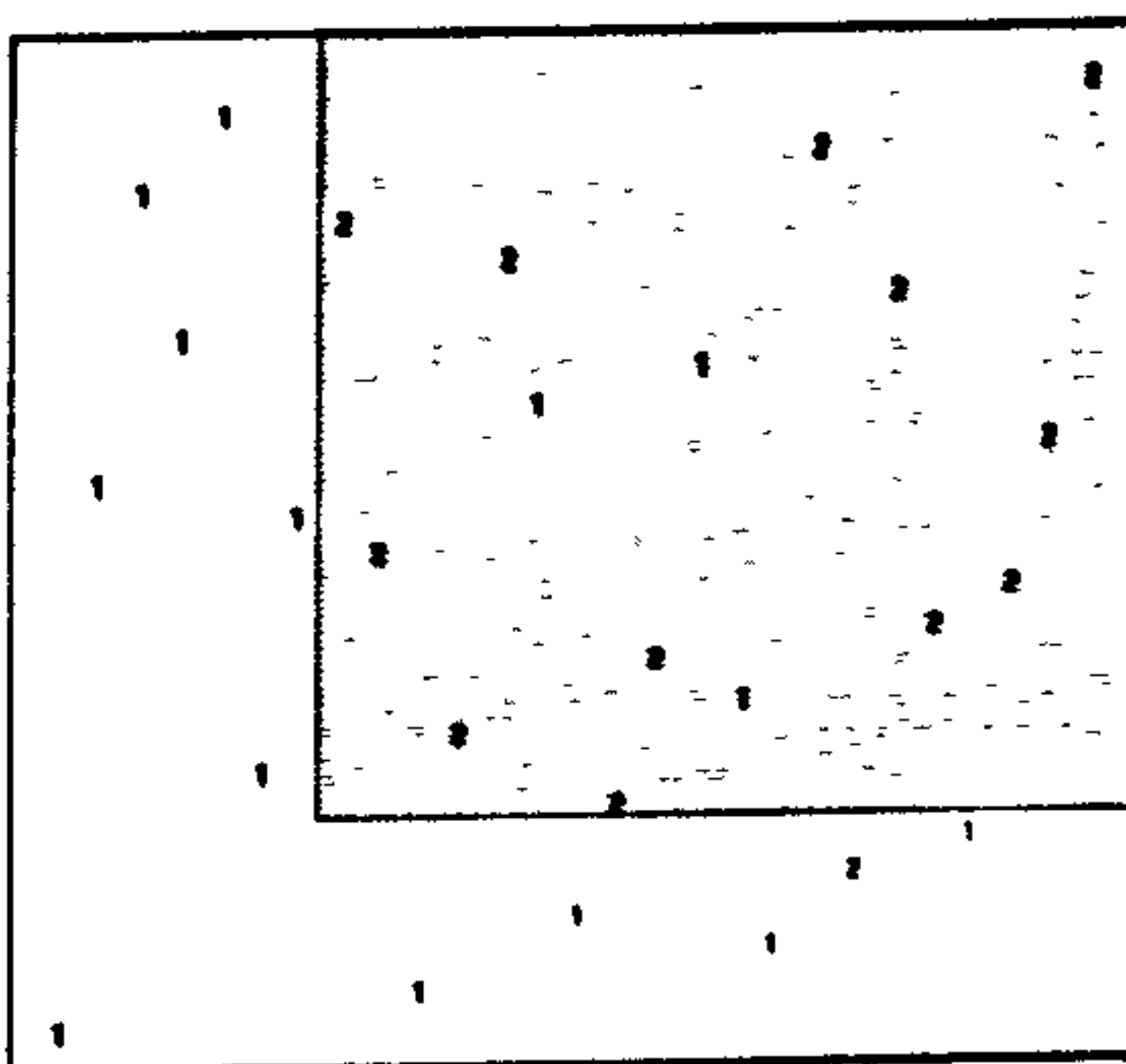
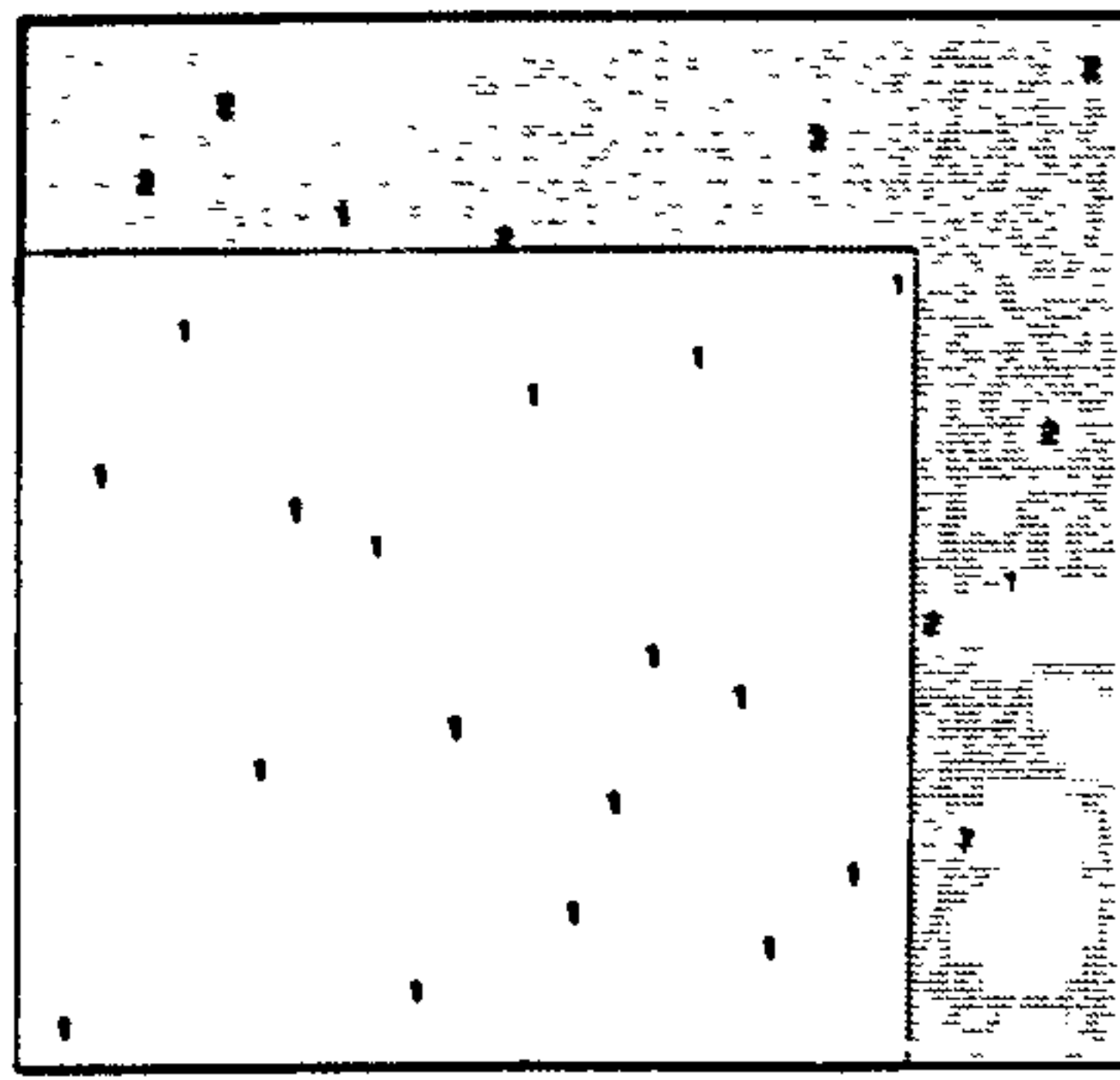


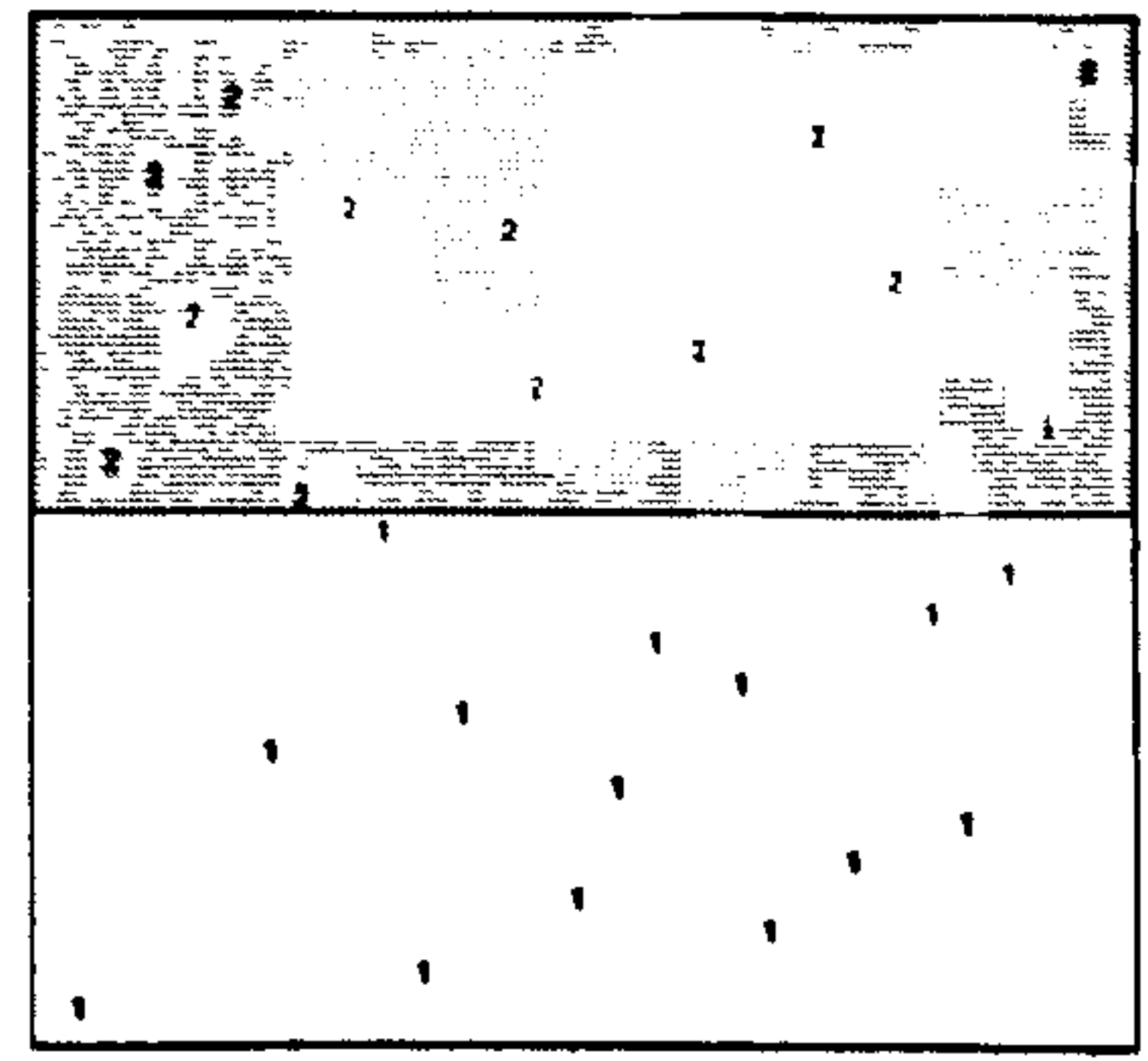
Figure 7.4.3.c: POSA of seriousness showing consistent and inconsistent offenders



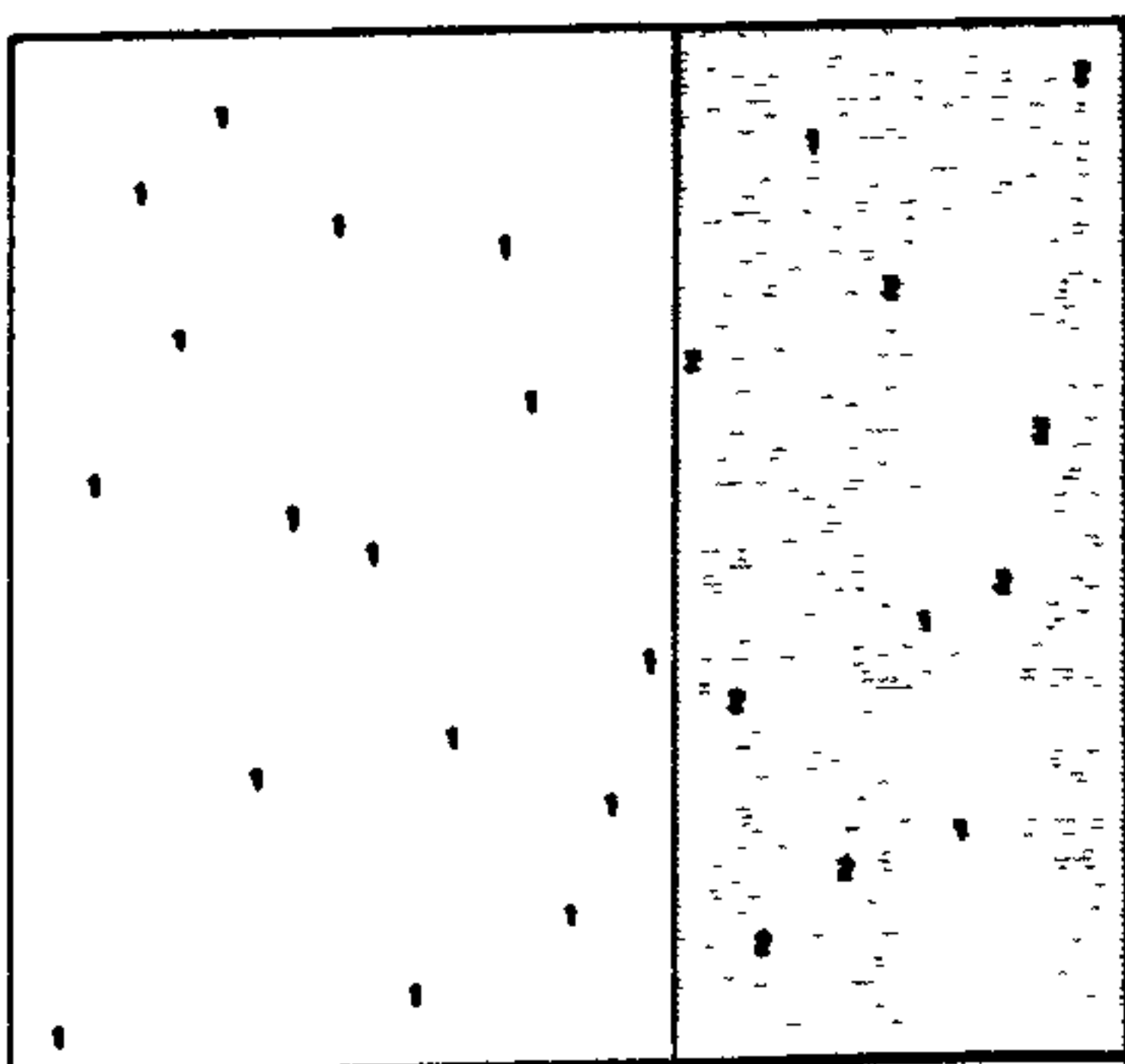
multiple items



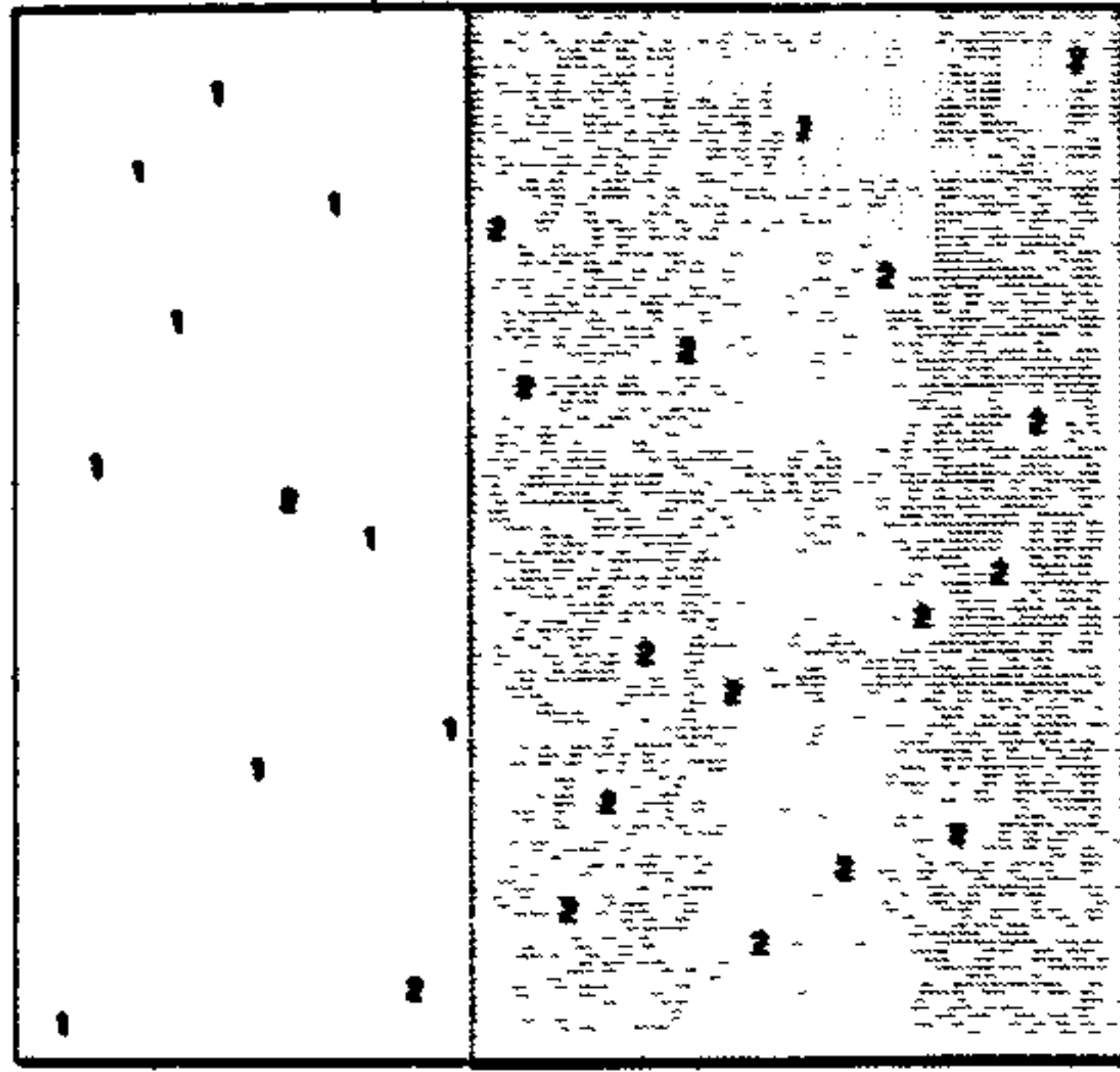
multiple seats



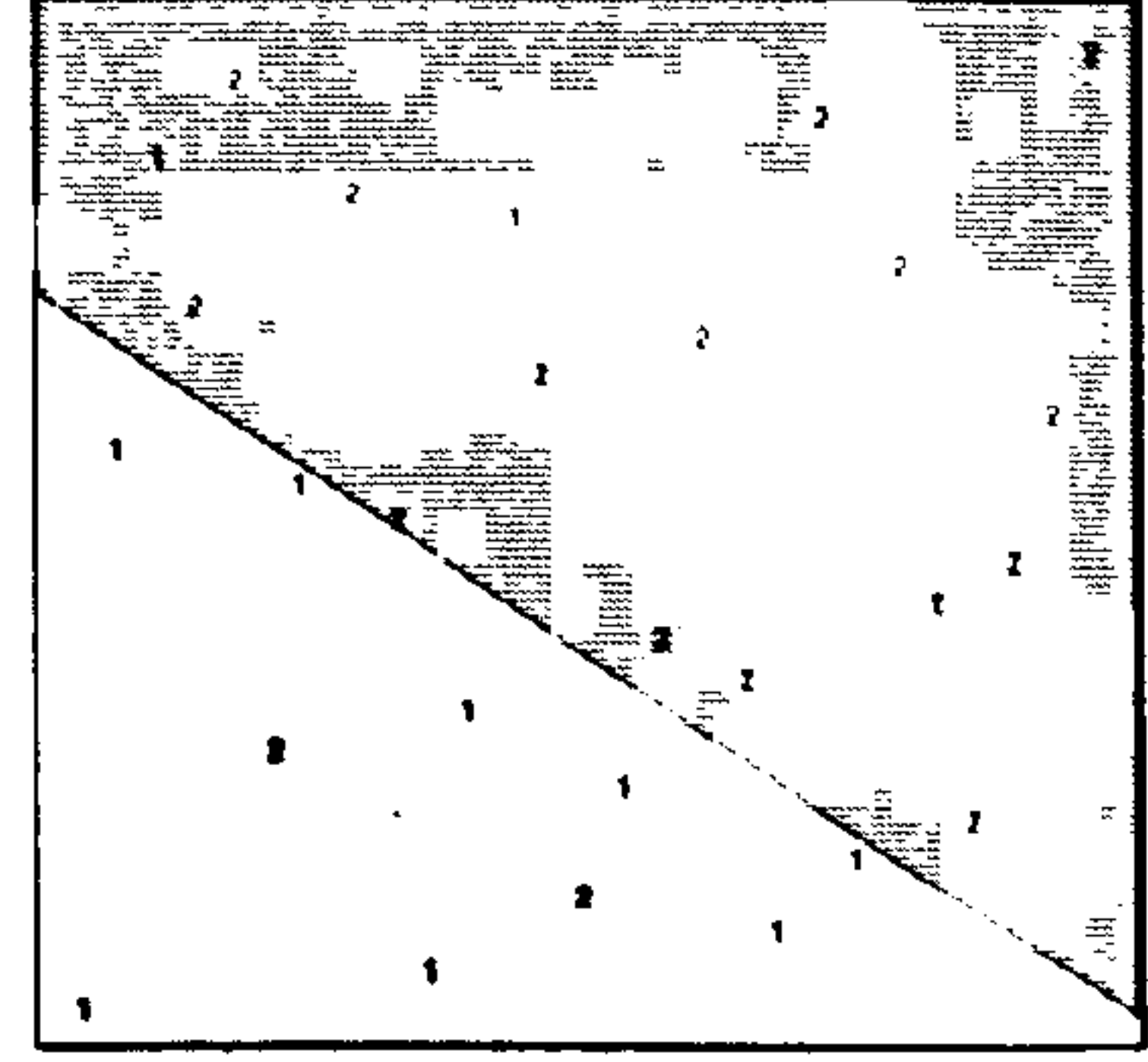
accelerants



lives deliberate



lives location



not alert



The item plots show that there are two main pathways towards 'seriousness'. As was found in the POSAs of Despair and Eruption in the previous chapter, this distinction relates to the process and focus of the fire. In relation to seriousness, the process refers to the use of accelerants which partitions along the y-axis (1.00), and the focus is revealed by the endangering of lives, either deliberately or by the location of the fire. Both of these variables have the highest loadings on the x-axis, of .95 and .99 respectively. The setting of a fire which has multiple seats attenuates both the process and focus of the fire. In other words, at their most extreme, fires which are aimed at endangering lives will involve multiple seats, as will those arsons where the desire is to create a big fire using accelerants.

The variable 'multiple items' partitioned along the P-axis and is therefore an attenuator, reducing the overall effect of the process and form factors.

Not alerting anyone after setting a fire partitions along the J axis, and is the most commonly found of the variables. Therefore it is not a particularly strong indicator of seriousness.

The composite plots show that 13 of the serial arsonists increased in seriousness as their offences continued, while a further 5 increased in one or two offences and then decreased again. This means a total of 18 (49%) of the serial arsonists showed a tendency for at least one of their later offences to be more serious than earlier ones.

By examining the movement of offenders in relation to each of these variables, it can be seen firstly that the majority (n=8, 62%) of those who increased in seriousness (n=13) did so by endangering lives deliberately in the later offence. In a significant number (n=6, 46%) the change was in relation to using an accelerant. There was also a group of offenders who used multiple seats in later offences (n=5, 38%). A proportion of these individuals (n=4, 31%) increased by employing two or more of these variables in later offences.

Of the arsonists who were inconsistent (n=5) the variations in seriousness were in relation to the 'less' serious variables: multiple items, endangering lives by location and not alerting anyone to the fire (n=4). Only one of these individuals increased by using multiple seats and endangering lives deliberately.

Almost exactly the same number (n=19, 51%) either displayed the same level of seriousness throughout their fires, or actually decreased in later offences. The decreases in seriousness primarily related to the same variables which were largely responsible for the inconsistencies, namely not alerting anyone (n=4, 21%), multiple items (n=3, 16%) and endangering lives by the location of the fire (n=3, 16%).

An explanation for these findings is suggested by comparing the length of series for individuals who increase versus those that decrease or hold the same level of seriousness. The mean series length for the offenders who increased was 3.33, whereas the average number committed by those who were consistent or decreased was 2.95. This suggests that arsonists who are more prolific are more likely to set a more serious fire at some stage in their series, and that the offenders in this sample who did not escalate, were simply those that were caught earlier in their series. In fact Spearman's  $\rho$  calculated on length of series by seriousness gave a correlation of 0.29 ( $p < .05$ ) indicating that there is a relationship between the number of offences in a series and seriousness of those offences. Therefore it appears that as a series progresses, the psychological 'rewards' obtained from setting fires diminishes, and that rather like substance addiction, more of the stimulus is needed to provide the same benefits. This would explain why the new actions committed by those who escalate are more 'serious' than the actions that change when an arsonist decreases in seriousness.

There are also practical implications from this finding in that even a 50% likelihood that an offender will escalate in seriousness means that resources should be allocated to apprehend an arsonist as early as possible in a series. Of course, this depends both on the correct identification that a series of arsons have all been set by the same



individual, and on the ability to connect that individual to the series. This is the subject of the next section on linking offences.

## 7.5 Series Similarity Profiling

Central to the task of linking is the identification of variables which both differentiate *between* offenders, and at the same time are consistent *within* a single offenders' series. These are the behaviours which are psychologically meaningful to individual offenders; they epitomise the function of the arson for the offender, and are therefore likely to be repeated.

Linking a series of offences to a single offender is arguably one of the most important tasks of a police enquiry team. It can lead to increased resources for an enquiry team and can ultimately improve clear-up rates if one offender is convicted of a series. This is particularly important in the case of arson which, as previously mentioned, has a very low clear-up rate. Linking a number of offences to the same individual also provides an enquiry team with more information on the offender. For example, if a series of arsons is linked to an individual then you know that he/she must have been in the vicinity of each crime when it occurred. In terms of evidence, being able to show that an individual was in the vicinity of several crime scenes when the arson took place provides stronger circumstantial evidence than being able to demonstrate that he/she was in the area when a single fire occurred.

Linking can also narrow down the search area for potential suspects. For instance, it has been shown that predictions can be made about where an offender is likely to live based on where he is known to have committed offences (e.g. Canter and Larkin, 1993; Canter and Gregory, 1994). This geographical aspect to serial offending is discussed in Chapter 12.

The identification of variables suitable for linking is based on the fact that they must be comparatively unique to one individual relative to other arsonists, and must also be consistently displayed by that individual across his series. Clearly variables which

are very frequent in serial arson would not fulfil the first criteria because too many offenders would display the same variable, although they may do so consistently across a series. Conversely, a very low frequency variable may differentiate one offender from another, but may not be performed by the offender every time he sets a fire.

Having selected what are hypothesised to be variables that carry substantive psychological meaning for an offender, what is required in order to link the offences in one arsonists' series and simultaneously differentiate them from the offences of another, is a comparison of the behavioural profiles of the fires set by the serial offenders across all of the chosen variables. While Smallest Space Analysis provides a visual representation of the associations between action variables, a method which allows for the examination of similarities and differences between cases across a set of variables is Multiple Scalogram Analysis (MSA). This procedure produces profiles of offenders based on the coded presence (2) or absence (1) of specified variables. These profiles are then plotted in a geometric space according to an analogous principle to SSA, namely that offenders whose profiles are similar (i.e. they contain some of the same variables) are plotted close together, while those with few variables in common are plotted further apart. Because a large number of profiles can be generated from relatively few variables, the interpretation of the MSA plot can become extremely complex unless the number of variables are kept to a minimum.

The Smallest Space Analysis of the arsons committed by the serial offenders in the sample provided a method for selecting variables for use in the MSA by indicating which variables differentiated four styles of firesetting. However, not all of the variables from the four regions could be used as this would have created too many different profiles and obfuscated interpretation of the MSA. Therefore, three variables of medium frequency were selected to represent each of the four identified styles of firesetting. Table 7.5.1 below lists these variables.



**Table 7.5.1: Variables used in MSA analysis**

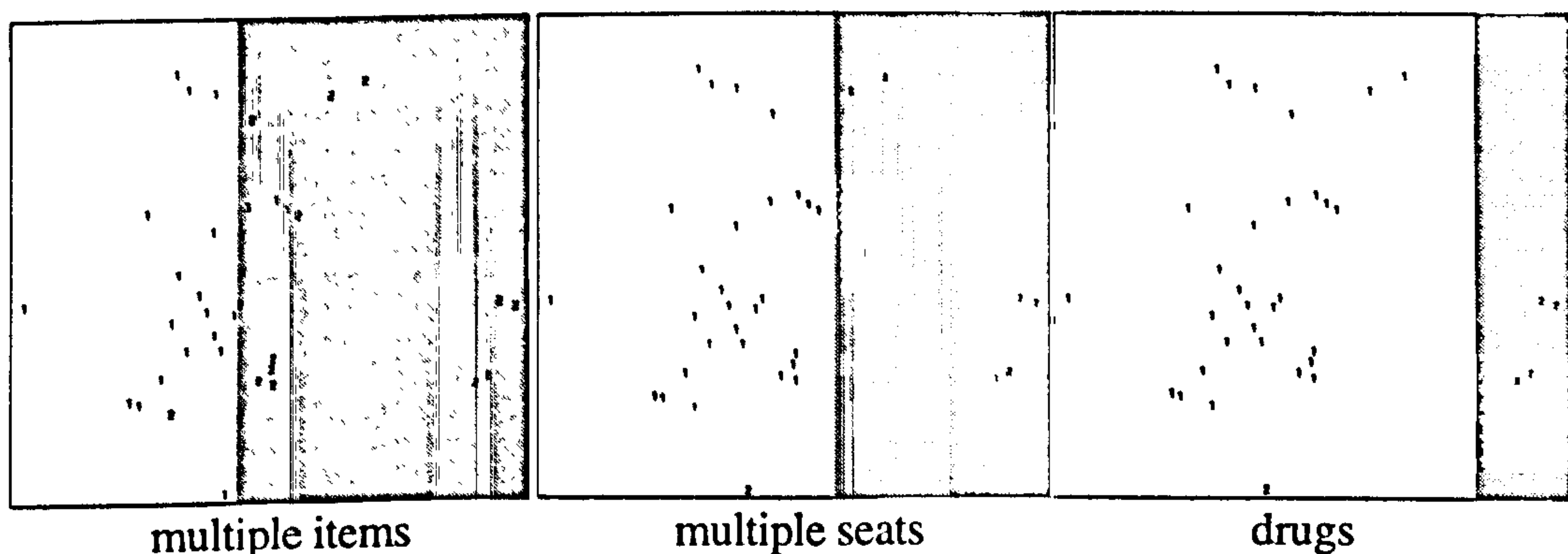
Damage	Destroy	Display	Despair
illegal entry	multiple seats	multiple items	lives deliberate
other crime	alcohol	daytime	drugs
outside	trigger specific	trigger non spec	crusade

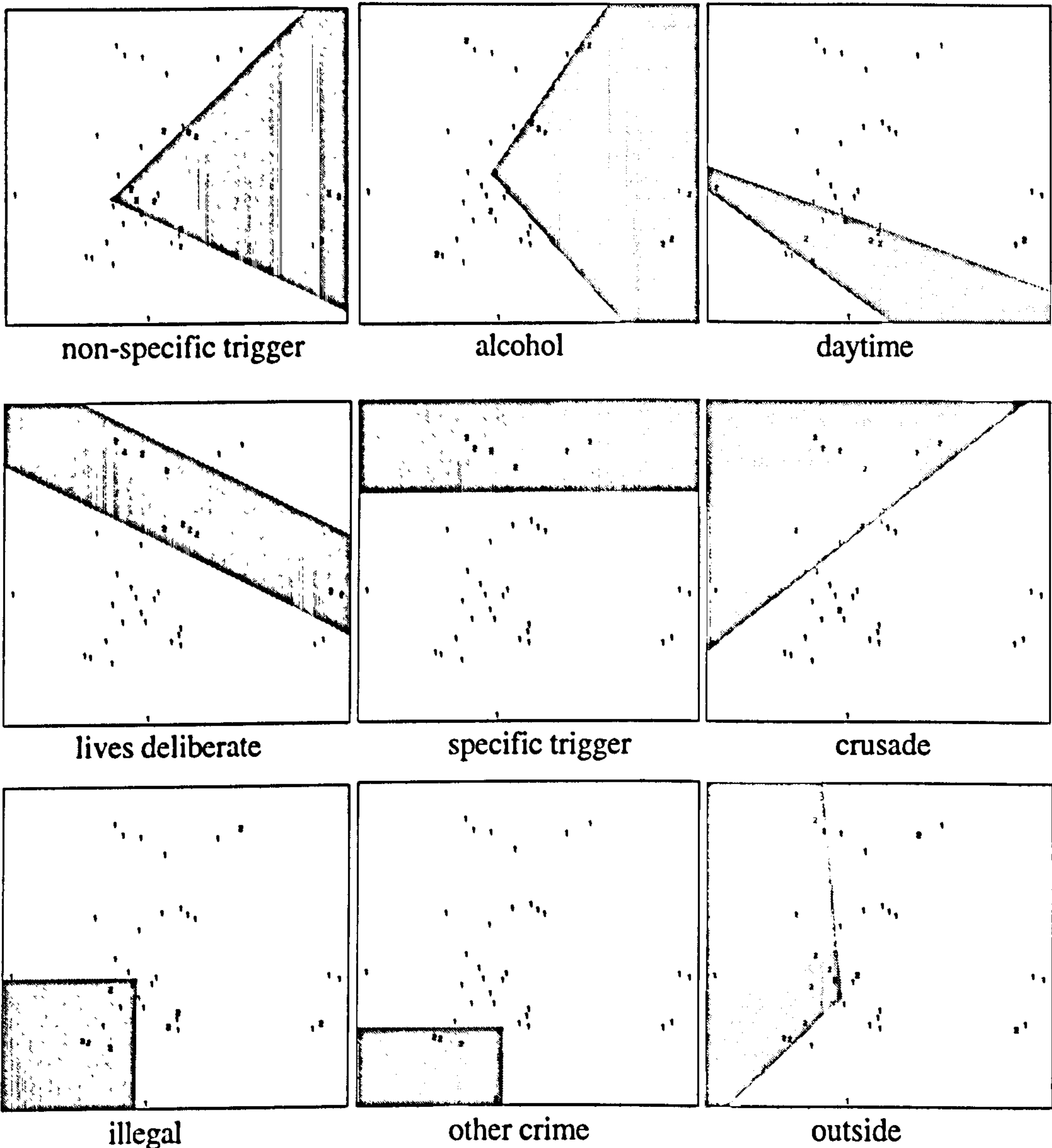
As mentioned previously, nine of the 125 serial cases only contained complete information on one of the offences in the series. A further 21 offenders had only recorded two offences, leaving 16 who had committed three or more arsons in a series. The development of variables for use in linking arsons on the basis of only two offences in a series was considered to be potentially unreliable; therefore, only the 16 offenders who had set three or more fires were used for the MSA analysis.

The MSA programme deletes cases which have the same profiles so that the composite plot contains only those profiles that are different from each other. Individual item plots for each variable in the analysis are also produced. Interpretation of the MSA involves partitioning each item plot into regions with the cases where the variable was present on one side of the partition and those that did not display the behaviour on the other side. These item plots are then compared with each other and with the composite plot.

### 7.5.1: Results of MSA analysis

The MSA programme reduced the 74 individual cases of arson to 36 different profiles. The individual item plots partitioned as follows:





The way that these item plots are partitioned tells us a number of things about the offence behaviour of serial arsonists. The plots for 'multiple item', 'multiple seats', 'drugs' and 'outside' all partition vertically. This means that arsonists who use drugs prior to setting a fire, also set fires with multiple seats and items. These are distinct from those arsonists who set a fire outside.

The item plots for 'alcohol', 'daytime' and 'trigger non specific' all occupy an area in the right to lower-right hand side of the plot, indicating that offenders whose firesetting is triggered by an event which is not related to the actual target, also tend



to consume alcohol prior to setting a fire. Some of these fires also occur in the daytime.

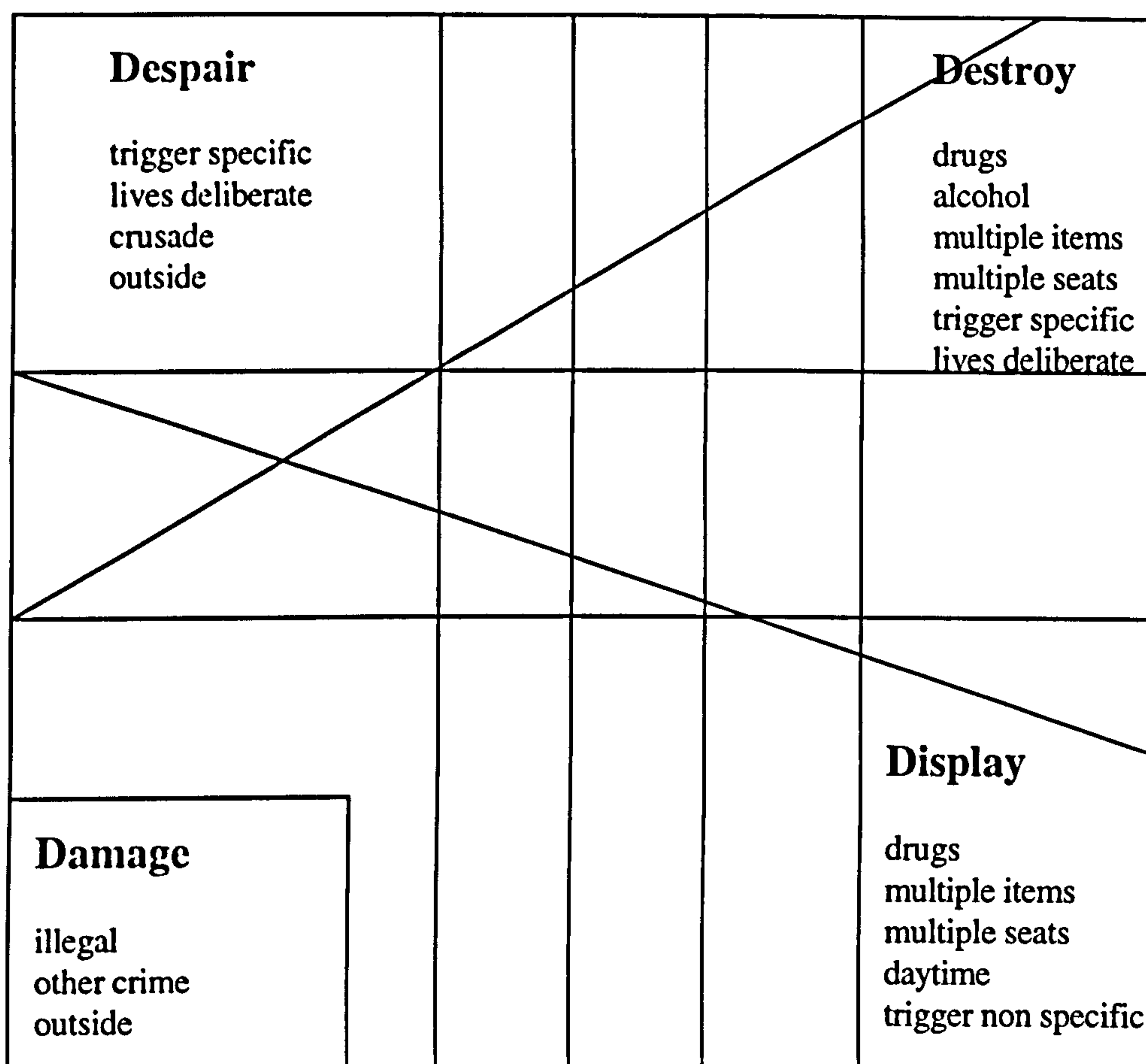
A proportion of the offenders who use alcohol also take drugs and set fires with multiple items and seats. This indicates that those arsonists who commit the Display form of arson occupy a distinct region of the MSA plot.

Offenders who consume alcohol prior to setting a fire tend to also deliberately endanger lives and to use multiple items and seats. A proportion of these offenders' firesetting activity is triggered by an event involving the victim of the fire, and some of them also take drugs prior to setting a fire. These are the Destroy variables which are also located in a distinct location on the MSA.

Those arsonists who embark on a 'crusade' and who are seeking recognition or attention from setting fires often deliberately endanger lives, and sometimes set their fires outside. Their firesetting is also sometimes triggered by an event which relates to the victim of the fire. These are variables that relate to the Despair form of arson, where the offender uses firesetting to draw attention to emotional distress.

Finally, there is very little overlap between the item plots described above and those for 'illegal' and 'other crime', indicating that the offenders who set fires characterised by these variables are very different to those using the other variables. Both of these types of fire tend to occur outside. These are all variables from the Damage region of the 4D model.

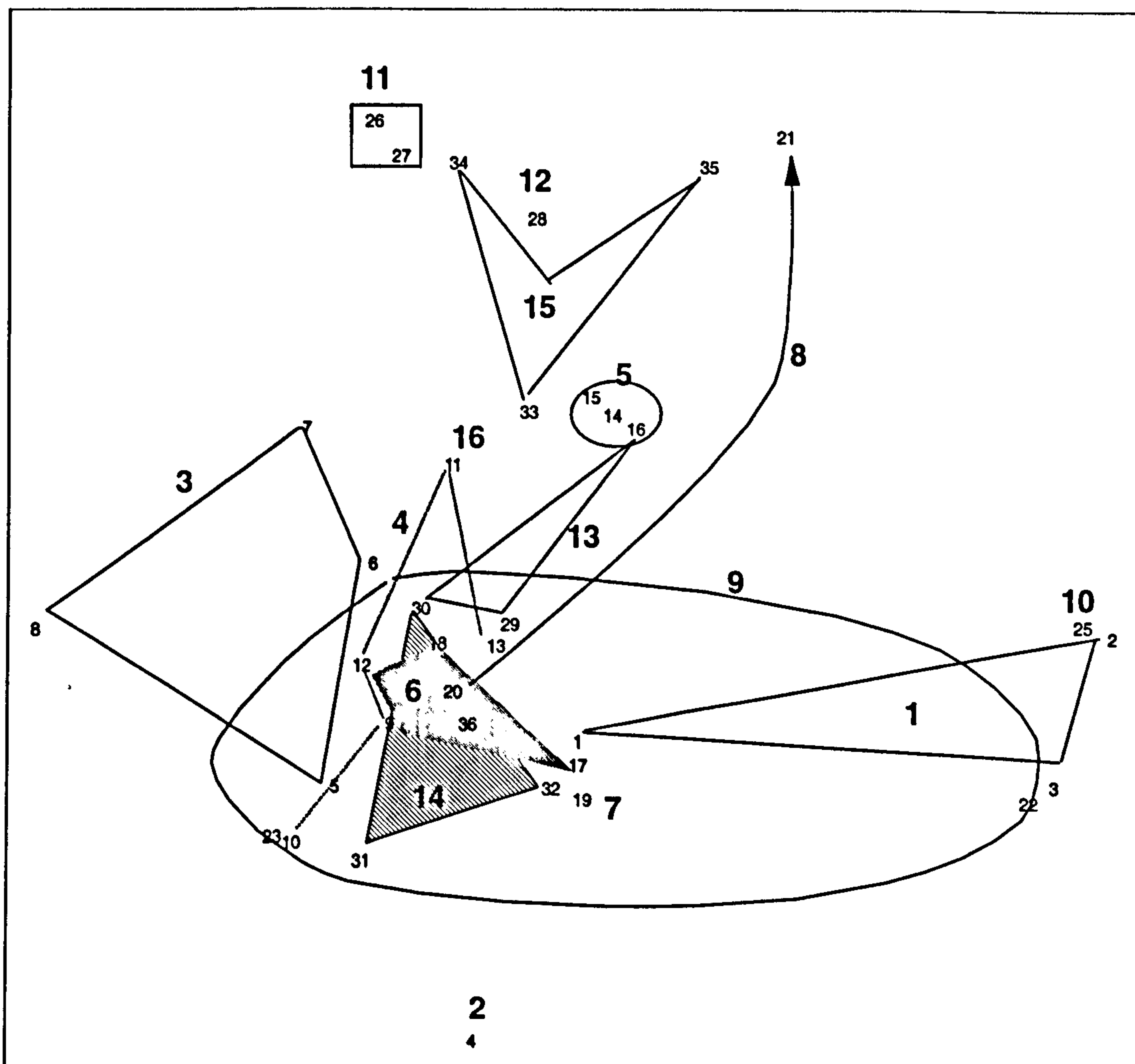
Taking together these individual item plots produce regions on the composite MSA plot which correspond to the same four themes on the SSA as shown in **Figure 7.5.1.b:**



**Figure 7.5.1.b:** MSA composite plot showing partitions of item plots

This plot shows that the serial offenders can be differentiated according to which style of arson they commit, in that arsonists with different styles can be found in distinct regions of the plot. However, what the above diagram does not show is whether offences committed by the same offender are found in the same regions. **Figure 7.5.1.c** shows the position of the individual profiles and the offences that these correspond to.





**Figure 7.5.1.c: MSA plot showing linked offences**

This plot shows that in the majority of cases, the offences of each serial arsonist appear in a distinct region of the plot. In some cases (numbers 2, 7, 10 and 12) all of the offences were represented by a single profile indicating that the fires set by these offenders were identical to each other. In the majority of the other cases, the profile numbers representing the offences of a single arsonist appear very close together; this is so for numbers 5, 6, 11, 13, 14 and 15. However, the offences of numbers 4, 9 and 16 are not clearly distinguishable from other arsonists. Therefore, the MSA plot does demonstrate a potential for differentiating the offences of one serial arsonist from another. However, it also highlights some problems, particularly if a large number of serial arsonists were operating in an area at the same time. It is also important to examine the specific variables that are contained in the MSA profiles of each of the serial arsonists. These are shown in Table 7.5.1.1 below.

Table 7.5.1.1: Variables in MSA

		Display			Destroy			Despair			Damage		
		mult item	day time	trig non	mult seat	alco hol	trig spec	lives del	drug	crus ade	illgal entry	other crim	out side
1	a b c												
2	a-c												
3	a b-d e,f g,h												
4	a-c d e f g												
5	a b c												
6	a b c d												
7	a-e												
8	a,b c												
9	a,b c d,e f												
10	a-d												
11	a b,c												
12	a-k												
13	a-c d												
14	a b c												
15	a b c d												
16	a,b c												

This table indicates that for at least some of the cases using the variables included in this MSA analysis, the offences of a serial arsonist could be both linked to that



individual, and also differentiated from other offenders. Case number 4, for example, contains primarily variables from the Damage form of arson, and although other cases also contain these variables the profiles of this offender are 'purer' Damage than any other case. Similarly, individual number 7 could be classified as Display for all of the offences in the series. This also makes this case unique from any other. Case number 11 consistently displayed the same two variables from Despair across all three of his offences, although actions from other regions were also performed making this less of a pure type than the others.

Another form of consistency was also revealed in the thematic combination of variables that some cases displayed consistently across their series. The profiles of cases 6 and 14 only contained variables from Display and Damage in all their offences across the series. Similarly, the offences of case number 10 contained variables from Display and Despair. Case number 2 displayed the same single variable from both Destroy and Damage on all three of his offences, although the validity of linking cases based on only 2 variables, however consistently they occur, is probably limited.

Finally, case number 15 was a hybrid between Destroy and Despair, although each of his four cases contained varying proportions of variables from each.

The results of this examination of the variables present in the cases of serial arsonists revealed that there are essentially two forms of consistency - thematic and behavioural. The first requires that primarily variables from one theme of arson be displayed across a series, but not necessarily the same variables. The second requires that identical variables be present in each case, although they may not belong exclusively from one theme. This can be seen most readily in case number 12 who displayed the same four variables from three different themes in all ten of his cases.

Psychologically, however, this latter type of consistency is less interesting as the patterns of behaviour and process underlying the arson is not so clear as when an individual reveals the function that the firesetting serves by displaying behaviours from a particular theme.

## 7.6 Chapter Conclusion

This chapter has examined the nature of serial arson both in terms of its structure in relation to the actions systems model, and in relation to consistency and change across a series. The first analysis using SSA established that serial arson conforms to the patterns identified for the sample as a whole, in that the offences could be differentiated based on the predominant mode of functioning displayed by the offender. The second analysis found that the majority of serial arsonists commit very similar styles of arson on each occasion, however, there is some indication that offenders may escalate their firesetting behaviour as the series progresses. This has important implications for arson investigations as it emphasises the need to allocate resources to apprehend an arsonist as early as possible in a series.

Finally, a MSA was performed to establish variables that can be used to link the offences of a serial arsonist, and to differentiate their offences from those of another individual. Two separate forms of consistency were revealed by the MSA - thematic and behavioural.

In all of the chapters so far the focus has been on the crime-scene actions of arsonists. We will now turn to the characteristics of the offenders in order to establish whether these can also be differentiated according to the actions systems framework.



## Chapter 8 Firesetters' Characteristics

This chapter addresses a second set of hypotheses for the action systems model of arson which is that individuals who set fires according to a particular mode of functioning will be distinct from those operating in a different mode. These hypotheses are derived from the assumption that the mode of action that typifies any arson is a reflection of the characteristics of the arsonist. This is a specific example of the general thesis underlying investigative psychology that the way in which a person commits crimes is a reflection of their characteristics as people (Canter, 1995).

Essentially this hypothesis has two parts. The first is that an analysis of the personal characteristics of arsonists will reveal four distinct themes that relate to the action systems framework, and the second is that each of these four background themes will have corresponding relationships with the four styles of firesetting identified previously. The second part of the hypothesis forms the basis of Chapter 10, whereas this chapter focuses on an examination of the characteristics of the arsonists, and the relationships among them. It is useful first of all to outline some of the specific features that previous research has found to be associated with firesetting behaviour.

### 8.1 General Features of Arsonists

Chapters 1 and 2 of this thesis contained a more detailed review of the literature on the background characteristics of firesetters, particularly in relation to psychiatric and childhood factors. In summary, this research has found that the majority of arsonists are males (Geller, 1992a) aged between 15 and 35 (Kolko and Kazdin, 1988; 1991). Arsonists are typically intellectually below average and academically poor achievers (Bradford, 1982) and frequently report psychosexual and social inadequacies (Bradford and Dimock, 1986). In comparison with other offenders, they tend to be younger, less often married and employed, have more contacts with psychiatric services but less with the correctional system, and display fewer nonfire-related

criminal behaviours (Rice and Harris, 1991). Psychological characteristics include low assertiveness and self-confidence (Harris and Rice, 1984).

It is useful to keep in mind that although some of these features are of interest psychologically, e.g. psychosexual and psychosocial functioning, they are not all readily available to police investigators of an arson. They are therefore not included in this study for practical reasons, i.e. they were not available in the data set of police records.

## 8.2 Characteristics of the Current Sample

In using the action system approach to arson four sub-sets of individuals are hypothesised, each representing a dominant theme of the personal features that are typical for that mode of functioning. In order to test for the existence of these sub-sets, 25 variables were selected for analysis of the background characteristics of the 230 arsonists. These variables were chosen to reflect various aspects of the personal histories and circumstances of the offenders involved, particularly those aspects which were felt to reflect the four modes of functioning. A full list of the variables is provided in Appendix C.

The *integrative* mode, that reflects a strongly emotional reaction to personal concerns, would be hypothesised as typical of people with known emotional problems that may well have led to some form of treatment for mental illness. In order to cover a range of such possible backgrounds, the variables, 'depression', 'psychosis', 'personality disorder', 'psychiatric treatment' and 'suicide history' were coded for analysis.

By contrast the *adaptive* mode, in which the arsonists' use of fire is more opportunistic, as part of a repertoire of criminal activities, would be expected of people of a more immature, impulsive nature perhaps with a history of minor delinquent behaviour. Variables chosen to reflect this type of arsonist are: 'school trouble', 'social services involvement' and 'police caution'.



The *conservative* mode sits between the first two in being used to achieve instrumental objectives, but in this case objectives are of a more directly personal kind. Here then the person's relationships to others is the distinctive theme, especially the break down of these relationships. The sorts of characteristics expected here are, 'partner', 'separated', 'children', and 'alcoholism' (to reflect the frequent use of alcohol as a precursor to the conservative form of arson).

In opposition to this is the *expressive* mode in which the personal emphasis has no direct instrumental quality, but is a means of demonstrating some general emotional reactions. Here the act of arson itself is a direct means of expressing those feelings and thus would be expected to be an important part of the person's way of dealing with the world, perhaps best shown in their acts of arson being repeated against essentially anonymous targets. The variables, 'arson history', 'false alarm calls', 'personality disorder' and 'AWOL' (see Appendix C for explanation of this variable) were selected to reflect this mode of arson.

These hypotheses are open to direct empirical test by examining whether the characteristics of arsonists do indicate themes that relate to the four modes. There is also the subsidiary hypothesis as to whether any such themes identified have the appropriate relationships to each other. These hypotheses were tested by examining the intercorrelations between all the background variables available on the arsonists in the current sample.

### 8.2.1 Procedure

The same procedure which was used to code the 46 behavioural variables was used for the 25 background variables. Coding reliability is expected to be very high for the majority of these, as they concerned unequivocal information such as where the offender was living and his occupation at the time of arrest. Other variables, such as the psychiatric and social histories, are slightly less clear-cut and may simply not have been mentioned in the police report. As with the previous analysis, the use of Jaccard's coefficient on dichotomous data minimised the effect of false negatives.

## 8.2.2: Descriptive Characteristics of the Arsonists

In order to understand the nature of the types of individuals responsible for the arsons in this sample, their background characteristics were examined and comparisons made between these findings and those of previous studies. These were classified into six main categories: age, psychiatric history, general and social characteristics, living circumstances, education and occupation and history of involvement with authorities.

### Age

For a more structured interpretation of the ages of the arsonists, this variable was split into five categories representing age ranges: 0-16, 17-25, 26-35, 36-45, and over 46.

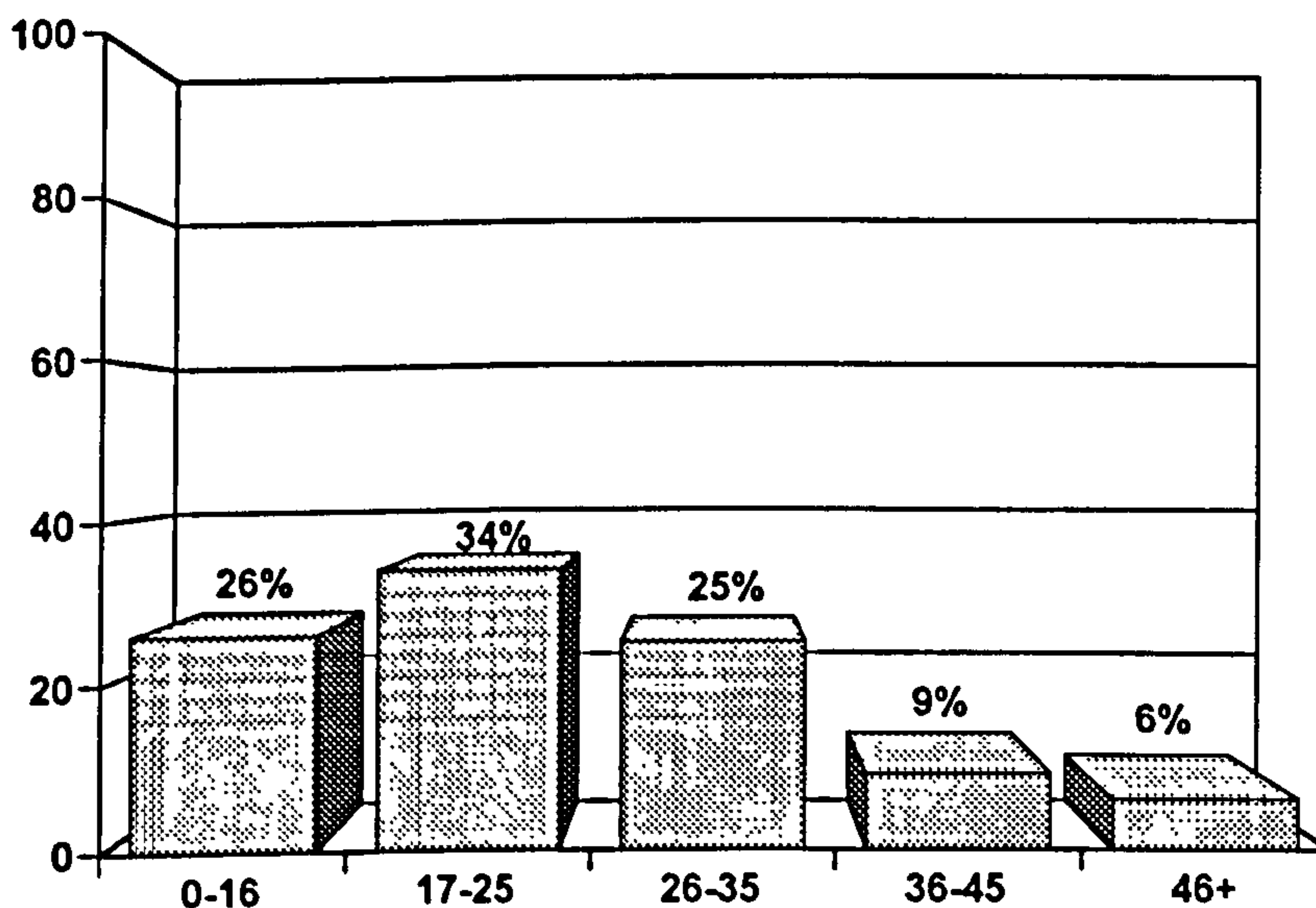


Figure 8.2.2.a: Age of Arsonists

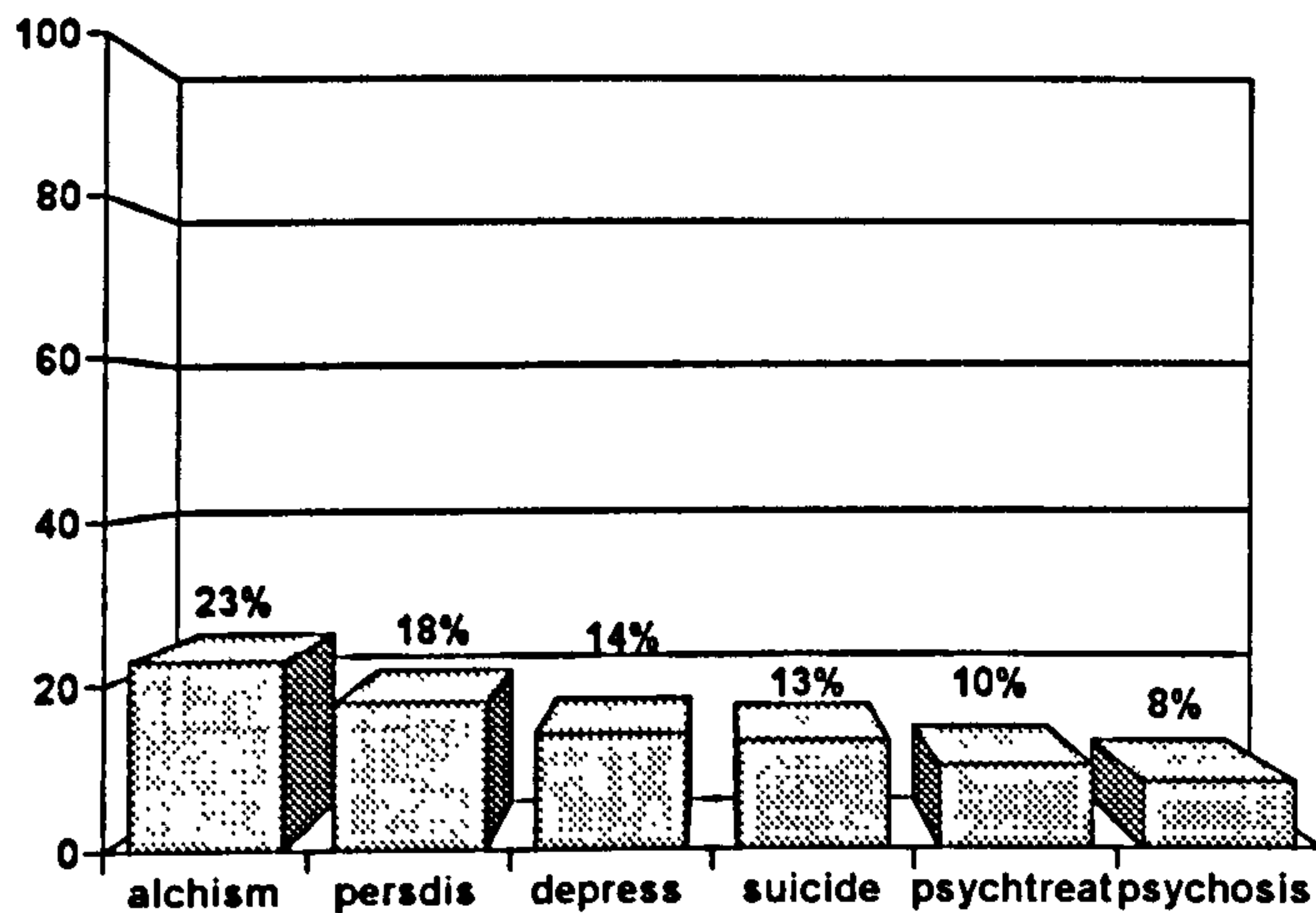
The age of offenders ranged from 6 to 68 years. As shown in this graph, the most frequent age range was 17-25. The peak age for criminal activity generally is around 18 (Blackburn, 1993) although variations have been found depending on the specific crime type, with rates of commission of violent offences generally peaking at a later



age (Blumstein, Cohen and Farrington, 1988). The mean age for the current sample was 24 years which is older than government statistics have indicated. For example, a Home Office report (1988) identified the peak age as 14-16 years. This difference could be due to an over-representation in the current sample of retaliative arson directed at specific people. Because of the known association between arsonist and victim these cases are probably easier to solve resulting in their high frequency here. There is good reason to suppose that these individuals may be older than other kinds of arsonists as their fires can be regarded as acts of violence, which in the general criminal population tend to be committed by older people (Blackburn, 1993). Interestingly, studies which have focused on psychiatric population of arsonists have tended to report a mean age similar to the one found in the current study. For example, the samples studied by Hurley & Monahan (1969) and more recently, Rix (1994) both had a mean age of around 25 years. It seems likely, then, that the discrepancy in age between published studies of arson and Home Office figures is due to the disposal of cases through the judiciary system with a much higher proportion of younger arsonists receiving either a caution or not being sent for psychiatric assessment.

### **Psychiatric History**

Although alcoholism isn't strictly a psychiatric condition, it was included in this category, along with histories of depression, psychosis, psychiatric treatment and suicide attempts or threats. The variable 'personality disorder' was intended to cover a range of behavioural or social disturbances, e.g. school problems or repeated antisocial or illegal conduct.



**Figure 8.2.2.b: Psychiatric History**

These figures show that 23% of the arsonists had severe drinking problems. This was generally evidenced by at least three convictions for drinking-related offences, such as driving whilst under the influence, or drunken disorderly behaviour. A further 18% of the sample had some form of personality disorder, manifested in severe behavioural disturbances. More serious forms of psychological problems were present in the form of depression in 14% of the cases and psychosis in 8%. Ten percent of the arsonists had received psychiatric treatment for these disorders, and 13% had made suicide threats or attempts.

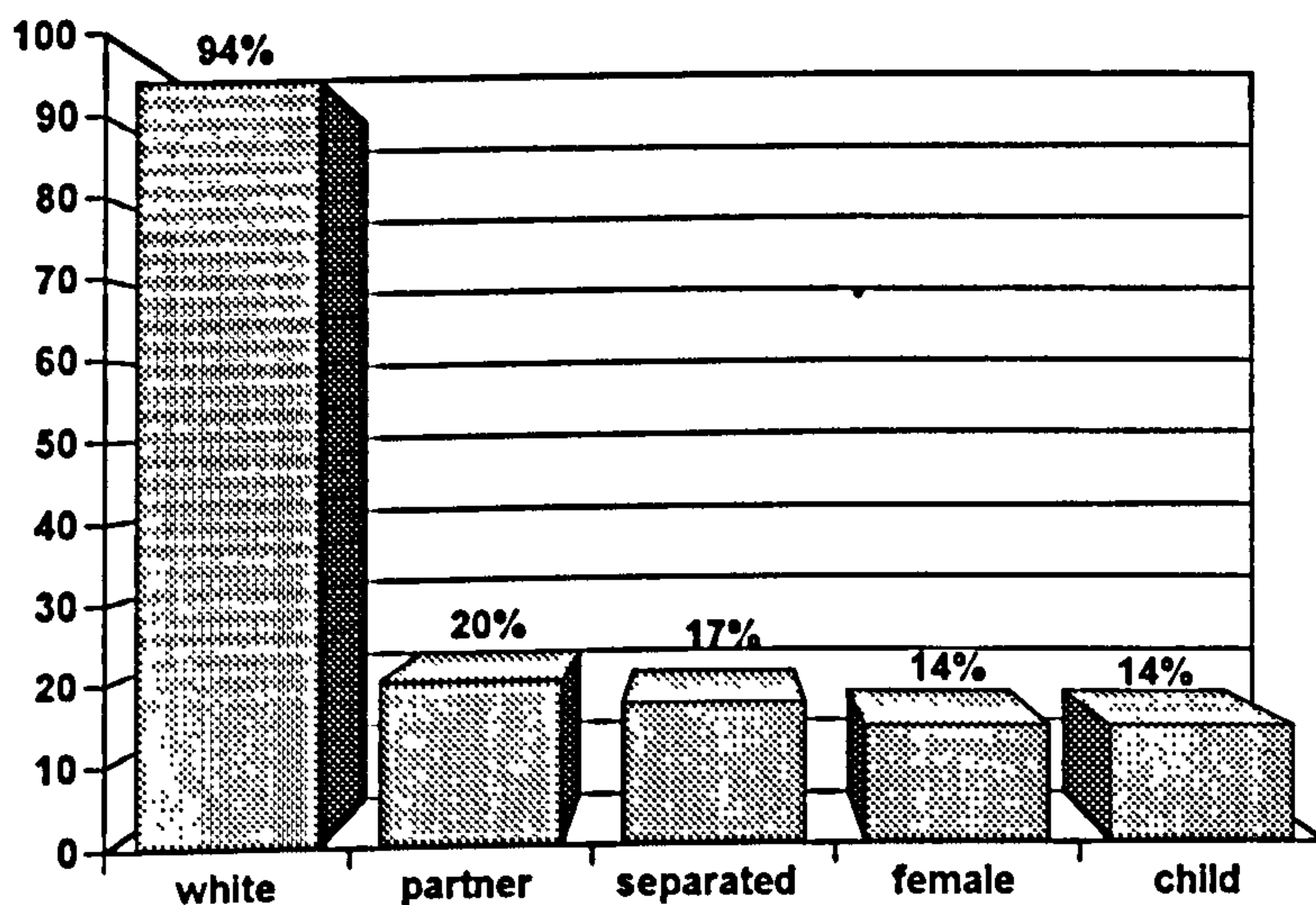
These figures are somewhat different to previous research findings on the clinical characteristics of arsonists. For example, in a study of hospital referred arsonists Bradford (1982) found that the most common psychiatric diagnosis was antisocial personality disorder (53%), followed by depression (18%) and psychosis (9%). However, only 15% of their sample were diagnosed as suffering from alcohol-related illnesses. Similarly, Rix (1994) reported for his sample of arsonists referred for psychiatric assessment that 54% received a diagnosis of personality disorder, while alcohol misuse and psychosis were both diagnosed in 8% of cases, and depression in 5%. In both of these studies the figures for personality disorder are much higher than in the present one, whereas alcoholism is lower. Again, this latter finding may be due to the over-prevalence of revenge-type arsons which are associated with alcohol consumption, while the lower figures for personality disorder is probably due to the



fact that this is not always easy to recognise and may not have been recorded in the police file.

### General and Social Characteristics

General characteristics of the arsonists included their gender and race. Although it is generally agreed that most arsonists are male, this analysis focused on the frequency of females in the current sample. In order to examine this particular group of arsonists more fully, the associations between females and the other background characteristics is analysed in the next section. The same rationale of focusing on the minority group was not applied to the variable, 'white', however, as the frequency of the various non-white racial groups was too low for meaningful inferences to be drawn. Social characteristics concerned the offender's relationships as described by the variables, 'partner', 'child' and 'separated'.



**Figure 8.2.2.c: General and Social Characteristics**

The vast majority (94%) of the offenders in this sample were white. Unfortunately, Home Office figures for the UK do not specify the race of arsonists, however, American studies generally report a slightly higher proportion of non-whites. For example, Wooden and Berkey's (1984) sample of juvenile firesetters was 88% white; Rider (1980) reports 76%. This difference between the US and UK is probably

accounted for by differences in the racial distribution among the two populations generally.

Fourteen percent of the arsonists in the current sample were female. This is similar to the Home Office (1988) figure of 18%. A fifth (20%) of the arsonists had a current partner at the time of the fire, whereas somewhat fewer (17%) were recently separated and 14% had a child. These variables have not received much attention in previous research, although an American study of serial arsonists (Sapp, Huff, Gary, Icove, and Horbert, 1994) reported that approximately 15% were either married or had a 'significant other', and around 18% were either separated or divorced. In another FBI study, Icove and Estep (1987) reported only 3% of their sample were married, and 8% were separated or divorced. This again highlights sampling differences between this study and the current one. As mentioned in Chapter 4, the majority of the arsonists in the Icove and Estep study were juveniles (72%) and would therefore not be expected to be married. Almost all (65%) of those arsonists that were married, fell into the revenge category, which is the most represented group in the current study.

### Living Circumstances

This analysis looked at whether the arsonists were living alone, with parents or other relatives, or in an institution at the time of their offences.

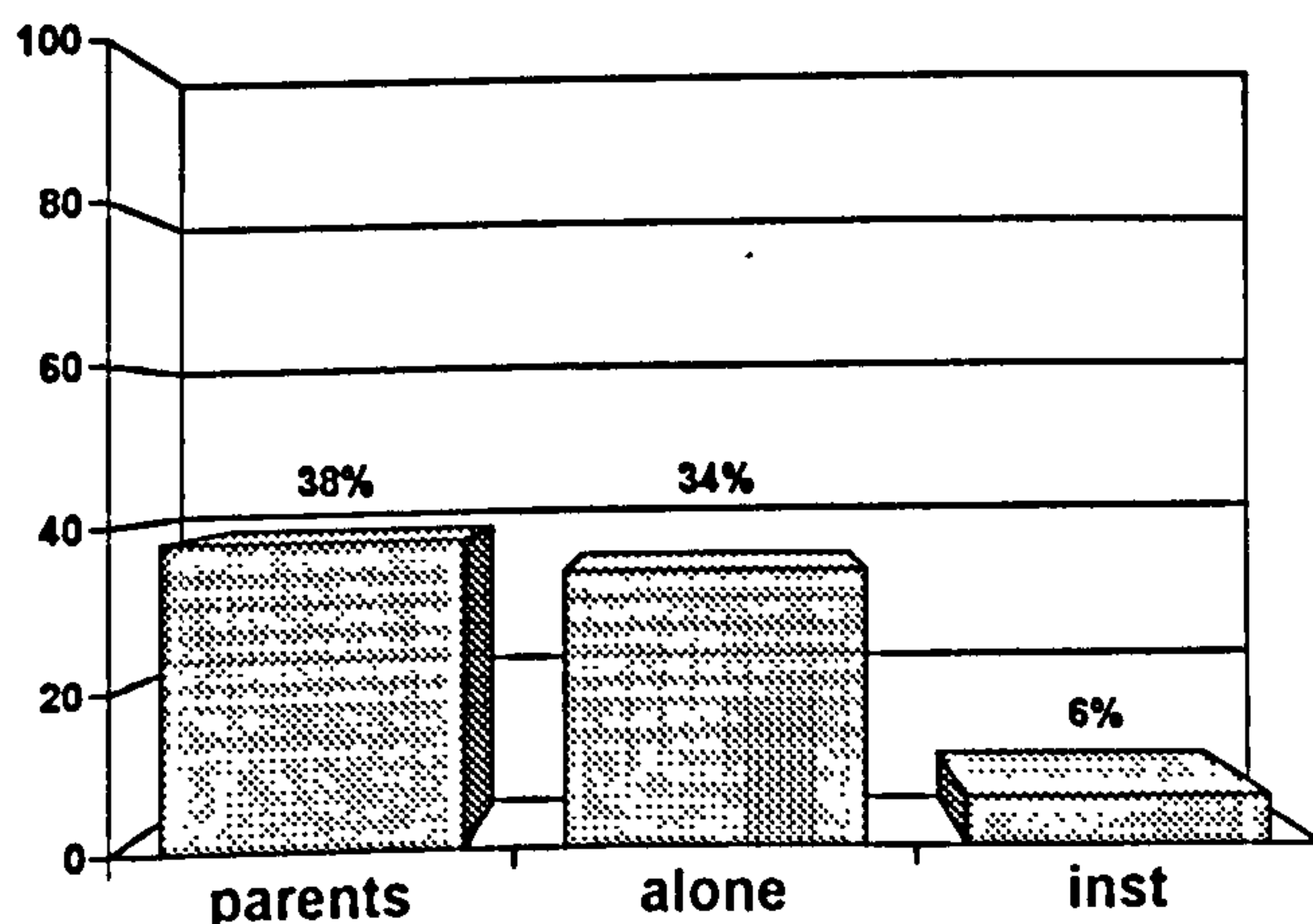


Figure 8.2.2.d: Living Circumstances



These figures show that the most common living arrangements for the arsonists in this sample is living with parents or other family (38%), closely followed by living alone (34%). A small number (6%) were living in an institution, e.g. children's home or secure unit, at the time of their offence. The remaining 22% were either living with a partner or their circumstances were not known.

A US study of serial arsonists (Sapp *et al*, 1994) found that approximately 30% were living with family (parents or grandparents) at the time of their fires. Sixteen percent were living alone and 14% were living in an institution. Differences between these findings and those of the current study may be accounted for by the nature of the two samples, the former consisting only of individuals who had set more than one fire. Chapter 10 of this thesis looks at differences in characteristics of arsonists associated with different styles of offences.

### Education and Occupation

The variables in this category included whether the arsonist was a school pupil, unemployed or in unskilled manual employment. Also included was whether the offender left school before the age of 16, whether he/she obtained any qualifications, and whether at the time of setting the fire, he/she was meant to be somewhere else, e.g. at school or work (AWOL).

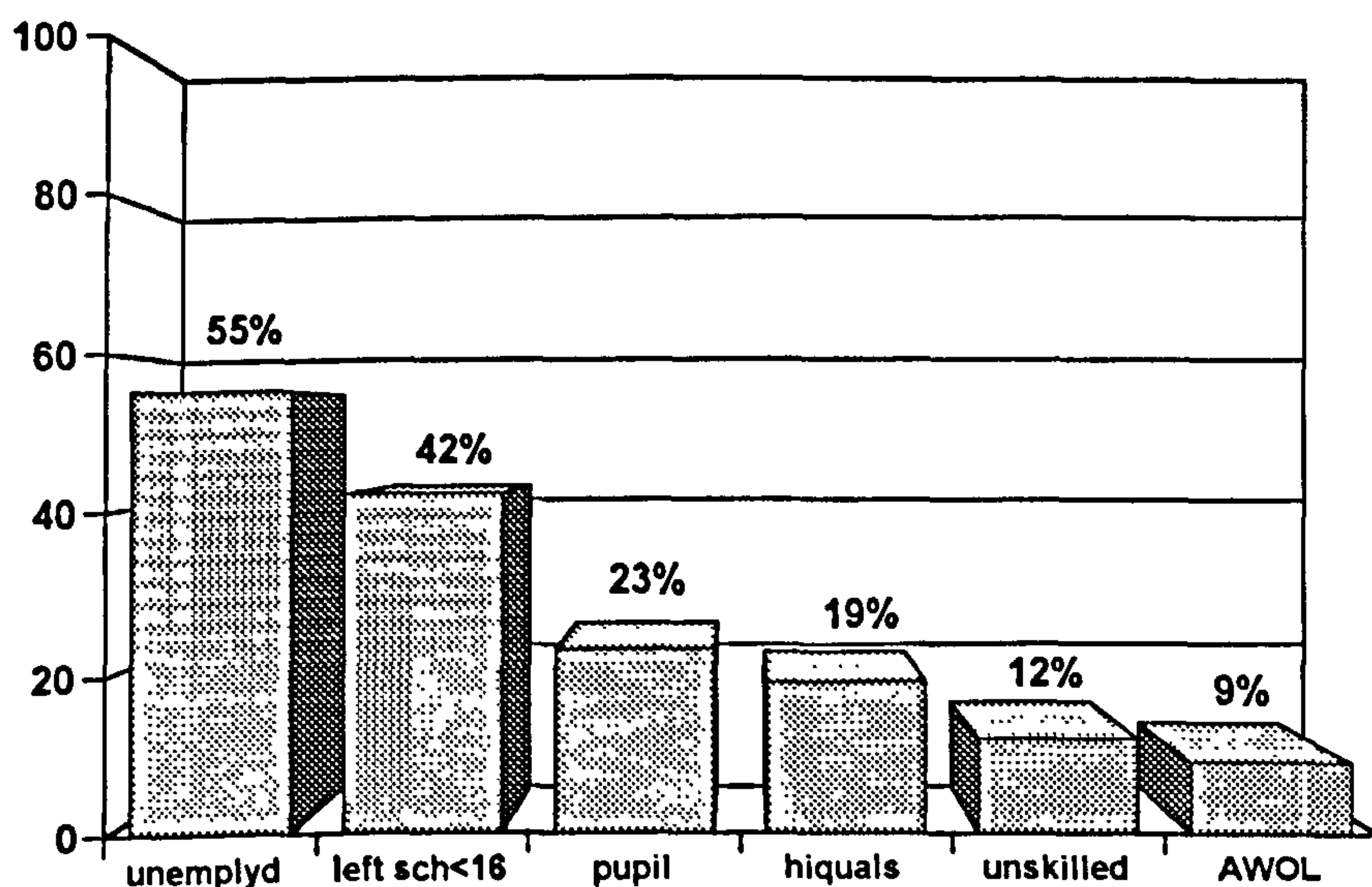


Figure 8.2.2.e: Education and Occupation

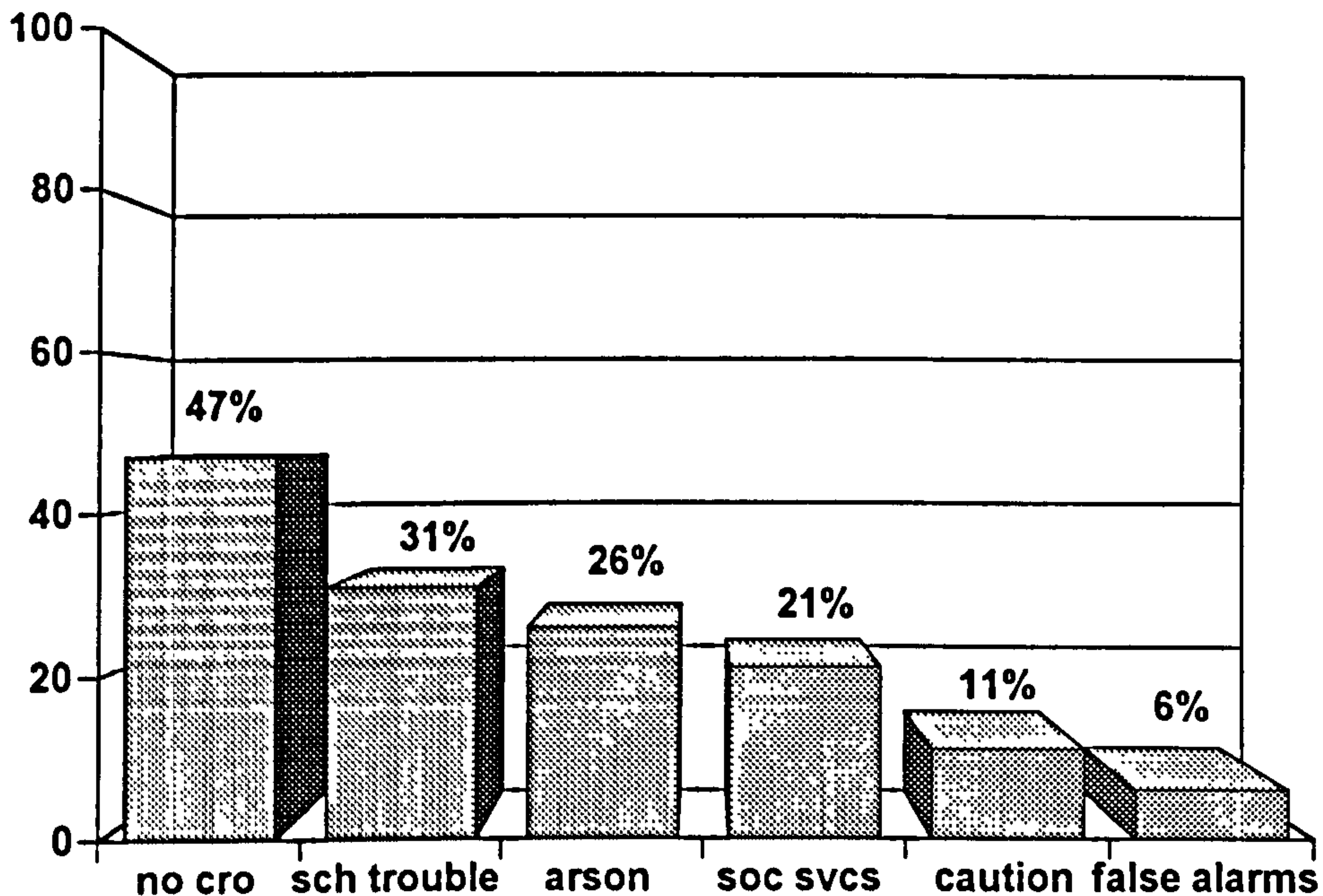
These figures show that just over half (55%) of the arsonists were unemployed at the time of their offences. A further 23% were school pupils, and 12% were in unskilled employment. The remaining 10% were either in professional employment, further education, or their police record did not state their occupation. Forty-two percent of the offenders left school before the age of sixteen, however 19% obtained some kind of higher qualification. At the time of setting the fire, 9% of the arsonists were absconding from school or work.

A British study of hospitalised and imprisoned arsonists (O'Sullivan and Kelleher, 1987) reported that 78% of the sample was unemployed. Sapp *et al* (1994) found that 28% of their serial arsonists were employed as menial labourers. Seventy-two percent of the arsonists in Icové and Estépp's (1987) study were juveniles, although not all of them were necessarily attending school. Sixty percent of their sample left school before the age of sixteen, and 30% had more than 10 years of education meaning that they at least obtained their high school diploma.

### **Involvement with Authorities**

This category looked at whether the arsonist had come into prior contact with authorities, such as police or social services. The variables examined were: police caution, no criminal record (CRO), prior arson, false alarm calls, school trouble and social services involvement.





**Figure 8.2.2.f: Involvement with Authorities**

Almost half of the sample had no criminal record (47%), although 11% had received a police caution. Just over a quarter (26%) had committed arson prior to the index offence, and 6% had made false alarm calls. Twenty-one percent had come to the attention of the social services and 31% had recorded behavioural problems at school.

In the Sapp *et al* (1994) study of serial arsonists, 24% had a prior arrest record for arson. Icové and Estépp (1987) found that 57% of their sample had no prior police contact. The other variables in this category can be regarded as problems associated with juveniles. Studies focusing on juvenile firesetters have tended to report much higher frequencies of various problems than was found in the present study. For example, DeSalvatore and Hornstein (1991) reported that 48% of their sample had a conduct disorder, whereas Forehand *et al* (1991) regarded all of their 36 juvenile delinquents as meeting the criteria for conduct disorder. These figures can be compared against the 31% in the present study with behavioural problems at school. Again, this is probably due to sampling biases, with such studies generally focusing on clinical populations which by definition will tend to have more severe problems than a more general sample.

### 8.2.3 'Profile' of typical arsonist in current sample

Taking these characteristics together, the following profile of an arsonist typical of this sample emerges. He will be a single, white, 24 year old male who is living alone or with family. He will probably have left school before the age of 16 with no qualifications and may have had behavioural problems at school. He will probably be unemployed with no previous criminal record and may abuse alcohol.

These characteristics represent the highest frequency variables in the current study, but within the sample overall there was a great deal of variation in certain characteristics. For example, although the mean age was 24, significant numbers of the arsonists were aged less than 16 (26%) or 26-35 (25%). Also, the majority of the arsonists in the sample were living with parents (38%), but a high proportion were also living alone (34%) or with a partner (20%). Similarly, while over half of arsonists were unemployed (55%), around a quarter were school pupils (23%). Clearly, these represent different sub-groups of individuals who set fires, therefore further analysis is necessary in order to uncover the patterns within these variations.

In terms of the representativeness of the sample, the main differences found between the results presented above and those found in many previous studies of arsonists' characteristics relate firstly to the absence of significant psychiatric or psychosocial problems in the present sample. A large number of studies which have described the characteristics of arsonists have focused on these sorts of problems (e.g. Rix, 1994; Harris and Rice, 1984), however, they have also been concerned with a very specific sub-group of arson offenders, namely those housed in psychiatric institutions. Another group of characteristics in which differences were noted in the present study compared to previous research was in relation to the proportion of the arsonists who were married or had a partner. Comparing these results with those of Icove and Estep (1987) a large discrepancy exists between the 20% of cohabiting arsonists in the present study, and 3% of married arsonists in Icove and Estep's sample. However, as previously mentioned, the latter study contained an over-representation



of juveniles and therefore characteristics associated with that sub-group of offenders are expected to predominate, and vice versa.

When the results of this study are compared to those using what may be regarded as representative samples, e.g. Rautaheimo (1989), a number of significant similarities emerge. Firstly, the average age of arsonists was very similar (27 years compared to 24 in the present study). Secondly percentages of school pupils are almost exactly the same (22% versus 23% in the present study). The same proportion of the arsonists were female (14%) and almost the same were living with parents (37% versus 38% in the current study). The level of education received was also very similar, with 16% of individuals in the Rautaheimo study achieving more than the basic school education, compared to 19% with O levels or above in the present study. Overall these results indicate that the present sample is very representative given that the Rautaheimo study was based on all arsonists arrested over a 14 year time period.

As previously stated, the descriptive analysis uncovered a great deal of variation in the background characteristics of the arsonists studied. Therefore further analysis was conducted in order to uncover the precise nature of this variation and whether the observed differences between sub-groups of the sample could be related back to the action systems model.

### **8.3 Thematic Analysis**

The next stage in the analysis tested the hypothesis that the four modes of action system functioning would also be reflected in the background characteristics of the arsonists. This involved an examination of the relationships between all of the background variables, which was conducted using a Smallest Space Analysis. The ages of the offenders was omitted from this analysis as the use of mutually exclusive variables can distort the SSA configuration. Instead, age was plotted as an external variable on the SSA, the results of which are presented in section 8.3.2.

The 3-dimensional solution has a Guttman-Lingoes coefficient of alienation of 0.20 in 6 iterations, indicating a good fit. Figure 8.3.a below shows the 1- by 2- dimension projection.

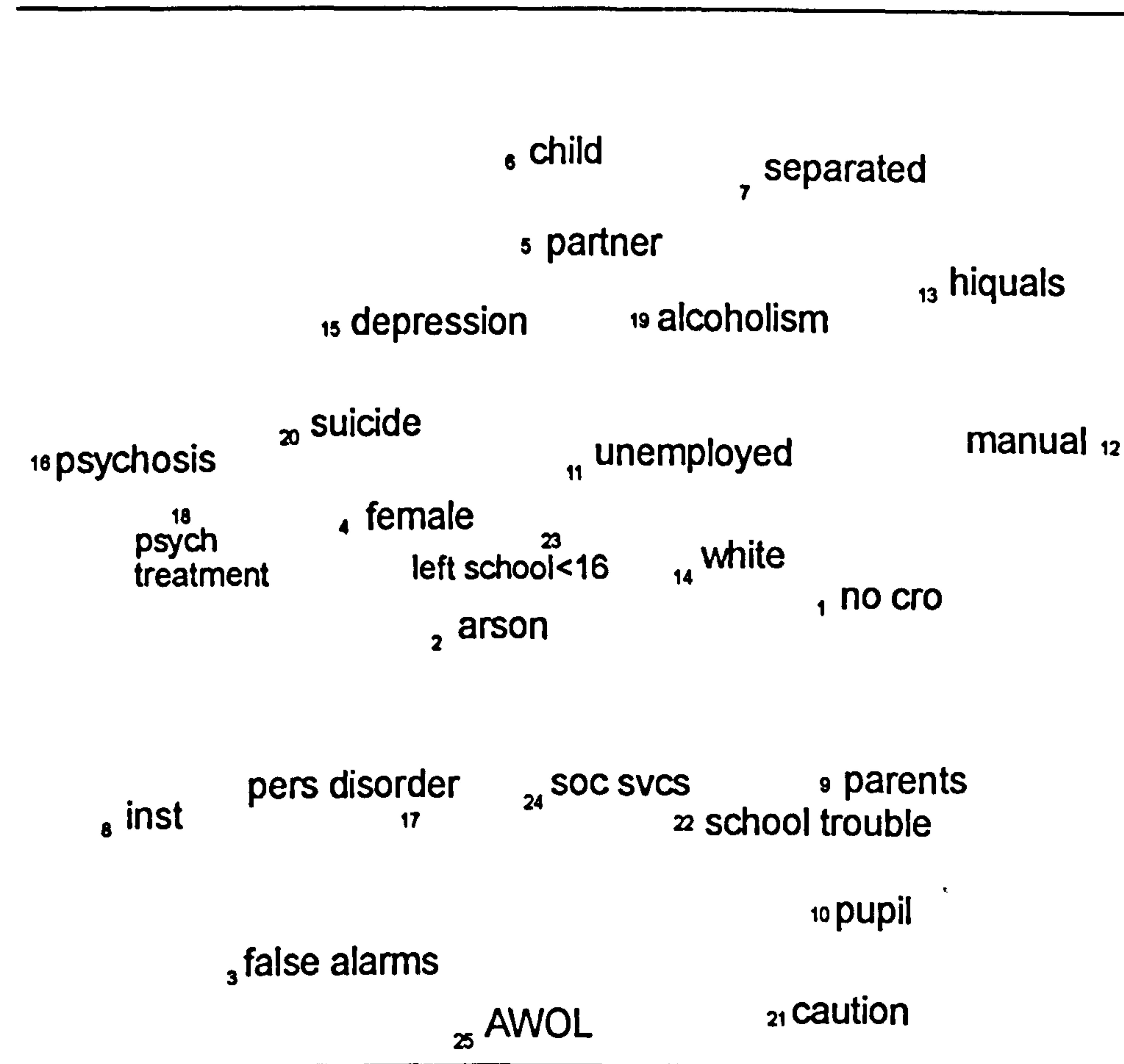


Figure 8.3a: SSA of Arsonists Characteristics

As might be expected, there are a set of characteristics that are typical of the majority of arsonists and thus help to define the nature of this sample. They are at the centre of the SSA configuration, demonstrating that these arsonists usually left school before the age of 16, are often unemployed Caucasians with no criminal record. Beyond these general characteristics the more personal aspects of the offenders, especially indications of their social relationships and skills, are found further from the centre of the plot. It is in these aspects that the distinct thematic qualities of the offenders can be found.



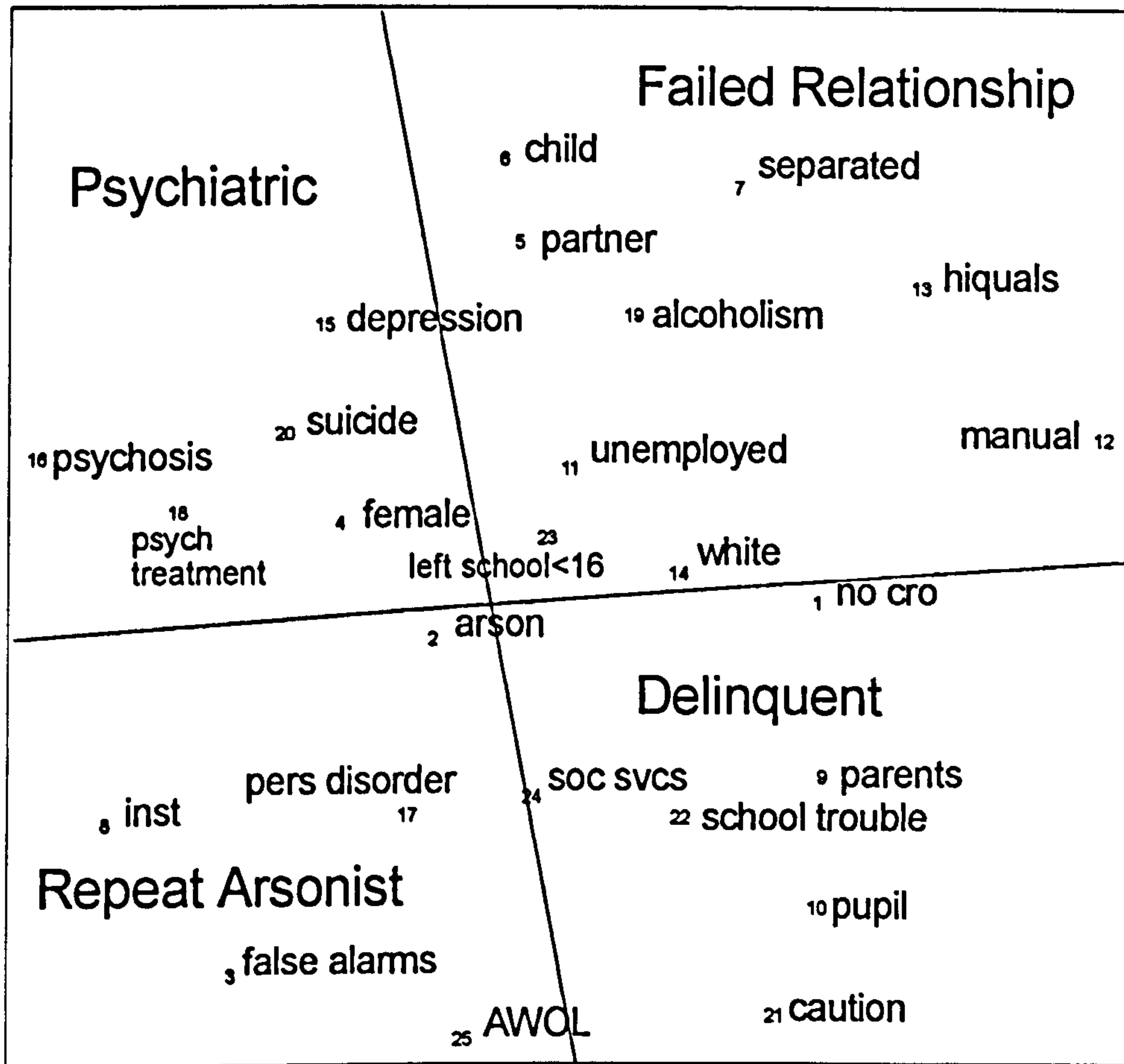


Figure 8.3.b: Themes in Firesetters' Characteristics

### 8.3.1 Themes in Firesetters' Characteristics

#### Adaptive: Delinquent

As hypothesised there is a set of offenders who have been cautioned previously for criminal activities and have come to the attention of the social services, usually because of problems either in the home or at school. These tended to be younger offenders of school age (see section 8.3.2). The variables used to define this region are thus:

- police caution
- living with parents
- school pupil
- school trouble

social services

These items give a Crohnbach's  $\alpha$  of 0.73 which is quite high given that the material is collected from police records with all their inherent unreliabilities and thus lends support to regarding these items as forming a scale.

### **Expressive: Repeat Arsonist**

The expressive theme was proposed to reflect the person for whom arson was a significant aspect of their ways of dealing with others and as a consequence would be reflected in their specifically absenting themselves to set fires, as well as making fire alarm telephone calls. Thus it was found that the variables of the individual having a history of setting fires are close to that of making false alarm calls as well as having usually come to the attention of police and social services, often for arson related matters. Note that the variable 'social services' is associated both with this type of arsonist and the previous delinquent group. Although both groups have often come to the attention of the social services, usually it is for different reasons, as discussed.

The following characteristics form this region:

A.W.O.L

false alarm calls

institution

personality disorder

prior arson

social services

These variables gave a Crohnbach's  $\alpha$  of 0.54.



### **Integrative: Psychiatric History**

This theme is seen as fundamentally disintegrative, in which arson emerges out of the person's self-destructive emotions; suicide attempts and a history of mental illness are therefore strongly hypothesised to intercorrelate if this theme is to be identifiable. The region with all the variables together that relate to these aspects is therefore a strong indicator of the validity of this theme. Looking at the individuals who had some form of psychiatric history (n=81) most had received a diagnosis of depression (n=32, 40%) and had a history of making suicide attempts or threats (n=31, 38%). Some of these individuals had received psychiatric treatment for their condition (n=25, 31%) and approximately a quarter were suffering from psychosis (n=19, 24%).

The following variables make up this theme of arsonist characteristics:

depression

female

psychosis

psychiatric treatment

suicide history

These items had a Cronbach's  $\alpha$  of 0.70.

### **Conservative: Failed Relationship**

Here the arson is seen as a direct means of affecting a person significant to the arsonist and as a device the offender uses to achieve focused revenge. The variables in the region that relates to the personal characteristics typical of this mode of transaction are as follows:

alcoholism

child

partner  
 high qualifications  
 separated/divorced

The variables in this region have a Cronbach's  $\alpha$  of 0.53. This is the lowest value due to the negative correlations between 'partner', and 'separated/divorced'. Despite this, however, the appropriateness of the label 'Failed Relationship' is derived from the fact that the variables all fall in the same region of the SSA space, giving empirical support to their conceptual similarity.

A summary of the four scales derived with their Cronbach's  $\alpha$  is given in Table 8.3.1.1.

**Table 8.3.1.1: Scales of Arsonists' Characteristics**

	<b>Failed Relationship</b>	<b>Psychiatric</b>	<b>Repeat Arsonist</b>	<b>Delinquent</b>
<b>ITEMS</b>	alcoholism child partner hi quals separated	depression female psychosis psych treatment suicide	AWOL false alarms institution pers. disorder prior arson social services	caution parents school pupil school trouble social services
<b><math>\alpha</math> VALUE</b>	<b>.54</b>	<b>.70</b>	<b>.60</b>	<b>.73</b>

### 8.3.2 Age as an External Variable

As previously mentioned, the ages of the arsonists was not included in the SSA of background characteristics because of the potential for distorting the configuration. In order to examine differences in the mean ages of offenders relating to the other characteristics, these were plotted on the SSA as an external variable. This procedure involved selecting all the cases using SPSS where a particular background variable was present, and calculating the mean ages of all the offenders with that characteristic. This was repeated for all 25 characteristics, and the results are shown in Figures 8.3.2.a and 8.3.2.b below.



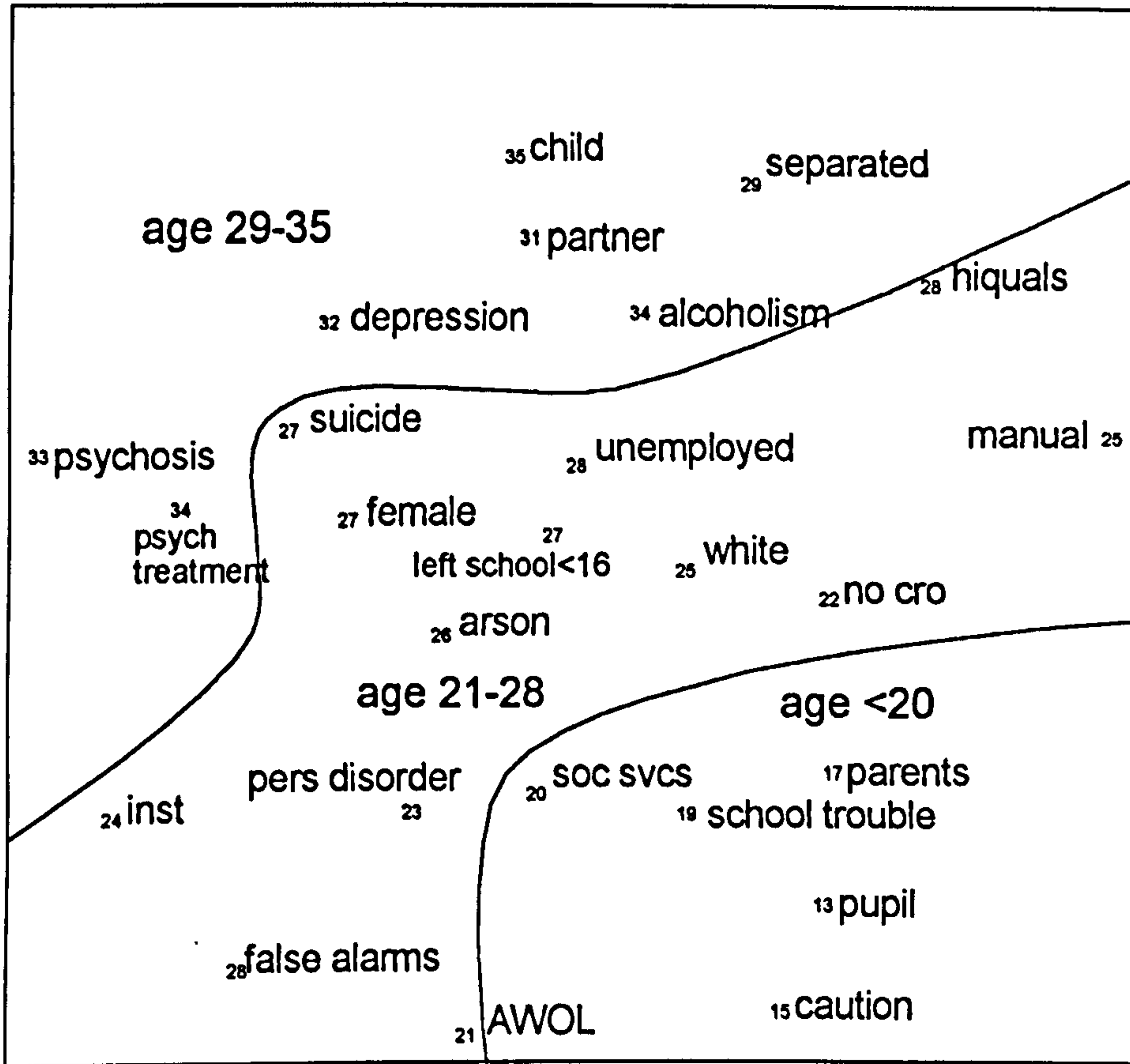


Figure 8.3.2.a: SSA of background characteristics with age

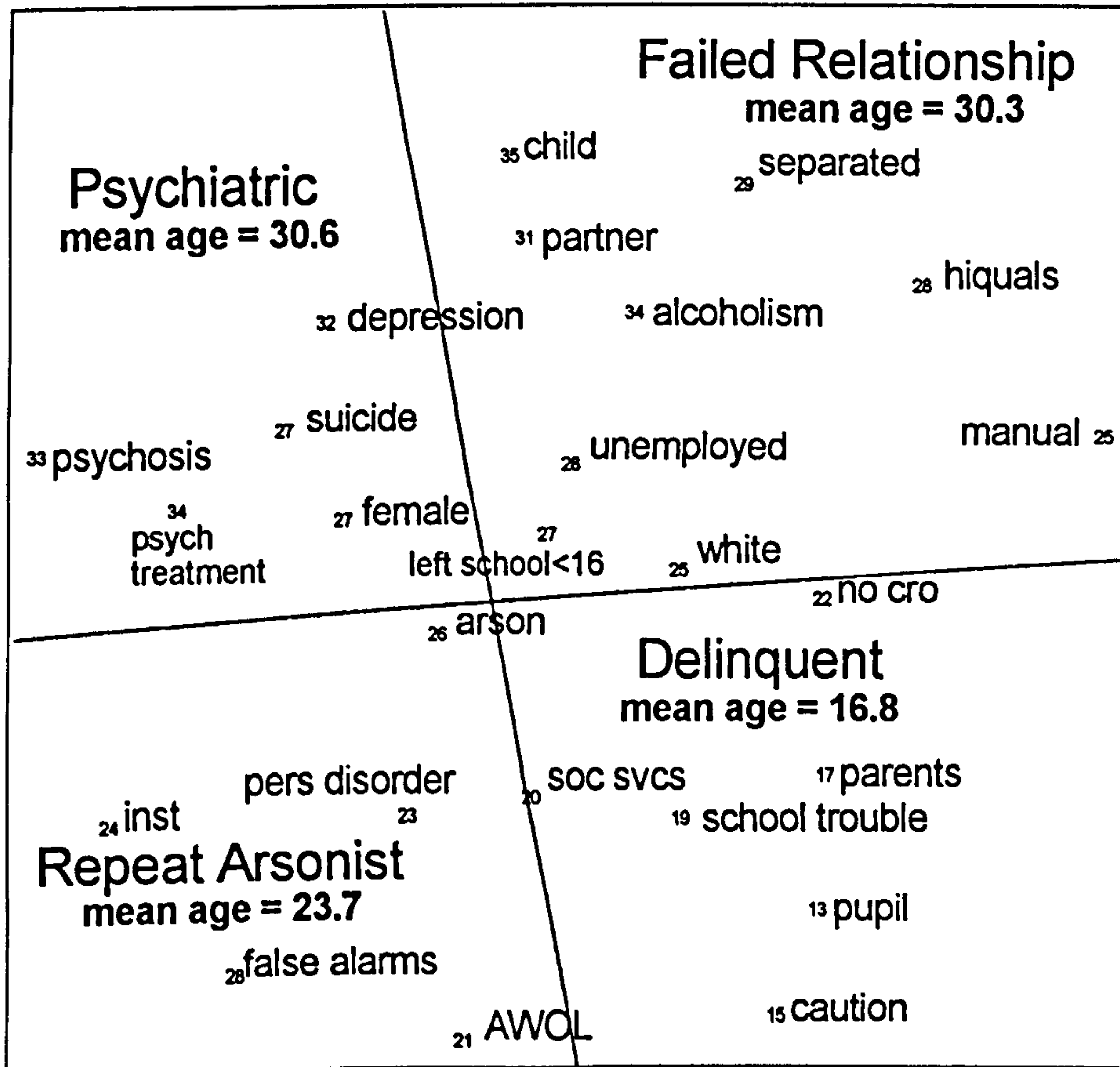


Figure 8.3.2.b: SSA showing mean age of each theme

The first of these figures shows that contour lines can be drawn on the plot depicting regions of variables with a mean age of less than 20; between 21 and 28, and over 28. Examining both plots together we can see that the youngest offenders are those who were living with their parents and attending school, and this age range corresponds exactly to the Delinquent region of characteristics. The oldest age band does not map exclusively onto one of the four regions, but depicts those offenders with a variety of psychiatric and social problems, including depression, alcoholism, and problems with relationships. The middle age band includes all the high frequency variables located centrally in the plot, and also includes all of the variables from the Repeat Arsonist region of characteristics. From the Psychiatric History region, those offenders who were female and had made suicide threats or attempts were also found to be in the middle age range.

The four regions were also correlated using Spearman's r with the five age bands listed in section 8.2.2. The results are shown in Table 8.3.2.1 below.

Table 8.3.2.1: Correlation of age bands with themes of characteristics

Age	Delinquent	Failed Relationship	Psychiatric History	Repeat Arsonist
<16	.68***	-.49***	-.24***	.14*
17-25	-.08	-.04	-.06	-.02
26-35	-.34***	.25***	.19**	-.03
36-45	-.23***	.31***	.04	-.14*
46+	-.21***	.20**	.19**	-.01

\*p<.05    \*\*p<.01    \*\*\*p<.001

These results essentially confirm the pattern of age associations indicated on the SSA. It is interesting to note, however, the association identified between the oldest age band of over 46 years and both the Failed Relationship and Psychiatric History themes in backgrounds. Because very few arsonists (6%) belonged to this age category their association with particular variables was obscured by the overall means shown on the SSA.



These results also show that offenders in the range 17-25 do not have the characteristics associated with any one particular theme. This is probably due to this being the most common age category (34%) containing individuals from each of the four themes.

Finally, by calculating the mean of the individual means for all the variables in the four regions, it can be seen that the youngest offenders overall were the Delinquents, unsurprisingly, with a mean of 16.8 years. This is similar to the mean age range given by the Home Office (1988) of 14-16 years, suggesting that the Home Office figures are based predominantly on this category of arsonist. This was followed by the Repeat Arsonists, who's mean age was 23.7 years. The Failed Relationship and Psychiatric History offenders were both very close in age, at 30.3 and 30.6 years respectively. Again, this is not surprising as psychiatric diagnoses are rarely given to younger people, and in order to have had a long-term relationship and produced children, individuals would be expected to have reached a certain age.

## **8.4 Assigning Cases to Themes**

As with the previous analysis of the actions of arsonists, the study also attempted to assign specific individuals to categories. The ultimate aim of this is to examine whether associations exist between styles of committing arson and categories of offenders.

Similar criteria were applied to classify the individuals into one of the four main categories of Failed Relationship, Delinquent, Repeat Arsonist and Psychiatric. Once again a proportional score was obtained for each of the four groups, and an individual was classified as belonging to one of the groups if the proportional score for that category exceeded, or was roughly equal to the total for the other three.

Following this procedure, it was possible to classify 133 out of the 230 offenders (58%) as belonging to one of the four categories of offenders. A further 24 (10%) were classified as a hybrid between two of the four main types, if the proportion of

variables from each of the two categories were roughly equal, and individually exceeded the number of variables in any of the other categories. This means that slightly fewer of the offenders could be categorised than could the offences they committed. In other words, while 193 of the 230 acts of arson (84%) could be classified as either a specific type, or a hybrid, only 157 (68%) of the offenders themselves could be classified. This is probably due to the nature of the variables used: while the majority of the variables used to classify the acts of arson were mentioned in the police records, a number of the background characteristics variables were missing from the files. These were mainly those that pertained to psychiatric histories, and social services reports. However, the fact that this information was missing does not make the coding process itself necessarily more unreliable. Although there is a possibility of false negatives occurring more often with this type of data, the use of the Jaccard's coefficient reduces the potential effect of this on the SSA configuration by ignoring negative co-occurrences. The results of the classification into types is shown in Table 8.4.1 below.

**Table 8.4.1: Number of cases assigned to each characteristics theme**

	<b>N</b>	<b>%</b>
<b>Delinquents</b>	<b>62</b>	<b>39.5</b>
D-FR	2	1.3%
<b>Failed Relationship</b>	<b>38</b>	<b>24.3%</b>
FR-PH	5	3.2%
<b>Psychiatric History</b>	<b>20</b>	<b>12.7%</b>
PH-RA	3	1.9%
<b>Repeat Arsonist</b>	<b>13</b>	<b>8.3%</b>
RA-D	13	8.3%
RA-FR	1	0.5%
<b>TOTAL</b>	<b>156</b>	<b>100</b>

The majority (n=62, 39.5%) of the classifiable offenders were Delinquents, and a further 15 were a hybrid between Delinquent and either Failed Relationship (n=2, 1.3%) or Repeat Arsonist (n=13, 8.3%). The second largest single group was the Failed Relationship offenders (n=38, 24.3%). This was exactly the same number whose crime scene actions were classified as Destroy, and suggests a connection between these actions and characteristics themes. In addition to the hybrid between



this group and the Delinquents, a further two hybrids existed: one offender also had variables from the Repeat Arsonist region, and five offenders (3.2%) shared variables with the Psychiatric group. This latter category was the next largest, with 20 offenders (12.7%), and a further three (1.9%) were hybrids with the Repeat Arsonist region. Finally, thirteen offenders (8.3%) were classified as Repeat Arsonists. This does not mean that these were the only serial arsonists in the sample, but merely that these were the most extreme of such offenders, having a prior history of arson behaviour and false alarm calls, as well as a personality disorder, social services involvement and absconding from work or school in order to set fires.

As with the classification of acts of arson, these results show that the majority of cases could be classified as belonging to one of the four main categories of arsonist identified. It is interesting to note that each of these four sub-groups resembles different categories described in the literature; in other words the dominant processes identified in this study can be seen as a combination of the other samples mentioned in the literature.

The Delinquent category in the current study can be compared to Icove and Estep's (1987) sample of which 72% were described as juveniles. These individuals were primarily living with parents or relatives (83%). While 57% of them had no criminal record, 29% had prior police contact and the remainder had been previously arrested.

The Repeat Arsonist sub-group in the current study can be compared to the serial arsonists who were studied by Sapp *et al* (1994). They found that 24% of these individuals had a prior conviction for arson and 46% had spent time in an institution. The family stability of the arsonists was described as chronically unstable in 47% of cases (this accords with the social services involvement found to be associated with this group in the present study). These individuals also had a variety of personality and mental health problems (15%).

The Psychiatric History group of arsonists identified in the current study can be related to a number of the clinical studies of firesetters in psychiatric institutions.

For example Rice and Harris (1991) studied a large group of firesetters admitted to a psychiatric institution and reported that 26% had a history of suicide attempts, 30% were schizophrenic and 42% had been previously institutionalised.

Finally, the Failed Relationship theme in firesetters characteristics resembles the description given by Rautaheimo (1989) of the 'typical' arsonist. A very high proportion of his sample (85%) were intoxicated at the time of arrest, some of whom were heavily intoxicated (22%). Eleven percent were currently living with a partner, while 22% were divorced or separated. Forty nine percent were working in manual or unskilled professions.

It can be seen, therefore, that each of the sub-samples of arsonists described in previous studies can be compared to one of the four groups of characteristics identified in the current study. Consequently the overall model of firesetters characteristics presented here relates as a combination of other samples, providing a broader understanding of the sorts of individuals who commit arson.

## **8.5 Summary of Chapter**

This chapter examined the characteristics of the arsonists in the current sample and found that, like their crime-scene actions, these characteristics could be differentiated into four themes corresponding to the actions systems modes of functioning.

The adaptive mode was characterised by variables associated with a group of characteristics indicating a generally Delinquent lifestyle. The arsonists were known to the police and had received cautions for their illegal activities, although due primarily to their age they did not actually have a formal criminal record. These individuals were also often involved with the social services mainly due to problems in the home. Additionally, there were indications of behavioural problems at school, often resulting in suspension or expulsion. This range of variables, then, suggests the broad and expansive nature of the deviant habits and attitudes of such arsonists.



The Conservative mode of functioning was reflected in variables associated with a Failed Relationship. In many ways, these individuals are similar to the Delinquents, but because they are older their lifestyle problems are centred on relationships with partners rather than on authority figures. Although they may be living with a partner, the firesetting usually follows a separation resulting from arguments or physical confrontations. These relationship problems may be caused or exacerbated by heavy drinking patterns. A further indication of their limited and constrained lifestyle is indicated by the fact that such arsonists are generally unemployed or engaged in temporary manual employment.

The Integrative arsonist is characterised by a variety of Psychiatric problems, including depression, psychosis and suicidal tendencies. These individuals tend to be female and are, on average, the oldest in the sample. Their extensive history of emotional disturbances indicates that these arsonists are preoccupied with internal processes, reflecting the integrative modes of functioning.

Finally, the Expressive mode of functioning refers to a process of acting out internal drives on the external world. In relation to arsonists, the primary drive which underlies this expressive process is a fascination with fire which is manifested by Repeat Arsonists. These individuals have a history of fire-related behaviour including setting fires and making false alarm calls. Although not as disturbed as the previous group of individuals, these arsonists are nevertheless also dysfunctional to the extent that they are occasionally institutionalised. Aside from any other behavioural problems, the fact that they repeatedly set fires in itself often causes them to be considered personality disordered.

The next chapter focuses on the process of arson in the context of criminal behaviour generally, and how it may relate to other offences in the criminal histories of arsonists.

## Chapter 9: Criminal Histories of Arsonists

In referring to an individual as an “arsonist”, there is an assumption of consistency in the firesetting behaviour, to the extent that we expect the offender to continue committing arson over a period of time. In addition, the term “arsonist” implies some degree of specialisation in terms of the range of other offences which that individual also commits. If the person commits a variety of crime types showing no particular preference for firesetting, then there is no reason to call him an arsonist as opposed to, say, a burglar or vandal. By examining the criminal histories of arsonists, we are attempting to address the psychological issue of whether arsonists are like other criminals, or are they a distinct category with special behavioural problems? Furthermore, as the analysis of general background characteristics has shown, there is a sub-group of Delinquent arsonists in the present sample who may be regarded as ‘criminals’ in that they have had contact with the police. Another sub-group of Repeat Arsonists had specifically fire-related criminal histories including arson and false alarm calls. Another question arising from these findings is: do these represent the only two categories of criminal histories of arsonists, or are there more general patterns found in the sample overall?

There is of course practical value in addressing these questions. As far as police investigations of any crime are concerned, the sorts of convictions which a person likely to be responsible for that crime may hold represents a particularly important group of background characteristics. As stated above, this is a complex issue in regard to firesetting as there are many different styles of committing this offence which could potentially be associated with various criminal pathways. Within the literature, there are two main issues relevant to the examination of the types of crimes committed by offenders; consistency and specialisation.



## 9.1 Consistency in Criminal Careers

Criminological research shows that offenders tend to be consistent in their offending over long periods of time. In one study, Farrington (1989) found that offenders who committed a particular offence at one age tended to commit the same offence type at a later age. For example, a third of those convicted of burglary between the ages of 10 and 18 were later convicted of burglary between ages 19 and 32, whereas only 4% of those not convicted of burglary at the younger age were later convicted of burglary.

Pulkinnen (1983) found that aggressive behaviour at age 8 was predictive of future violent convictions with a correlation coefficient of .27. Similarly Stattin and Magnusson (1989) found that almost three quarters (69%) of boys with a high aggressiveness rating at age 13 went on to commit at least one offence of violence against the person.

These are consistent findings supportive of the conclusion that the commission of a particular offence at one moment in time has predictive value, following the paradigm that “the best predictor of future behaviour is past behaviour” (Skinner, 1953).

## 9.2 Specialisation in Criminal Careers

The extent to which offending is specialised is a controversial issue among criminal career researchers. There is a traditional view that offenders tend to sample a range of offence-types early in their criminal career, and subsequently to adopt a more focused approach to offending later in their careers by specialising in crimes which they find more appropriate to their skills or needs (Blumstein, Cohen, Das, *et al*, 1988). Recent research, however, tends to contradict this notion by finding a consistent lack of specialisation in offence-type across the course of an offender’s criminal history (see Gibbons, 1988 for review).

By broadening the definition of 'specialisation', however, from focusing on specific single crime types to broader categories of similar types, some support has been found for the notion of homogeneity in offending during an individual's criminal career.

Gottfredson and Gottfredson (1994) reported evidence for specialisation when offenders in their sample had been grouped in terms of the mix of offences committed after release from prison. From an examination of the offence mix they found 28 percent of the sample could be considered 'specialists', having been charged with only one other type of crime subsequent to release. Using a typology which grouped offences into six main categories (nuisance, person, property, fraud, serious drug, other), the most common mixes were nuisance/property; and nuisance/person/property.

Similarly, some evidence of specialisation in offending was found by Nicks (1993). Using multidimensional scaling techniques it was found that the individuals in the study tended to specialise in one of three broad crime-type clusters: violence and aggression (e.g., offensive weapon, criminal damage including arson, assault police); substance abuse and nuisance offences (e.g., minor damage, drunk and disorderly); or property offences (e.g., theft from a vehicle, shoplifting).

In an extensive study, Blumstein, Cohen, Das, *et al* (1988) found two clusters of offence types: violent offences (rape, murder, aggravated assault, and weapons); and property offences (burglary, larceny, auto theft, and fraud). Violent crimes such as rape, homicide, and weapons, were found among the least specialised offences, while drugs, fraud, and auto theft reflected the highest levels of specialisation. Thus, offenders evidenced a distinct tendency for switching within crime-type clusters rather than between them.

However, not all of the studies adopting this approach are in agreement. For example, Smith and Smith (1984) reported limited evidence for specialisation in broad crime categories in a study of 767 male delinquent criminal careers.



Additionally, Farrington (1989) found that a past conviction for burglary was predictive of a future conviction for vehicle theft to more or less the same extent as it was predictive of a future conviction for burglary, and vice versa. Broadly speaking, studies which have categorised offences under more general headings reflecting underlying themes in offending have produced the most promising evidence for specialisation in criminal careers.

In conclusion, various research has indicated that offenders are likely to display versatility in terms of committing a range of different crime-types during their career. However, specialisation is evident in the clusters of offence-types selected. It appears, therefore, that clear patterns in offending may be found through an examination of the underlying themes of criminal behaviour.

### 9.3 Offending Patterns of Arsonists

Most arson research has considered the offending histories of arsonists only to the extent that it provides background information to the study population. One notable exception is the comprehensive study conducted by Soothill and Pope (1973), the value of which lies in the exceptionally long follow-up period (20 years) of the research. The results of this study are reported below. Where criminal history has featured prominently, the studies have mainly examined the recidivism rates of arsonists in psychiatric settings (e.g., Geller, Fisher, & Bertsch, 1992; Geller, Fisher, & Moynihan, 1992), or in comparison with other offender groups (e.g., Hill, Langevin, Paitich, Handy, Russon, & Wilkinson, 1982).

In light of the previous literature review it might be anticipated that arsonists, like many other criminal groups, will evidence some specialisation in offending behaviour as revealed by the underlying theme of their offence-types. It seems less likely that arsonists will have an offending history comprising only arson offences (i.e., specialisation in a single crime-type). In fact, much of the arson literature tends to support these hypotheses, although these studies generally concentrate on prison populations and therefore do not represent as broad a sample as the present study.

Most researchers agree that arsonists are generally repeat offenders, engaging in a range of other crimes which are predominantly property-oriented. Recent literature reviews have supported a pattern of a low rate of arson recidivism but a higher rate of reoffending in other crime types (e.g. Barnett & Spitzer, 1994). In their longitudinal study, Soothill and Pope (1974) found that the rate of reoffending in other crime-types was substantially higher than the rate of arson recidivism, and furthermore of those 3 that did commit a subsequent act of arson, 2 only did so after a considerable length of time (13 and 15 years) . However, Hill *et al* (1982) found some evidence to suggest that arsonists do engage in more arson behaviour overall when compared to other offender groups. They compared three groups of offenders; property (n=73), arsonists (n=110) and assault (n=95) and found that the arsonists were the only group with previous convictions for arson.

Overall, these studies suggest that arsonists in general demonstrate a preference for offences which can be classified as broadly property related. However, it is not necessarily the case that arson itself can be considered a property offence. Some researchers have proposed that arson is a violent offence which has been displaced from person targets towards property targets (Jackson, Hope and Glass, 1987). In exploring this issue, arsonists have been compared with groups of other types of offenders and found to generally have more in common with property offenders in terms of criminal history, psychiatric diagnosis, and various demographic and social characteristics (e.g. Hill *et al*, 1982; Hurley & Monahan, 1969).

The results of Chapter 5 of the current thesis found that acts of arson could be differentiated according to whether the target was a Person or an Object; and whether it's underlying motivation could be described as Instrumental or Demonstrative. In terms of criminal histories, these results suggest the hypothesis that it may be possible to also differentiate between the past convictions of arsonists who direct their firesetting at persons (i.e. those described as Destroy and Despair) and those with property targets (Damage and Display). In other words individuals whose acts of arson are directed at people may have a different, possibly more violent



criminal history from those with anonymous object targets. This hypothesis is tested in Chapter 10.

The focus of the current chapter is to examine whether there is an underlying structure in the criminal histories of arsonists. In terms of this analysis, it may be expected that a differentiation could be found between offences which are Instrumental (in other words most property offences except criminal damage) and those which can be described as Expressive (Feshbach, 1964; Rosenberg and Knight, 1988). The null hypothesis would be that no identifiable themes in criminal histories exist. This would be the case if arsonists have an eclectic style of offending, similar to the “cafeteria-style” which Klein (1984) used to describe the offending patterns of juvenile delinquents.

#### **9.4. Differences between ‘specialists’ and ‘non specialists’ in arson styles**

As previously noted, 47% of the offenders in the sample had no previous criminal record or had only received a police caution prior to the current conviction for arson. This in itself is evidence for specialisation in arson offending suggesting that at least for some individuals, firesetting is not just part of a generic criminal disposition.

Given the fact that approximately half of the sample had a criminal record whereas the other half did not, it is of interest to examine whether differences existed in the nature of the arsons committed by these two groups. Tables 9.4.1 and 9.4.2 show a frequency comparison of the characteristics of both the arsons themselves and the individuals responsible.

Table 9.4.1: Comparison of actions by arsonists with (Pre-con) and without (No-con) previous convictions

Theme	Action	Pre-con Frequency (%) n=122	No-con Frequency (%) n=108	Chi square	Sign. (p)
DAMAGE	business	16 (12.3)	11 (10.1)	.29	ns
	school	11 (8.5)	6 (5.5)	.78	ns
	car	20 (15.4)	21 (19.3)	.63	ns
	miscellaneous	19 (14.6)	32 (29.4)	7.68	<.01
	mat. brought	79 (60.8)	58 (53.2)	1.38	ns
	spree	21 (16.2)	19 (17.4)	.07	ns
	weekday	67 (51.5)	61 (56)	.47	ns
	illegal	54 (41.5)	23 (21.1)	11.3	<.001
	theft	21 (16.2)	7 (6.4)	5.43	<.05
	other crime	25 (19.2)	17 (15.6)	.54	ns
	mult offender	38 (29.2)	37 (33.9)	.61	ns
	outside	59 (45.4)	52 (47.7)	.13	ns
	public view	77 (59.2)	62 (56.9)	.13	ns
	finance	11 (8.5)	8 (7.3)	.10	ns
DESTROY	targeted	93 (71.5)	55 (50.5)	11.17	p<.001
	planned	86 (66.2)	53 (48.6)	7.49	p<.01
	victim known	89 (68.5)	68 (62.4)	.97	ns
	partner	24 (18.5)	18 (16.5)	.16	ns
	argument	52 (40)	29 (26.6)	4.75	p<.05
	threats	36 (27.7)	18 (16.5)	4.24	p<.05
	threat arson	19 (14.6)	5 (4.6)	6.60	p<.05
	multiple seat	30 (23.1)	17 (15.6)	2.10	ns
	accelerant	53 (40.8)	37 (33.9)	1.18	ns
	alcohol	71 (54.6)	38 (34.9)	9.33	p<.005
	witness	20 (15.4)	24 (22)	1.74	ns
	specific trig	56 (43.1)	42 (38.5)	.57	ns
outburst	29 (22.3)	12 (11)	5.33	p<.05	
DESPAIR	residential	62 (47.7)	47 (43.1)	.50	ns
	self	6 (4.6)	9 (8.3)	1.34	ns
	own home	34 (26.2)	28 (25.7)	.01	ns
	lives end. del.	30 (23.1)	23 (21.1)	.13	ns
	lives end. loc.	76 (58.5)	60 (55)	.28	ns
	multiple item	57 (43.8)	39 (35.8)	1.60	ns
suicide note	0	4 (3.7)	4.85	p<.05	



Theme	Action	Pre-con		No-con		Chi square	Sign. (p)
		Frequency (%)	n=122	Frequency (%)	n=108		
DISPLAY	daytime	29	(22.2)	40	(36.7)	5.98	p<.05
	drugs	22	(16.9)	8	(7.3)	4.96	p<.05
	remain	47	(36.2)	55	(50.5)	4.96	p<.05
	public	10	(7.7)	7	(6.4)	.14	ns
	institution	8	(6.2)	4	(3.7)	.77	ns
	prior arson	38	(29.2)	21	(19.3)	3.17	ns
	serial	28	(21.5)	15	(13.8)	2.42	ns
	non-spec trig	21	(16.2)	15	(13.8)	.26	ns
CENTRAL	crusade	11	(8.5)	8	(7.3)	.10	ns
	set fire	111	(85.4)	89	(81.7)	.60	ns
	not alert	101	(77.7)	85	(78)	.003	ns
	less than mile	79	(60.8)	84	(77.1)	7.26	ns

Table 9.4.2: Comparison of characteristics of arsonists with and without previous convictions

Theme	Characteristic	Pre-con		No-con		Chi Square	Sign. (p)
		Frequency (%)	n=122	Frequency (%)	n=108		
DELINQUENT	age (<16)	20	(15.4)	42	(38.5)	16.54	p<.001
	caution	10	(7.7)	17	(15.6)	3.70	p<.05
	parents	44	(33.8)	51	(46.8)	4.14	p<.05
	pupil	17	(13.1)	40	(36.7)	18.21	p<.001
	school trouble	55	(42.3)	25	(22.9)	9.99	p<.005
	social svcs	34	(26.2)	19	(17.4)	2.61	ns
FAILED RELATIONSHIP	age (26-35)	37	(28.5)	23	(21.1)	1.71	ns
	age (36-45)	13	(10)	7	(6.4)	.99	ns
	alcoholism	40	(30.8)	14	(12.8)	10.89	p<.001
	alone	54	(41.5)	28	(25.7)	6.61	p<.01
	child	18	(13.8)	14	(12.8)	.05	ns
	high quals	16	(12.3)	27	(24.8)	6.24	p<.05
	partner	23	(17.7)	24	(22)	.70	ns
	separated	23	(17.7)	17	(15.6)	.19	ns
	unskilled	14	(10.8)	15	(13.8)	.50	ns
	prison	35	(26.9)	0		34.38	p<.001
REPEAT ARSONIST	AWOL	9	(6.9)	11	(10.1)	.78	ns
	false alarms	10	(7.7)	5	(4.6)	.97	ns
	inst	9	(6.9)	6	(5.5)	.20	ns
	pers disorder	24	(18.5)	17	(15.6)	.34	ns
	prior arson	44	(33.8)	20	(18.3)	7.26	p<.01

Theme	Characteristic	Pre-con Frequency (%) n=122	No-con Frequency (%) n=108	Chi Square	Sign. (p)
PSYCHIATRIC HISTORY	age (46+)	9 (6.9)	5 (4.6)	.59	ns
	depression	17 (13.1)	15 (13.8)	.02	ns
	female	13 (10)	20 (18.3)	3.47	ns
	psychosis	11 (8.5)	8 (7.3)	.10	ns
	psych treat	14 (10.8)	11 (10.1)	.03	ns
	suicide	16 (12.3)	15 (13.8)	.11	ns
CENTRAL	age 17-25	51 (39.2)	30 (27.5)	3.63	p<.05
	left sch<16	78 (60)	26 (23.9)	31.52	p<.001
	unemployed	96 (73.8)	36 (33)	39.95	p<.001
	white	127 (97.7)	99 (90.8)	5.43	p<.05

These tables show that a number of significant differences exist both in the nature of arsons committed by people with criminal histories and in the other background characteristics of those individuals.

In relation to the fires, the majority of the significant differences are found for variables in the Destroy theme. These show that arsonists who have previous convictions are more likely to target a specific property or person and are also more likely to plan the firesetting. In many of the cases where planning was evident it was in relation to taking precautions against being discovered. For example, one offender taped over the spy-holes in surrounding doors before placing a lighted newspaper through the letter box of his victim's flat. People who have previous convictions are more likely to take such precautions as they are aware of the consequences of being caught. Arsonists with previous convictions were also more likely to set fire following an argument and to issue both general and specific arson-related threats. The fire was also more likely to be part of a general outburst. This may relate to the existence of an impulsive personality type which some authors have argued is associated with criminality (Blackburn, 1993). In other words people with this personality type may be more likely to commit a number of crimes and also to react explosively to an argument by setting a fire. This may also relate to the finding that alcohol is more commonly a factor in arsons set by people with previous convictions in that alcohol may act as a further disinhibitor in these situations.



Other significant differences were found in relation to the Damage group of actions. Here, the firing of a miscellaneous object was more highly associated with arsons committed by people with no previous record. This probably relates to the vandalism-oriented form of damage identified in the POSA analysis in Chapter which is associated with juvenile offenders. On the other hand, fires involving illegal entry and theft were more commonly set by people with previous convictions. Of course these are in themselves criminal actions and may therefore be expected to be found in people with convictions specifically for theft or burglary. These associations with specific criminal activities are examined in the next chapter.

Finally, the Display variables daytime and remained were commonly found in arsons committed by people with no previous convictions. This suggests a specialism in these individuals towards only committing arson offences, perhaps because of a fascination for fire as revealed by the variable 'remained'.

In relation to the personal characteristics of the individuals, the majority of Delinquent characteristics were found more commonly in arsonists with no previous convictions. This is undoubtedly an age-related finding. An exception, however, was the variable 'school trouble' which was more frequently found in people with convictions. This shows a consistent theme of antisocial behaviour existing in the backgrounds of these individuals.

The variables 'alcoholism' and 'alone' from the Failed Relationship region were more commonly found in arsonists with convictions. Again, these may reflect personality characteristics associated with criminality such as failure to maintain relationships and tendencies toward addiction (e.g. Gottfredson and Hirschi, 1990).

Finally, all of the high frequency variables from the central region of the SSA were even more frequent in arsonists with criminal histories. These variables - age 17-25, left school before 16, unemployed and white - are commonly found in the general offender population (Blackburn, 1993). This finding suggests that many of the arsonists who have previous convictions are not very different to other sorts of

criminals, and that for these offenders, arson is not a specialism but just one of a repertoire of criminal behaviours that are practised.

On the other hand many of the arsonists did not have a criminal record, suggesting that for these individuals there is a particular psychological process which leads them to commit arson, and that this process does not just relate to a general criminal tendency.

It is also possible that even for those individuals who did have previous convictions there are aspects of their previous criminality that distinguishes them from a general offender population.

One way of testing this directly is to compare the frequencies of the various offences committed by arsonists with general criminal statistics, to see whether differences exist that suggest that arsonists are clearly distinguishable from other types of offenders.

## 9.5 Previous Convictions of the Current Sample

Of the 122 offenders with a criminal record, a detailed account of all previous convictions existed for 105 individuals. For the remaining cases, the relevant information was either not contained in the police files or could not be coded due to lack of time. An additional 10 new cases were included in this analysis. These were cases where the full police file had not been available at the time of coding, but a computer print-out of the offender's criminal record was. A total of 115 cases were therefore included in this analysis.

In terms of the offences appearing in the criminal records of the arsonists, some of these, e.g. Indecent assault, occurred in only one or two cases. Previous researchers of criminal history patterns have cautioned against the use of too many specific crime-type categories (e.g. Blumstein, Cohen, Das, *et al*, 1988) which can obscure general patterns in the data. Therefore a number of low frequency crimes were



collapsed into aggregate categories on the basis of behavioural similarity, resulting in a total of 15 variables, details of which are contained in Appendix C. For instance, the offences of Found Drunk and Urinating in a Public Place were aggregated with Drunk and Disorderly. Similarly, Public Order offences involving an element of violence were combined (e.g. Breach of the Peace, Threatening Behaviour). Various forms of Deception (e.g. Obtaining Pecuniary Advantage by Deception and Forgery) were combined into one Deception category. Several traffic offences were aggregated into one category of Traffic, including Driving while Disqualified, and No Insurance. These were seen as distinct from theft of, or from a car which were kept as separate categories. Finally, a number of offences relating to the judicial process, such as Failure to Appear and Non-payment of Fine, were subsumed under the category of Courts.

A data matrix was produced in which the presence of a particular offence type was indicated by a 1, and its absence by a 0.

### 9.5.1 Frequency of Offences

Overall, the mean number of convictions held by the arsonists (n=115) was 14. Sixteen percent had only one or two convictions and the majority (54.8%) had less than ten. However, a number of the arsonists (26.1%) were quite prolific criminals, having recorded over 21 convictions. The maximum number held by one individual was 81

**Table 9.5.1.1** below shows the frequencies of each of the offence types as well as the total number and mean number of convictions per offender for each offence. The fourth column in the table shows the percentage corrected for the sample overall, i.e. taking into account those offenders with no prior convictions. The fifth column shows the percentages taken from general criminal statistics (Home Office, 1996).

Table 9.5.1.1: Convictions of arsonists

Offence	Freq of sample	% of sample	% overall	H.O. %	Total No. of Convictions	Mean No. of convictions
Theft	81	70%	35%	37%	466	5.75
Burglary	61	53%	26.5%	32%	335	5.49
Criminal Damage	58	50%	25%	18%	124	2.14
Assault	47	41%	20.5%	6%	93	1.98
Public Disorder	35	30%	15%		74	2.11
Arson	32	28%	14%		67	2.09
Theft of Car	31	27%	13.5%	7%	106	3.42
Traffic	23	20%	10%	19%	66	2.87
Weapon	23	20%	10%		41	1.78
Courts	22	19%	9.5%		37	1.68
Theft from Car	20	17%	8.5%	16%	39	1.95
Drunk	19	16%	8%		43	2.26
Deception	15	13%	6.5%		45	3.00
Drugs	15	13%	6.5%		22	1.47
Robbery	11	9%	4.5%	1.4%	15	1.36

Comparing these figures with general crime statistics, a number of differences emerge. Firstly, the rate of criminal damage is much higher in the present sample, particularly given that the Home Office figures for criminal damage include arson convictions. This shows that arsonists commit destructive property acts much more frequently than the general offender population. Acts of violence directed at people are also much more common in the present sample of arsonists than in the general offender population. This is somewhat surprising given the literature that describes arsonists as being less assertive than non-firesetters (e.g. Rice and Harris, 1991). Of course a distinction may be made between assertiveness and aggression. Perhaps arsonists who feel they lack the social skills to achieve their aims by more socially appropriate means, have a tendency to react violently instead.

The other offence which is more frequent in the criminal records of arsonists than in the general offender population is theft of a car (TWOC). This is possibly due to the fact that many arson cases originate in the stealing of a car which is then abandoned and set alight to hide the evidence. It is therefore to be expected that these particular arsonists have a history of this offence.

On the other hand, theft from a car and traffic offences are less common in arsonists than in other offenders. These findings show that there is a particular pattern to the offending history of arsonists that distinguishes them from other offenders. It is



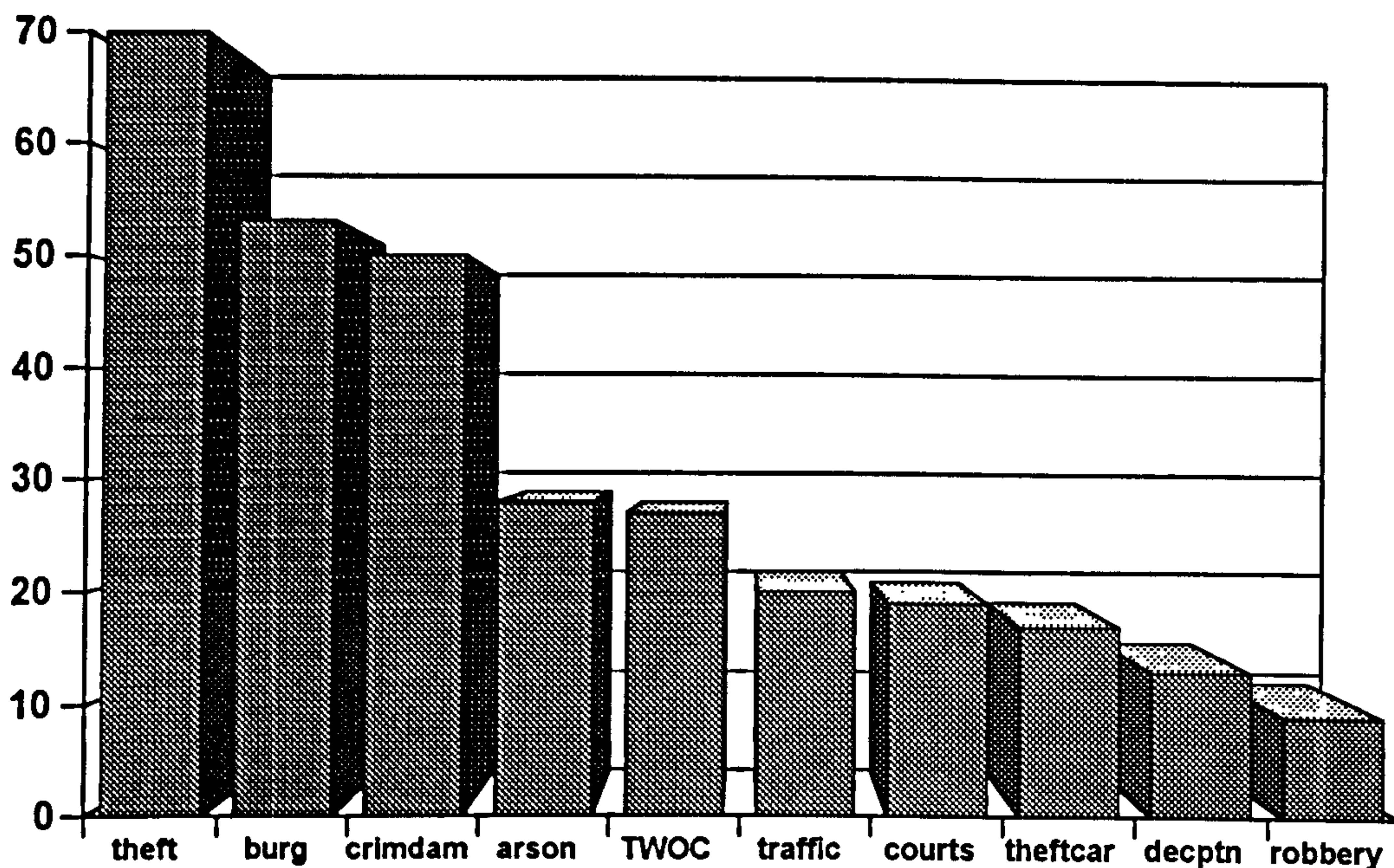
therefore of interest to examine whether themes can be found in these criminal histories that relate to the action system model, in the same way that the model has been found to be applicable to the general background characteristics of arsonists. This hypothesis will be tested in section 9.5.3.

Aside from comparisons with criminal statistics, these figures also show a number of interesting findings in relation to the criminal behaviour of the arsonists. Generally speaking those offences which have the highest frequency across all the offenders, also tend to be committed the most times per offender. There are, however, a few exceptions, most notably Deception which is committed by only 13% of the arsonists, but with an average of 3 convictions per offender. Conversely, assault features in 41% of the arsonists' criminal records, but with an average of less than two convictions per offender.

In terms of the frequencies of each of the offence types, **Figure 9.5.1.a** show the frequencies of the ten offences classified as predominantly crimes involving Property, and **Figure 9.5.1.b** show the results for the other five offences, which although they did not all involve violence, were classified as crimes against a Person to distinguish them from the other category.

### **Property Offences**

The offences Theft, TWOC, Burglary, Deception, Traffic, Theft from car, Robbery, Criminal Damage, Arson and Courts are all usually regarded as Property offences.



**Figure 9.5.1.a: Property Crimes**

All together, 109 of the arsonists were responsible for a total number of 1,300 property convictions. The maximum number held by a single offender was 81, and the mean number per offender was 11.9.

The most common offence which featured in 70% of the arsonists' criminal histories was theft. This included a number of different forms of theft, such as shoplifting and theft of bicycles. Burglary of both dwelling and non-dwelling formed the second-highest category of offence (53%), followed by criminal damage (50%). A previous conviction for arson was held by 28% of the arsonists, while 27% had stolen a car (TWOC). Twenty percent of the sample had committed various traffic offences and 19% had offences involving the judicial system. Theft from a car was present in 17% of the arsonists' criminal records. Offences classified as Deception were committed by 13% of the arsonists, and 9% had a previous conviction for robbery.

These findings are similar to those reported by Hurley and Monahan (1969) for a sample of 50 arsonists incarcerated in Grendon Psychiatric prison. They found that 74% had convictions for Larceny and 46% had committed Breaking and Entering. Property damage was combined with a previous conviction for arson, which was



recorded by 52% of the sample. Thirty percent had stolen a car, 34% had committed traffic offences and 8% had convictions for False Pretences.

The results from Soothill and Pope's (1973) twenty-year cohort study are somewhat different, in that they record much lower rates of offending than the level found in the present sample. The offence of larceny was recorded in 49% of their sample of 67 arsonists, and 18% were convicted of breaking and entering. Taking and driving away and traffic offences were committed by only 4% and 1% respectively, and 3% were found guilty of dishonesty offences.

### Person Offences

The frequencies of the remaining five offences are presented in Figure 9.5.1.b below. Although strictly speaking only Assault and Wounding are regarded by the Judicial system as offences against a Person, public disorder, drunk and drugs are included to differentiate them from the Property offences presented above.

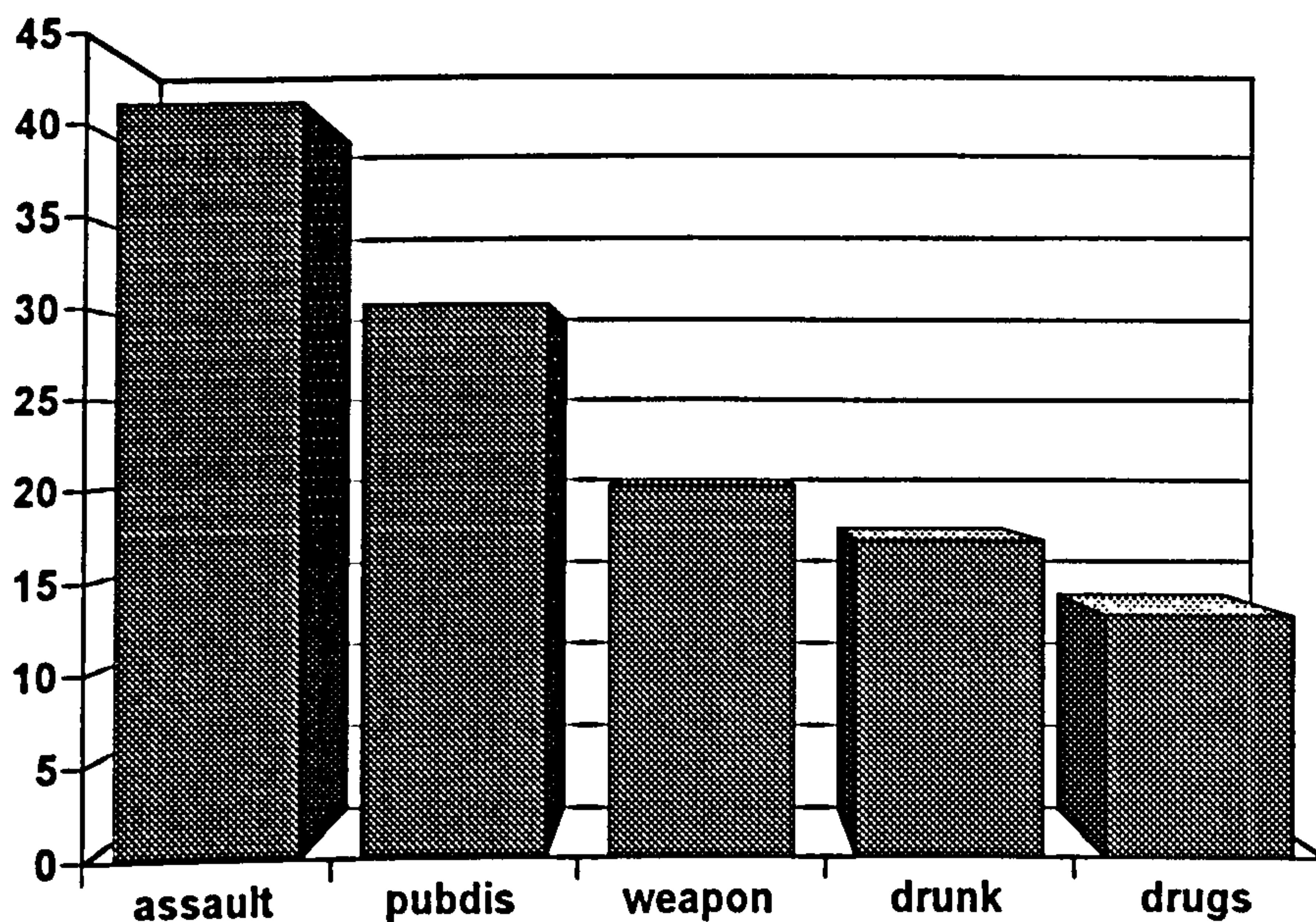


Figure 9.5.1.b: Person Crimes

The total number of person offences committed was 273. Seventy two of the arsonists were responsible for these, giving a mean of 3.8 person convictions per offender. The maximum for any one offender was 21.

Somewhat surprising, in view of the findings from previous literature outlined previously, was the fact that almost half (41%) of the sample had previous convictions for assault. This contradicts prior research showing that arsonists tend to specialise in property offences, and may be further evidence of the high proportion of the current sample for whom their firesetting represented an act of aggression directed at a person, rather than property. Thirty percent of the arsonists had previously committed an act of public disorder, and a fifth had been convicted of an offence involving a weapon. Sixteen percent had committed offences involving alcohol and 13% had drugs convictions.

These figures are again similar to those reported by Hurley and Monahan (1969) who found that 30% of their sample had committed violent offences.

Overall, these two frequency results can be compared to the findings of Hill *et al* (1982) who looked at the total number of charges in a group of 38 arsonists across various offences, rather than at the number of arsonists with convictions for those offences. Their results show a similar trend to those in the present study in that there were approximately three times as many charges for property offences as for violent ones (39 versus 12), although these figures are much smaller than the current sample's number of convictions. This in itself may be due to the sample selected by Hill *et al*, which were individuals seen for psychiatric assessment. Such psychiatric arsonists are only a sub-set of the sample in the current study, although of course the arsonists with criminal histories are themselves a sub-set of the whole arsonist population under consideration in the thesis.



### 9.5.2 Specialisation and Consistency in the sample

The fact that almost half of the arsonists had no prior convictions of any kind is evidence in itself of specialisation to the extent that arson was the only (known) crime ever committed by the individual. Furthermore, 3 of the 32 serial arsonists had not committed any offences other than arson, and a further five had committed only one other offence type. This is also evidence for consistency in the arson behaviour over time, as discussed in the previous chapter.

In terms of a general analysis of previous convictions, the results show that the majority of these were for property-related offences. Although a relatively high number of offenders had previous convictions for violent offences, the mean number of convictions per offence was much higher for the property offences. For example, while 41% of the arsonists had convictions for assault, and only 27% had convictions for TWOC, the mean number of convictions for assault per offender was 1.98 whereas those who had stolen a car had done so on an average of 3.42 occasions. These results support previous findings, e.g. Hill *et al* (1982), and also highlight the importance of examining not only whether a conviction for a particular offence type exists, but also the number of such convictions that an offender has in his history.

The following section explores the issue of consistency and specialisation further by examining whether particular offences tend to co-occur across the sample as a whole, in other words whether the arsonists specialise in certain themes of offences. The results of the analysis of the crime-scene actions of arsonists in Chapter 5 supported the distinction between Demonstrative and Instrumental types of arson, therefore it is hypothesised that a similar distinction will be identifiable in patterns of co-occurring offences committed by the arsonists. This is a broader distinction than the four themes identified for arson actions and characteristics. Because of the fact that only a sub-set of characteristics are being considered here, it is not expected that the same detail of distinctions would be found.

### 9.5.3 Themes in the Criminal Histories of Arsonists

A smallest space analysis was carried out on the 15 offence types committed by the 115 arsonists. This allowed for an examination of the relationship that every offence appearing in an individual's criminal record had with every other offence, across all the cases. The results of the SSA are shown below in Figure 9.5.3.a. This has a coefficient of alienation of .21 in 15 iterations which is quite high considering the number of variables, although still well within the acceptable range.

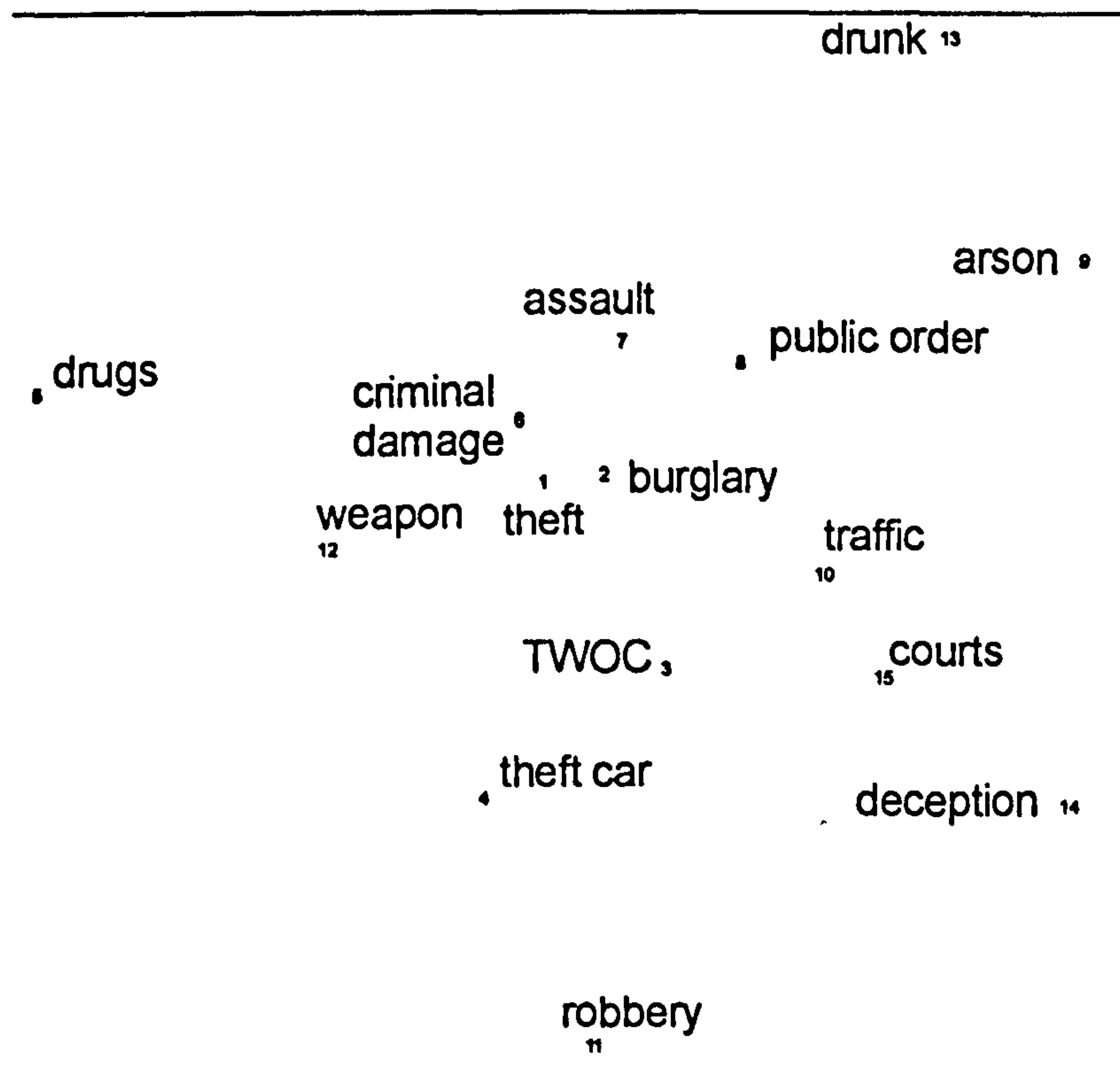


Figure 9.5.3.a: SSA of criminal histories of arsonists

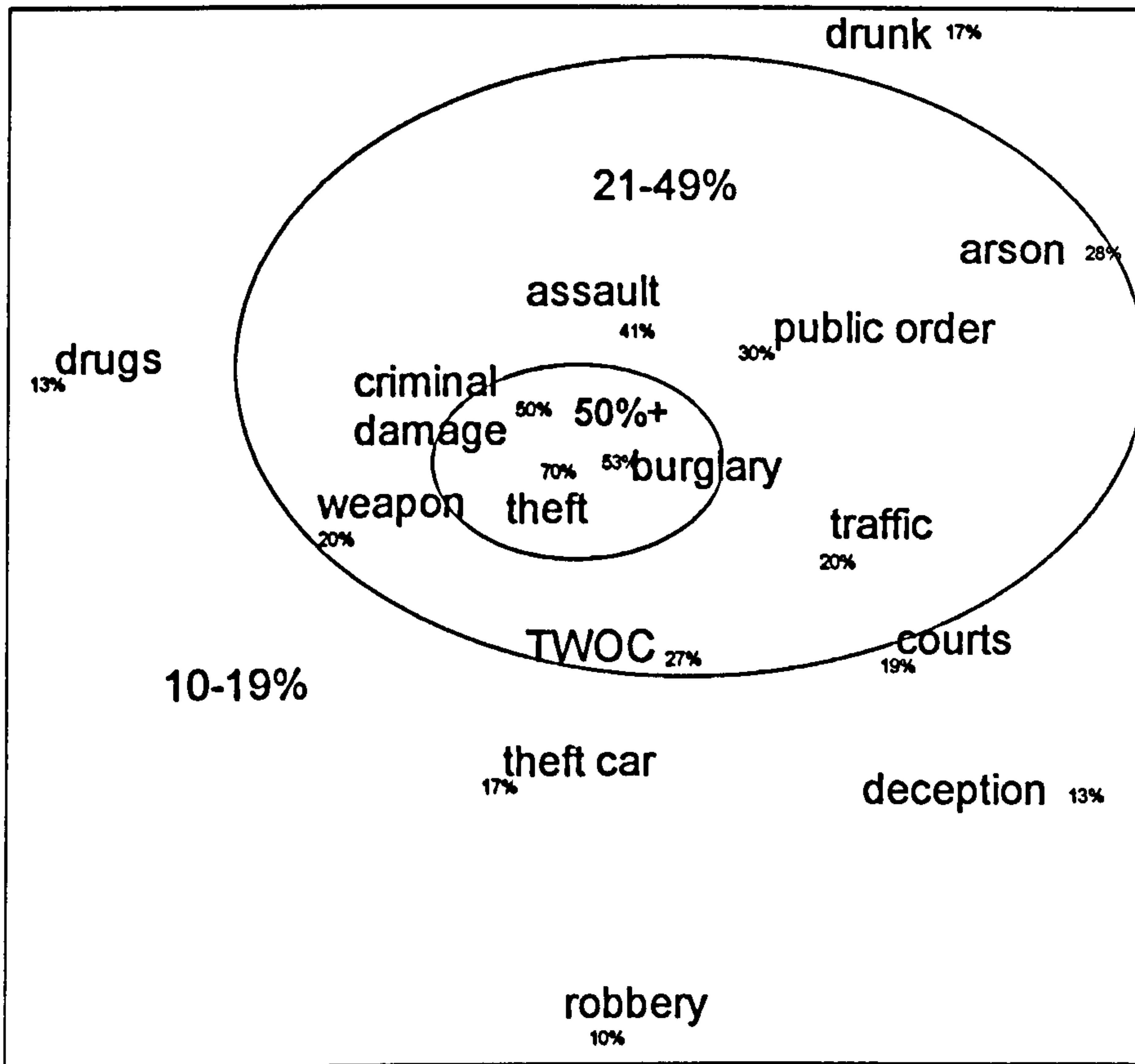
As previously mentioned, the algorithm used by SSA ensures that two variables that have a high measure of association will appear close together on the plot. Therefore, according to this SSA the offences of theft and burglary are highly associated, and often appear together in the criminal histories of arsonists. In contrast, those arsonists who are recidivists (i.e. serial arson offenders) do not tend to have convictions for drug-related offences. This is interesting given that the use of drugs was associated with the variables 'prior arson' and 'serial offence' within the Display



region of the SSA of arson actions in Chapter 5. This suggests that although such offenders may use drugs, they do so in a fairly low-level way and not to an extent that might lead to apprehension by the police.

### **Focus Facet**

An examination of the frequencies as shown in Figure 9.5.3.b shows that, once again, bands of decreasing frequency radiate out from the middle. This time three such bands can be clearly distinguished; offences that occur in more than 50% of the arsonists criminal histories, those present in 21-49% of cases, and those appearing in less than 20% of the records. Due to the small number of variables used in this analysis, it is only possible to make a tentative suggestion as to the substantive meaning behind this modulating facet, but it does appear once again to relate to the level of involvement that the offence requires with the victim. While burglary and criminal damage indicate a higher level of involvement, both in terms of time required to carry out the offence and direct contact with the property target, than theft from a car and deception; assault and carrying a weapon also afford more direct contact with the victim of a Person crime than do taking drugs and being drunk. An exception, of course, is the offence of robbery which can in extreme cases entail a high degree of involvement. On the lower end of the spectrum, however, an act of street robbery need not necessarily require a high degree of victim involvement and is also a very brief event.



**Figure 9.5.3.b: Frequencies of offences**

It was hypothesised that it would be possible to differentiate the SSA plot according to the same facet, termed motivational category, that was found to underlie the crime-scene actions of arsonists in Chapter 5. In other words, offences which could be described as primarily Instrumental, in that they involve a direct gain to the offender, were presumed to be found in a distinct region of the SSA space from other offences of a more emotional, or Expressive nature. Figure 9.5.3.c shows how the SSA of criminal histories can be partitioned to support this hypothesis.



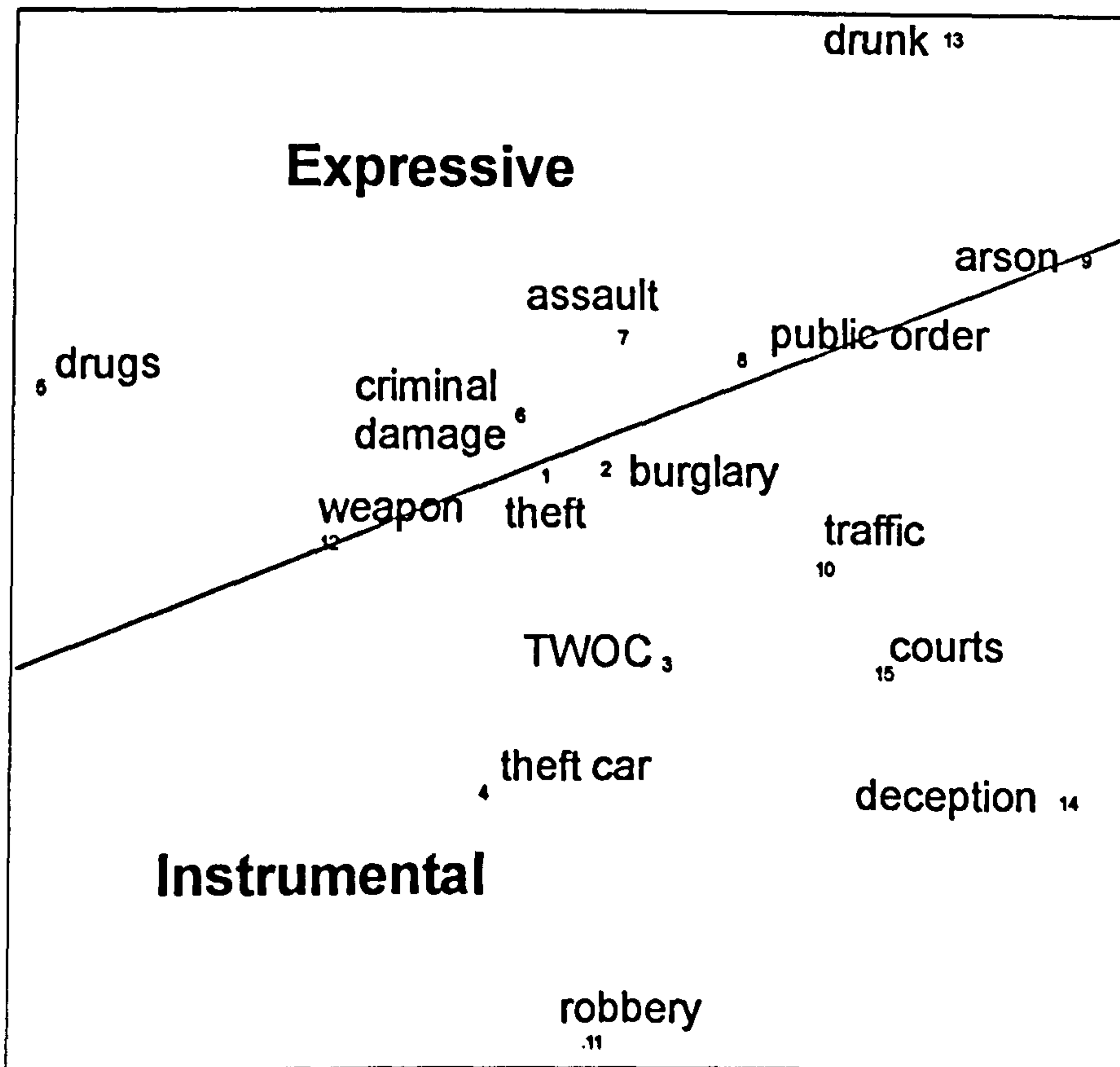


Figure 9.5.3.c: Themes in Criminal Histories of Arsonists

### Instrumental Offences

The lower half of the SSA contains the following offence categories:

burglary

courts

deception

robbery

theft

theft of a car

theft from a car

traffic

These can all be classified as Instrumental as they all involved some direct gain to the offender, usually financial. In the majority of the traffic offences the gain was

financial, for example, Altering a vehicle excise licence, or driving with No insurance. There was in fact only one case where the Traffic offence might be regarded as more expressive in nature, specifically, Careless Driving. Although robbery is sometimes classified as a crime of violence, the main objective is usually instrumental with the violent element being used as a means of controlling the victim rather than being the primary reason behind the offence.

### **Expressive Offences**

At the top of the SSA are the following offences:

arson

assault

criminal damage

drugs

drunk

public disorder

weapon

In contrast to the Instrumental offences, the above can be classified as expressive as they either involved acts of violence or were offences for which there was no obvious instrumental benefit.

Interestingly, arson and offences involving weapons are both on the line which divides these two regions. With the weapons offences this is probably due to differences in the specific offences that make up the aggregated category, namely wounding with a weapon and being in possession of an offensive weapon. While the former is clearly an expressive offence in the same way as assault is, the latter could in fact be associated with carrying out a more instrumental crime such as robbery.

The finding that a conviction for arson is also associated with other convictions for both Instrumental and Expressive offences is also not unexpected given the previous



findings of this thesis. The acts of arson described in Chapter 5 were discussed in terms of having both an instrumental or an expressive component. This finding therefore reiterates the duality of the offence in terms of this classification.

A parallel can also be found between the placing of arson in the above SSA and research recently completed by Blackburn (1997). Blackburn performed a cluster analysis of a range of offences contained in the criminal histories of psychiatric offenders and interpreted the resulting structure in terms of Wiggins' (1979) Interpersonal Style dimensions of Dominant-Submissive and Hostile-Nurturant. He found that while certain offences had clear relationships with the four quadrants of Wiggins' model, arson was one offence which could not be classified in terms of these dimensions.

## 9.6 Summary of Chapter

The results of the analysis of the criminal histories of those arsonists who had previous convictions confirm previous findings that arsonists commit mainly property offences. The ten offences classified as Property related were the most frequent, both in terms of the number of arsonists with those sorts of convictions, and the total number of times an offender had committed each of the individual crimes.

However, a significant number of arsonists had also committed offences of violence towards Persons, such as assault and wounding. Together with the SSA differentiation between Instrumental and Expressive criminal histories, a hypothesis is suggested that individuals who commit different styles of arson, may also differ from each other in terms of the other offences they have committed in the past. For example, arsonists who target people may have previous convictions for violent offences, whereas those who target objects, may show more specialisation in terms of committing other Property offences. This is a hypothesis which will be tested in the following Chapter along with the other variations in background characteristics which were found in Chapter 8.

The fact that only half of the sample had any convictions at all suggests that for many arsonists, setting fires does not simply represent another form of criminal activity but can be very specialised, serving a specific function for certain offenders. For those arsonists who do commit other types of offences, a detailed analysis of these crimes gives an indication of the general themes and patterns of behaviour underlying their criminality.

The suggestion that committing particular offences can serve a variety of functions, has also been applied to other crime types. For example, research on burglary (Dentler and Monroe, 1961) questioned the traditional assumption that this offence was committed purely for instrumental purposes. Dentler and Monroe (1961) found that juveniles from middle-class backgrounds were just as likely to commit burglary as those from poorer families, suggesting that something other than the desire for financial gain was a motivating factor for this offence. More recent research (Merry and Harsent, in press) has shown that some burglars may also commit the offence for interpersonal, expressive purposes.

The following chapter therefore examines the associations between styles of committing arson and background characteristics of the offender, including criminal history. This is in order to develop the action systems hypothesis that the mode of functioning exhibited at the arson crime-scene is reflective of consistent patterns of behaviour which can be traced back to other aspects of the offenders' background.



## Chapter 10: From Actions to Characteristics

This chapter brings together the two models of firesetters' actions and characteristics and shows the links that exist between the styles of committing arson and the characteristics of the individuals responsible. The only existing literature that tries to distinguish between styles of committing an offence and derive inferences about the characteristics of the offender revolves around what is often referred to as 'offender profiling' (see for example Ressler, Burgess, and Douglas, 1988). There are three fundamental differences between that approach and the present one, although the practical objectives are similar. In summary, these differences are as follows:

- a) the theoretical framework that explains and predicts the links between the actions in the crime and the characteristics of the offenders is made explicit,
- b) the variations between offenders, and consequently their actions, are proposed to be aspects of the ways in which all offenders relate to the world, thus offenders are not assigned uniquely to 'types', instead themes in their actions are considered and it is the relationship between the themes of their offence and other aspects of their transactions with others that are examined, and
- c) the themes and the relationships between them, hypothesised by this approach, are empirically tested.

Canter (1995) has outlined the basis for a scientific approach to offender profiling in terms of a canonical equation. On one side of this equation are variables derived from information about the offence which would be available to investigators. On the other side, there are the characteristics of the offender that are most useful in facilitating the police enquiry.

The possibility of such an empirically based approach to offender profiling depends on the existence of reliable relationships between actions and characteristics. A number of published studies of offences such as rape and murder have demonstrated that such relationships do exist (e.g. Ressler *et al*, 1986 and Davies *et al*, 1997);

indeed Canter (1993) argues that “if some form of correlation did not exist between at least some A’s and some C’s it would be extremely difficult indeed for the police ever to solve a case.” (p.6).

However, in terms of arson, the research on linking actions to characteristics has almost exclusively evolved from the FBI ‘offender profiling’ perspective (e.g. Icove and Estep, 1987, Sapp *et al*, 1992). As discussed in other chapters, the usefulness of this research is limited due to the inferential leap that is made from crime-scene behaviours to the underlying motives of the offender(s) and the lack of any theory or evidence to support that leap.

Nevertheless some interesting findings have come out of this research perspective and it may be useful to summarise these for comparison with the current study. The results from the FBI-related studies are all very similar, which is perhaps not surprising as they have all drawn on the same framework of motivational groupings. For example, Holmes and Holmes (1996) discuss five motives for arson and give an indication of the different crime-scene and offender characteristics associated with each of these. These motives of Vandalism, Excitement, Revenge, Crime-Concealment and Profit are the same as those discussed by Icove and Estep (1987). Table 10.1 below shows the main combined findings from both of these studies.

**Table 10.1** Results from FBI studies of motive-based links between actions and characteristics of arsonists

Motive	Offence Characteristics	Offender Characteristics
Vandalism	target: school, residential, area of vegetation timing: weekday mornings, afternoons, or weekends (after school hours) alcohol/drugs: not usually materials used: slightly less than half use material on hand post offence: false alarms, sometimes remain	juveniles groups lower/lower-middle class living with parents less than mile some prior police contact



Table 10.1 (cont'd)

Motive	Offence Characteristics	Offender Characteristics
Excitement	target: vegetation, large trash receptacles, residential timing: afternoon and evening alcohol/drugs: not usually materials used: a third use material on hand post offence: false alarms, often remain	juveniles/adults acting alone may be living with parents less than mile approx half have prior police contact
Revenge	target: residential timing: weekends early morning, afternoon or evening during fall or winter alcohol/drugs: over half use one or both during offence material used: half use material on hand, also flammable liquids post offence: false alarms do not remain or return	single adults higher level of education high proportion of females acting alone not living with parents less than mile over half have prior contact with police
Crime-Concealment	timing: evening or early morning, during summer or fall alcohol/drugs: majority under influence of one or both materials used: large majority use material on hand post offence: do not remain	single adult males marginal income accompanied during offence more than mile from crime great majority have prior contact with police
Profit	timing: after business hours, in the evening or early morning materials used: variety of devices include accelerants post offence: do not remain	single adult male lives alone working class more than a mile extensive experience with criminal justice system

It is worth noting the main areas of disparity between these FBI studies. One is in relation to the Excitement-motivated arsonist, who Icove and Estep (1987) describe as juvenile but living alone, whereas Douglas *et al* (1992) regard him as older, and living with both parents of a middle class status. This suggests that there may in fact be at least two different types of offender associated with this form of arson. Similarly, in the Profit-motivated category Icove and Estep (1987) suggest that the offender is most likely to be juvenile and living with both parents in a marginal to upper income household, unlike the characteristics given by Holmes and Holmes

(1996) which are displayed in the table above. The reason for this last difference, however, is most likely due to the small number (n=11) of profit-motivated arsonists in the Icove and Estepp (1987) study, and the apparent over-representation of juvenile offenders (72%). The characteristics which Holmes and Holmes (1996) discuss are taken from The FBI Crime Classification Manual (Douglas *et al*, 1992). Although it does not give details of the data from which results are drawn, this is nevertheless the only readily available document from which to access the FBI work, not only for arson but also for other offences such as rape and murder. These differences in results based on the FBI approach highlights the importance of focusing on the crime-scene characteristics of the arson rather than attempting to classify offences in terms of motives. This is particularly evident in the case of the crime-concealment motive where what appears to be most important in terms of inferring offender characteristics is the crime which is being concealed: "If the primary crime is a murder, this arsonist is usually not a serial arsonist... the firesetter usually acts alone. However, if the fire is set to hide a crime other than murder, it may be the work of a serial arsonist, and he will usually be accompanied by another person when he set the fire." (Holmes and Holmes, 1996, p. 107-108).

The critical difference in the current thesis is in adopting the Action Systems framework to guide hypotheses about which crime-scene actions, or groups of actions will be associated with which offender background characteristics. These psychological principles about the characteristic ways in which individuals will interact with their environment is a much broader approach than simply focusing on single motives.

As indicated, one important set of hypotheses from the action systems model of arson is that individuals who set fires according to a particular mode of functioning will be distinct from those operating in a different mode. This chapter examines this hypothesis in relation to two sets of background variables: general offender characteristics, and previous convictions.



## 10.1 Background Characteristics

Chapter 8 of this thesis identified four sub-sets of individuals, each representing a dominant theme of the four modes of functioning. In summary, the integrative mode was reflected by variables relating to psychiatric and emotional problems, such as depression and suicide attempts. The adaptive mode was characterised by features associated with a juvenile delinquent lifestyle, such as school problems, social services involvement and police caution. In the conservative mode the offender's relationships to others was the distinctive theme, especially the break down of those relationships, as indicated by the variables, 'partner', 'separated' and 'alcoholism'. Finally, in the expressive mode the arson itself was used as a means of expressing emotions, therefore variables reflecting an interest in firesetting were coupled with those relating to emotional and social problems, such as personality disorder and social services involvement.

The main hypothesis for this section, therefore, is that these four themes in background characteristics will have significant relationships with the corresponding themes in actions. In other words, offenders will show consistency in the way they relate to the world both in the specific context of setting a fire, and in other areas of their lives.

Before examining this thematic consistency, however, it may be useful to look at the individual correlations that exist between certain crime-scene actions and offender characteristics. Many other published studies have used bivariate correlations in this way to show links, for example, between the actions of rapists and their likely criminal antecedents (e.g. Davies *et al*, 1997). Although Canter (1993) cautions against the meaningfulness of bivariate correlations, it is nevertheless useful to identify patterns in these relationships which might point to possible areas of association of a more thematic nature.

### 10.1.1 Bivariate Correlations

This analysis was carried out on SPSS using the Spearman's correlation coefficient. In order to facilitate cross-comparisons, the variables are grouped according to the four crime-scene and four background themes. Tables 10.1.1.1 to 10.1.1.8 show the results of this analysis.

**Table 10.1.1.1: Conservative Actions (Destroy) with Conservative Characteristics (Failed Relationship)**

	alcoholism	child	hiquals	partner	separated
accelerant	0.04	0.18**	0.06	0.07	0.19***
alcohol	0.50****	0.23****	-0.004	0.13	0.19***
argument	0.21***	0.21***	0.07	0.29****	0.27****
multiple seat	0.03	0.05	0.06	-0.02	0.11
outburst	0.18***	0.28****	0.10	0.25****	0.09
planned	0.09	0.09	0.14*	0.08	0.30****
targeted	0.20***	0.27****	0.22****	0.23****	0.32****
threats	0.22****	0.29****	0.11	0.26****	0.29****
threat arson	0.08	0.19***	0.09	0.25****	0.22****
trigger spec	0.20***	0.24****	0.18**	0.27****	0.42****
vict known	0.23****	0.23****	0.10	0.28****	0.29****
partner	0.25****	0.30****	0.12	0.40****	0.55****
witness	0.02	0.25****	0.08	0.19***	0.04

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

**Table 10.1.1.2: Conservative Actions (Destroy) with Integrative Characteristics (Psychiatric History)**

	depression	suicide
multiple seat	0.23****	0.18**
vict known	0.20***	0.08
partner	0.14*	-.02

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05



**Table 10.1.1.3: Adaptive Actions (Damage) with Adaptive Characteristics (Delinquent)**

	caution	parents	pupil	sch trouble	soc serv
business	-0.04	-0.03	-0.13	0.03	0.05
car	-0.01	-0.01	-0.13	-0.04	-0.03
finance	-0.10	-0.10	-0.16*	-0.13	-0.15*
illegal entry	0.22****	0.24****	0.13*	0.23****	0.12
mat brought	-0.001	0.03	-0.05	-0.05	-0.05
misc	0.18**	0.32****	0.40****	0.12	0.03
mult offdrs	0.38****	0.44****	0.51****	0.40****	0.16*
not alert	0.13*	0.14*	0.13*	0.21****	0.08
other crime	0.38****	0.28****	0.19***	0.31****	0.31****
outside	0.09	0.25****	0.16*	0.08	-0.003
public view	0.03	0.16*	0.12	0.07	-0.07
school	0.24****	0.19***	0.31****	0.28****	0.03
spree	0.13*	0.14*	0.08	0.02	0.05
theft	0.06	0.06	-0.05	0.18**	0.15*

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

**Table 10.1.1.4: Adaptive Actions (Damage) with Expressive Characteristics (Repeat Arsonist)**

	false alarms	prior arson
business	0.18***	0.19***
mat brought	0.12	0.19***

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

**Table 10.1.1.5: Expressive Actions (Display) with Expressive Characteristics (Repeat Arsonist)**

	AWOL	false alarms	instn	pers dis	prior ars	soc serv
crusade	-0.04	0.24****	0.18**	0.23****	0.15*	0.04
drugs use	0.07	0.01	0.16*	0.06	0.01	0.28****
institution	0.07	0.10	0.49****	0.25****	-0.01	0.16*
non spec trig	0.16*	0.18**	0.23****	0.24****	0.32****	0.10
prior arson	0.14*	0.33****	0.05	0.25****	0.86****	0.06
public bldng	0.03	0.06	0.06	0.09	0.10	0.06
remained	0.07	0.15*	0.12	0.11	0.25****	-0.06
serial	0.21****	0.42****	0.10	0.33****	0.76****	0.08

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

**Table 10.1.1.6: Expressive Actions (Display) with Integrative Characteristics (Psychiatric History)**

	depression	female	psychosis	psych treat	suicide
crusade	0.06	0.06	0.20***	0.20***	0.02
drug use	0.07	0.14*	-0.02	0.16*	0.27****
institution	0.02	0.18***	0.07	0.23****	0.02
non spec trig	0.38****	0.34****	0.22****	0.46****	0.29****
prior arson	0.11	0.22****	0.08	0.25****	0.09
public bldng remained	-0.07	-0.02	0.04	0.06	-0.06
serial	0.22****	0.06	0.15*	0.17*	0.19***
	0.16*	0.25****	0.10	0.33****	0.17**

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

**Table 10.1.1.7: Integrative Actions (Despair) with Integrative Characteristics (Psychiatric History)**

	depression	female	psychosis	psych treat	suicide
lives del	0.26****	0.05	0.14*	0.04	0.30****
lives locatn	0.26****	0.12	0.16*	0.18**	0.20***
mult items	0.13*	0.14*	0.07	0.14*	0.14*
own home	0.27****	0.11	0.17**	0.23****	0.28****
residential	0.30****	0.11	0.16*	0.06	0.16*
self	0.50****	0.09	0.05	0.13*	0.67****
suicide note	0.23****	0.04	0.08	-0.05	0.34****

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

**Table 10.1.1.8: Integrative Actions (Despair) with Conservative Characteristics (Failed Relationships)**

	alcoholism	child	partner	separated
lives del	0.15*	0.23****	0.06	0.16*
lives locatn	0.29****	0.16*	0.07	0.20***
mult items	0.12	0.16*	0.15*	0.07
own home	0.18**	0.12	0.23****	0.11
residential	0.25****	0.23****	0.21****	0.30****
self	0.06	0.15*	0.08	0.11

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

These tables show that overall the largest and most significant correlations exist between actions and characteristics from the same theme. For example, within the Conservative theme the largest correlation is between the use of alcohol during the commission of the arson offence, and the offender having a history of severe drinking problems ( $r=0.50$ ,  $p<.001$ ). The correlation between the offender being recently separated from a partner, and a trigger specific to the victim occurring prior to the



firesetting is also very high ( $r=0.42$ ,  $p<.001$ ). Other correlations where the link is perhaps less direct include, for example, the arson being targeted and the arsonist having higher school qualifications ( $r=0.22$ ,  $p<.001$ ), and 'outburst' with the arsonist having a child ( $r=0.28$ ,  $p<.001$ ). All together there are 41 significant correlations between Conservative actions and characteristics, whereas there are only four between Conservative actions and Integrative Characteristics. These include 'multiple seats' with both depression ( $r=0.23$ ,  $p<.001$ ) and suicide ( $r=0.18$ ,  $p<.01$ ).

For the Adaptive theme, there are 32 significant correlations including illegal entry at the crime-scene with having received a police caution ( $r=0.22$ ,  $p<.001$ ) and multiple offenders with school pupil ( $r=0.51$ ,  $p<.001$ ). There are also three significant correlations between Adaptive actions and Expressive Characteristics, including business premises targeted with the offender having committed a previous arson ( $r=0.19$ ,  $p<.005$ ). This confirms the finding in Chapter 7 that serial arsonists frequently target business premises.

The Expressive theme contains 23 significant correlations between actions and characteristics. Unsurprisingly the highest of these was between the arsonist being suspected of prior arsons and having a conviction for prior arson ( $0.86$ ,  $p<.001$ ). This was not a perfect correlation, however, because there were some cases where the individual did not have an actual conviction despite being known to the police for previous firesetting activity. Other high correlations included the offence being part of a series with the offender having made false alarm calls ( $0.42$ ,  $p<.001$ ), and drug use with social services involvement ( $0.28$ ,  $p<.001$ ). This latter finding is indicative of a history of social problems experienced by this type of offender.

Finally, there existed 23 significant correlations between Integrative actions and characteristics. These included lives being endangered deliberately with a history of depression ( $0.26$ ,  $p<.001$ ) and suicide attempts or threats ( $0.30$ ,  $p<.001$ ); and multiple items with the offender being female ( $0.14$ ,  $p<.05$ ). This finding coupled with the results of the POSA analysis in Chapter 6 suggests that females have a particular style of committing this form of arson. The POSA of Integrative fires

indicated a distinction between process and focus, and the correlation with multiple items suggests that females prefer to draw attention to their problems by the former method, i.e. creating a large fire, rather than setting fire to themselves.

In addition to the correlations among corresponding action systems themes, there exist a few correlations which cross the 'boundaries' between the four modes of functioning. The most prolific of these cross-correlations are between Conservative and Integrative actions and characteristics. It is interesting to note that in the sections in Chapter 5 and 8 on assigning cases to themes the conservative and integrative hybrids were also the most common. This probably means that the same individuals whose actions are a mix between conservative and integrative also have a similar mix of characteristics from both themes. By cross referencing individual cases from the two data sets we can see that this is indeed the case. For example, case number 63 who had a score of .43 on integrative actions and .67 on conservative actions, also had scores of .60 and .40 on integrative and conservative characteristics. Similarly, case number 153 scored .86 and .42 on integrative and conservative actions respectively, and .80 and .60 on integrative and conservative characteristics. This shows that consistencies exist not only in terms of dominant styles of interaction according to the four modes of functioning, but also in terms of different combinations of these styles. In other words individuals whose actions can come from both internal and external sources, but who tend to focus their actions in an emotional way on themselves or other people intrinsic to their social world, also have a similar mix of internal and external emotional characteristics featuring in their backgrounds. This same consistency can be seen for the other combinations of actions and characteristics which were found. For example, expressive actions also correlated with integrative characteristics. Again, this is a combination which emphasises different ways of expressing emotions that arise internally.

These thematic consistencies, then, can be explored more fully by examining the pattern of relationships that emerge when all the variables that make up each of the four action and four characteristics themes are taken into account.



### 10.1.2 Thematic Correlations

This analysis involved correlating the individual scores on each of the two sets of four scales. These were calculated using Spearman's rank order correlation ( $\rho$ ) which is based on the relationships between each of the action scores and each of the characteristics scores. For example, if as the scores for Conservative characteristics increases so do the scores for actions, then there will be a high correlation between conservative actions and characteristics.

The summary of all these correlations between each of the four action scales and each of the four characteristics scales are presented in Table 10.1.2.1.

Table 10.1.2.1: Spearman's  $\rho$  of Actions and Characteristics Scales

	Integrative	Adaptive	Conservative	Expressive
Integrative (Despair)	.38 p<.001	-.33 p<.001	.21 p<.005	.03 n.s.
Adaptive (Damage)	-.28 p<.001	.44 p<.001	-.31 p<.001	.04 n.s.
Conservative (Destroy)	-.02 n.s.	-.56 p<.001	.49 p<.001	-.34 p<.001
Expressive (Display)	.42 p<.001	-.05 n.s.	-.09 n.s.	.56 p<.001

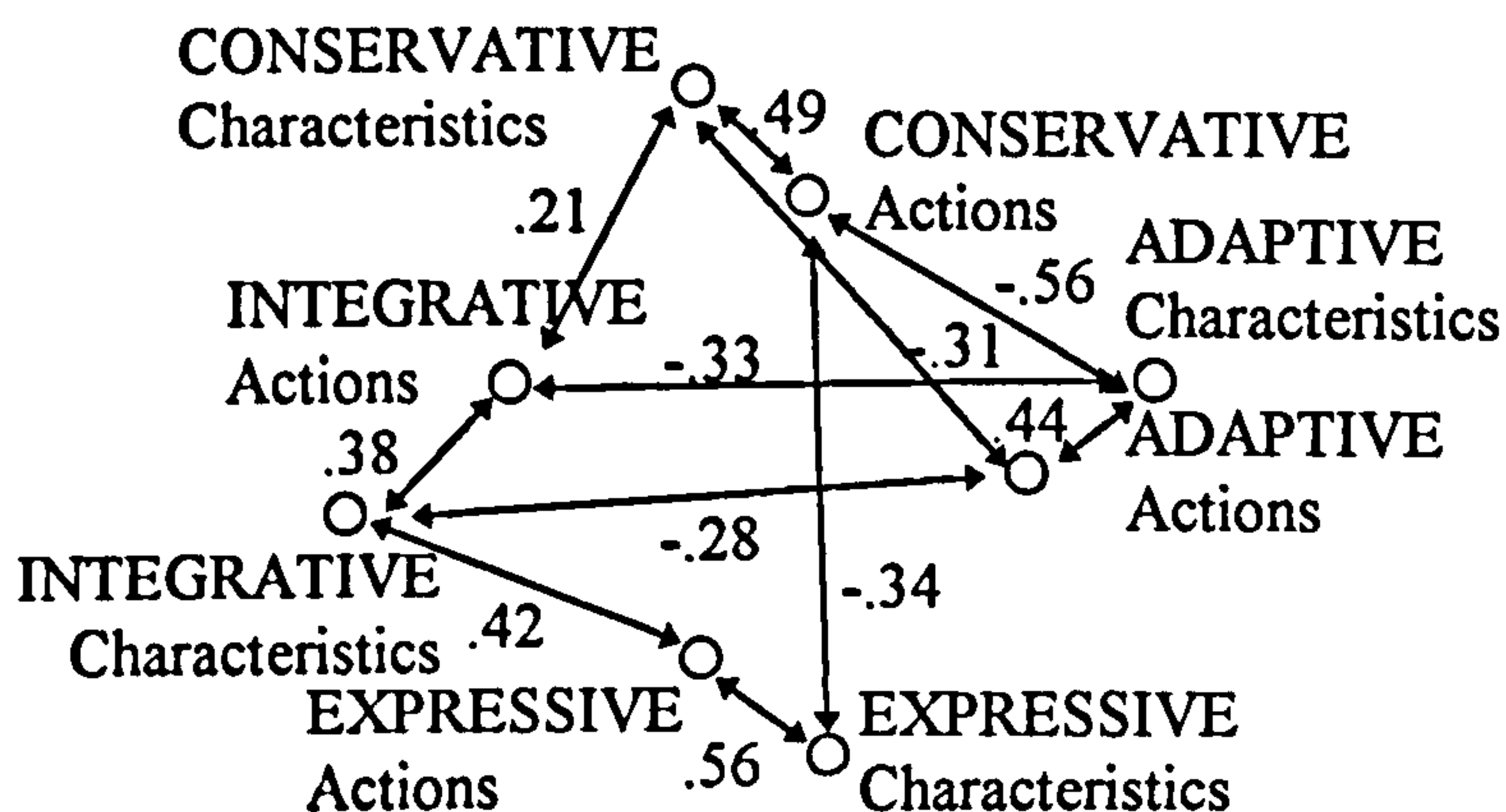
All the action modes correlate significantly with all the appropriate characteristics' themes at  $p < .001$ . The adaptive actions correlation with the adaptive characteristics is 0.44. For the integrative mode the correlation is 0.38. The expressive actions and characteristics correlate at 0.56 and the conservative at 0.49. The antithetical relationships, in which the modes are hypothesised to be in opposition to each other, adaptive versus integrative and conservative versus expressive also all have negative correlations, all of these are significant at  $p < .001$  except for the expressive against the conservative.

Furthermore, the majority of the adjacent modes have no significant relationships with each other; integrative actions and expressive characteristics; adaptive actions

and expressive characteristics; conservative actions and integrative characteristics; expressive actions and adaptive characteristics. However, a bias in the relationships found in the current data set is revealed by the fact that the expressive actions have a significant ( $p < .001$ ) correlation with the integrative characteristics of 0.42, the integrative actions have a slightly less significant ( $p < .005$ ) correlation with the conservative characteristics of .21, and the conservative action scale has a strongly negative correlation with the adaptive characteristics ( $p = -0.56$ ,  $p < .001$ ). These apparent anomalies, however, can be explained by considering the nature of each of the four groups of offenders. Firstly, as noted in the previous section, the expressive, demonstrative object arsons, do also reflect some of the *dis*-integrative, psychiatric history characteristics as well as the expressive characteristics. These two scales of characteristics both contain variables relating to affective dysfunctioning and would both therefore be expected to correlate with the expressive mode of functioning which relates to emotional imbalances within the individual. Secondly, the integrative actions represent an attempt to draw attention to emotional distress within the individual by directing the firesetting behaviour internally. The cause of the distress is usually also internal, i.e. in the form of psychiatric problems, but can of course also come from an external source such as the break up of a relationship. A correlation with the conservative Failed Relationship variables, therefore, is not unexpected. Again, this reiterates what was discussed in the previous section. Finally the negative correlation between the conservative actions and adaptive characteristics is also to be expected given that these arsons are usually directed at ex-partners and involve a degree of targeting and planning which might be considered beyond the functional capacity of most school pupils.

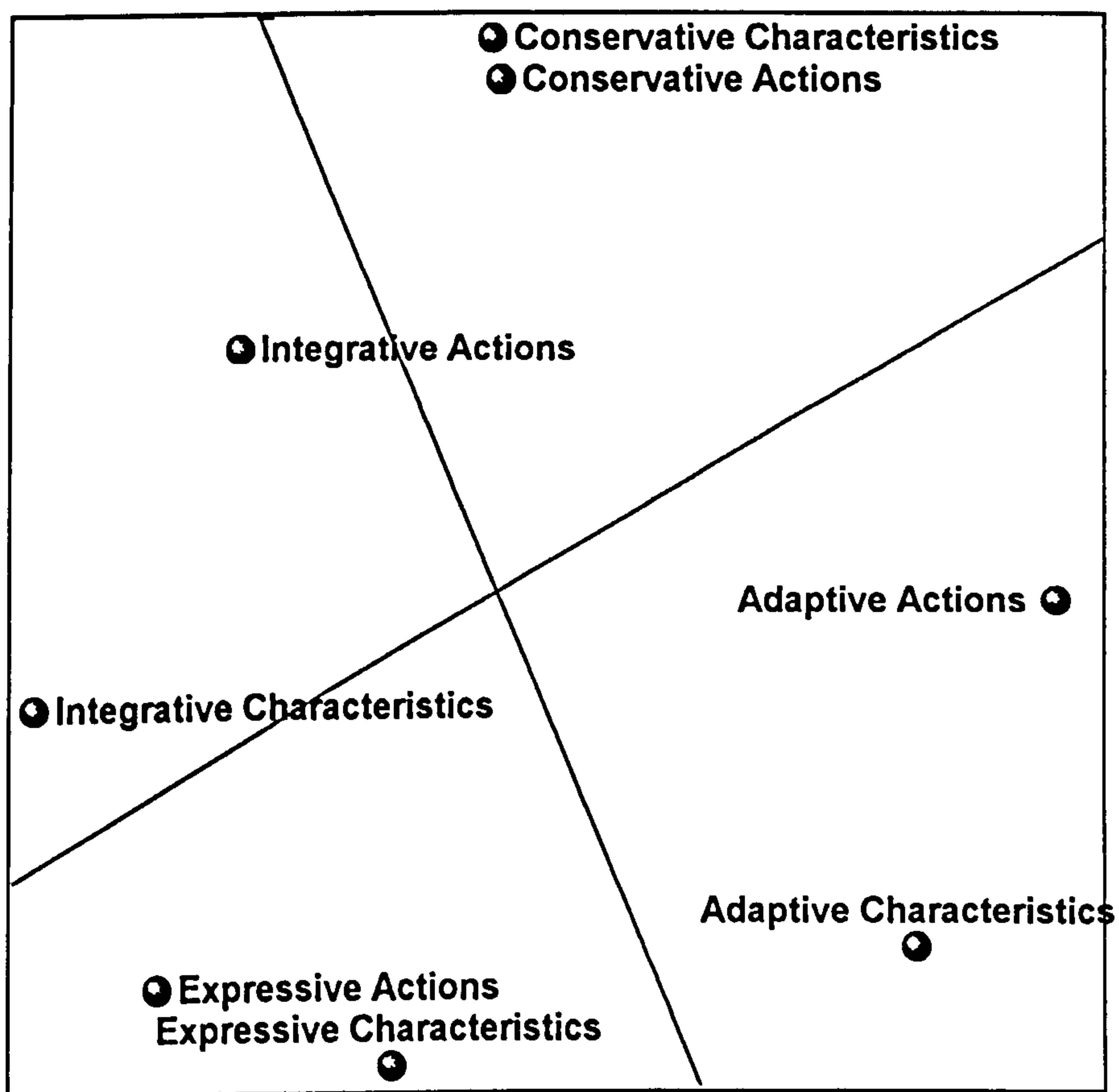
This pattern of associations can be represented visually as the diamond shape shown in Figure 10.1.2.a below. Further, it would be expected that by running an SSA on the correlations between the four action scales and four background scales, the resulting configuration should resemble Figure 10.1.2.a.





**Figure 10.1.2.a: Schematic Relationship Between Actions and Characteristics**

This hypothesised structure was confirmed by entering all the 28 Spearman's inter-correlations among the eight scales into an SSA. The resulting plot is shown in **Figure 10.1.2.b** below.



**Figure 10.1.2.b: SSA of Actions and Characteristics**

Overall, then, this system of correlations between actions and characteristics provides strong support for the Action Systems hypothesis in that the modes of functioning revealed in the acts of arson do tend to have the expected correlations with the appropriate characteristics of the arsonists. Furthermore, concerning the relationships among the modes of functioning, Shye (1985, p.112) argues that "...the polarisation between conservativity and expressivity [is] the fundamental phenomena" and that adaptivity and integrativity maintain an affinity with both of them. This can be seen very clearly in Figure 10.1.2.b in the way that the integrative and adaptive actions and characteristics gravitate towards that expressive and conservative actions and characteristics.

The next set of associations between actions and characteristics which were examined were those relating to the previous convictions of the arsonists.

## **10.2 Criminal History Antecedents of Arson**

As previously discussed, a set of particularly important links between actions and characteristics of an offender are those that relate to previous criminal history. It is fundamentally of psychological interest to uncover the developmental process within the experience of being a criminal. It is a reasonable assumption to make that more serious offences might be committed by people who have already committed less serious crimes. This is an issue relating to criminal careers which has already been discussed in Chapter 9. However, in terms of specific criminal pathways to particular styles of committing an offence it is less obvious what the developmental links might be.

Also, from a practical investigative point of view the identification of the sorts of offences that an unknown arsonist is likely to have committed in the past would be extremely useful in narrowing the search for potential suspects. Even more useful would be the ability to make post-dictive inferences about the sorts of previous offences associated with particular styles of firesetting.



Previous research has identified links between crime-scene behaviours and previous criminal histories for offences such as rape (e.g. Davies *et al*, 1997) and murder (e.g. Aitken *et al*, 1995). These have tended to focus on the relationships that single crime-scene variables have to a particular offending history. For example, the study by Davies showed that rapists who made reference to the police during the rape were over five times more likely to have a previous conviction of some kind. More specifically, a rapist who uses forced entry to the victim's home was found to be 5.29 times more likely than one who did not use this method of approach to have a previous conviction for burglary. One who took precautions to destroy his semen after the attack was also four times more likely to have a previous conviction for a sexual offence. These results are perhaps not surprising, but a weakness of this type of analysis is that the possible effect of other offender characteristics on the predictive model are not taken account of. In other words, there may be many different solutions to the canonical equation describing the links between actions and characteristics, and it is not possible to disentangle all of the potential relationships among variables using only bivariate correlations (Canter, 1995). Nevertheless as the previous section indicated it is an important first step to examine the one-to-one relationships between single action variables and characteristics to see what patterns emerge. Again, the aim of this analysis is to examine the links to particular criminal activities associated with each of the four modes of action, in order to identify the unified process underlying all of these forms of action.

### 10.2.1: Bivariate Correlations

Table 10.2.1.1 Adaptive Actions (Damage) with Criminal History

	arson	crim dam	theft	weapon
illegal	-0.03	0.03	0.32****	0.10
not alert	0.10	0.22*	0.11	-0.02
other crime	-0.09	0.03	0.26**	-0.14
publ view	0.23*	-0.14	-0.13	-0.12
spree	-0.06	0.004	-0.06	0.20*
theft	0.09	0.004	0.25**	-0.03

\*\*\*\* p<.001

\*\*\* p<.005

\*\* p<.01

\* p<.05

Table 10.2.1.2 Conservative Actions (Destroy) with Criminal History

	assault	burglary	crimdam	deception	drugs
accelerant	0.11	0.22*	-0.05	0.05	0.31****
alcohol	0.29***	-0.01	0.07	0.16	0.20*
argument	0.22*	0.01	-0.11	0.04	0.30***
outburst	0.03	0.28***	0.32****	0.12	0.14
partner	0.23*	0.09	0.14	0.16	0.18
target	0.004	-0.07	-0.19	0.07	0.12
threats	0.10	-0.02	-0.06	0.11	0.33****
threat arson	0.12	-0.19	-0.08	0.08	0.09
trig spec	0.20*	-0.01	-0.10	0.15	0.23*
victim known	0.15	-0.13	-0.006	0.20*	0.19
witness	-0.02	0.10	0.10	0.14	0.15

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

Table 10.2.1.2 Conservative Actions (Destroy) with Criminal History (cont'd)

	drunk	policecourt	publ. dis	traffic	weapon
accelerant	0.08	0.07	0.15	0.14	0.13
alcohol	0.24*	0.25*	0.22*	0.19	0.24*
argument	0.07	0.11	0.14	0.24*	0.12
outburst	0.10	0.17	0.14	0.30***	0.26***
partner	0.07	0.18	0.21*	0.46****	0.08
target	0.09	0.07	0.14	0.20*	0.05
threats	-0.04	0.04	0.08	0.35****	0.18
threat arson	-0.01	-0.04	0.27***	0.22*	-0.06
trig spec	0.12	0.10	0.21*	0.29***	0.16
vict known	0.15	0.14	0.20*	0.15	0.22*
witness	0.04	0.01	0.05	0.30***	-0.01

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05

Table 10.2.1.3 Expressive Actions (Display) with Criminal History

	arson
non spec trig	0.32****
prior arson	0.70****
serial	0.56****

\*\*\*\* p<.001

Table 10.2.1.4 Integrative Actions (Despair) with Criminal History

	deception	drunk	robbery	traffic	weapon
lives locatn	0.24*	0.14	0.05	0.14	0.12
mult items	0.05	0.08	-0.04	-0.03	0.24*
own home	0.24*	0.21*	-0.01	0.09	0.01
residential	0.34****	0.14	-0.04	0.19*	0.10
self	0.18	0.04	0.30***	0.04	0.01

\*\*\*\* p<.001    \*\*\* p<.005    \*\* p<.01    \* p<.05



These results show firstly that the arsonists most likely to have a criminal record of any kind are those that commit the Conservative style of firesetting. In terms of specific variables, the strongest indicators are if the offender has consumed alcohol and if the fire is set during an outburst. Interestingly, although alcohol is associated with criminal activity of a mainly expressive nature (e.g. convictions for drunkenness, public disorder and assault), the variable 'outburst' which is itself a very expressive action, is highly correlated with both instrumental and expressive offences. This has parallels with some of the literature on instrumental and reactive violence which has found that offenders who commit reactive (a.k.a. expressive) offences tend to also have committed instrumental acts in the past (e.g. Cornell *et al*, 1997). This is consistent with the theoretical view that reactive violence is a broader, more heterogeneous phenomena and that instrumental violence emerges in the most criminally deviant subgroup of offenders.

In terms of the Conservative group of actions as a whole, the most common convictions held by individuals committing this form of arson were for drugs, public disorder and traffic offences. Again, this shows the non-specialisation of these arsonists in terms of instrumental and expressive convictions.

Although the Adaptive group of actions did not have as many correlations with criminal history variables, there was a similar mix in terms of instrumental and expressive types of offences, with theft having correlations with the highest number of individual actions of this type (illegal entry, other crime and theft from the fired property).

This same pattern of previous convictions was also true for the Integrative group of actions, with the most common previous conviction being for offences involving deception.

The only significant correlation which existed for the Expressive form of arson was having a previous conviction for arson. This is perhaps not surprising given the nature of this type of firesetting and the fact that by definition offenders classified as

this type are known to have set fires in the past. Nevertheless, this group is not the only one to engage in multiple acts of arson (for example, the variable 'spree' involving several fires set in a short time period is associated with the Adaptive form), but it does seem that their penchant for repeatedly setting fires over a long period of time makes them the least successful of all the groups of arsonists in that they are most likely to have been caught on more than one occasion.

The next level of analysis was to examine associations between the four actions scales and criminal history variables.

### **10.2.2: Thematic correlations**

For this analysis Spearman's  $\rho$  was calculated between each of the four actions scales and the individual criminal history variables as well as two new scales made up of instrumental and expressive convictions. The instrumental scale consisted of: burglary, deception, police court, robbery, theft, theft from car, traffic and twoc, and had a Cronbach's  $\alpha$  of .70. The expressive scale consisted of assault, criminal damage, drugs, drunk, public disorder and weapon, and had an alpha of .58. These were based on the SSA of criminal histories presented in the previous chapter which supported a differentiation of these two types of offences. The variable 'arson' decreased the reliability of both the instrumental and expressive scales, and could not therefore be classified as belonging to either, as was also indicated by the SSA in Chapter 9.

Table 10.2.2.1 below shows the results of the Spearman's correlations between the four action themes and criminal history variables.



Table 10.2.2.1: Spearman's  $\rho$  between actions and criminal history

	Adaptive	Conservative	Integrative	Expressive
Instrumental	0.01	0.04	-0.05	-0.20*
Expressive	-0.15	0.27***	0.22*	-0.06
arson	0.06	-0.09	0.08	0.49****
assault	-0.11	0.20*	0.09	0.05
burglary	0.08	0.007	-0.14	-0.06
crim dam	-0.09	-0.04	0.04	-0.21*
deception	-0.25**	0.17	0.33****	-0.05
drugs	-0.06	0.30***	0.09	-0.05
drunk	-0.10	0.12	0.17	0.07
police court	-0.13	0.16	0.11	0.03
public disorder	-0.07	0.24*	0.19	0.001
robbery	-0.07	0.06	0.03	0.07
theft	0.14	-0.10	-0.15	-0.19*
theft from car	0.07	-0.02	-0.10	-0.13
traffic	-0.15	0.32****	0.15	-0.14
TWOC	-0.04	0.05	0.07	-0.02
weapon	-0.05	0.22*	0.17	-0.01

\*\*\*\*  $p < .001$     \*\*\*  $p < .005$     \*\*  $p < .01$     \*  $p < .05$

This pattern of results confirmed what the bivariate analysis had already indicated, namely that the highest correlations with the greatest number of criminal history variables existed for the Conservative theme of behaviours. The Expressive group of criminal variables correlated with both the Conservative and Integrative forms of arson, whereas there were no significant correlations with the Instrumental criminal variables.

The Adaptive group of behaviours as a whole had no significant correlations with any criminal variables, although as the previous analysis indicated, specific Adaptive variables were associated with previous convictions mainly for theft.

These results confirm the suggestions made in the previous chapter about how styles of arson may relate to types of criminal history. It was suggested that individuals who commit arsons which are directed towards people would be likely to have convictions for other person-oriented crimes. The above analysis confirmed that the Destroy form of arson was associated with a criminal history of mainly Expressive types of offences, including assault and public disorder. On the other hand the object

oriented arsons were found to be associated with a history of committing other property offences, including theft and criminal damage.

From a practical point of view, it is perhaps useful to discuss these results in terms of probabilities. In other words, given the occurrence of a certain crime-scene behaviour, what is the likelihood of the offender having a particular previous conviction. **Table 10.2.2.2** firstly shows the frequencies of offenders with some form of criminal record within each of the crime-scene actions, and also indicates the percentage of these that have been in prison. **Table 10.2.2.3** then gives a breakdown of each offence type for each action. The figures in this table have been corrected for the proportion of offenders with no criminal record at all. The frequencies listed immediately below the criminal history variables relate to the overall number of arsonists with convictions for those offences. In this way the frequencies for crime-scene actions can be compared to the base-rate for the sample to see which behaviours indicate a greater likelihood of the arsonist having a conviction for that offence type in his history.

**Table 10.2.2.2** Frequencies for criminal record and prison

<b>action</b>	<b>criminal record (%)</b>	<b>prison (%)</b>
accelerant	58.9	30.8
alcohol	65.1	32.1
argument	64.2	32.5
mult seat	63.8	23.1
outburst	70.7	37.5
partner	57.1	40
planned	61.9	27.9
targeted	62.8	29.7
threat arson	79.2	20
threats	66.7	28
trig spec	57.1	34.1
vict known	56.7	27.4
witness	45.5	27.3
lives del	56.6	34.6
lives loc	55.9	30.3
mult item	40.6	28.3
own home	45.2	22.6
residential	56.9	28.8
self	40	40
suicide note	0	0



action	criminal record (%)	prison (%)
business	59.3	20
car	48.8	31.3
finance	57.9	25
illegal	70.1	27.7
mat brought	57.7	25.8
misc	37.3	12.5
mult offndr	50.7	14.3
not alert	54.3	26.7
other crime	59.5	8.7
outside	46.8	26.1
public view	55.4	28.3
school	64.7	10
spree	52.5	12.5
theft	75	33.3
crusade	57.9	44.4
daytime	42	30.4
drugs	73.3	30
inst	66.7	28.6
prior arson	64.4	33.3
public	58.8	28.6
remain	46.1	23.1
serial	65.1	32
trig non spec	58.3	33.3
less mile	58	23.1
set fire	55.5	23
weekday	52.3	27.8

This table shows that using a cut-off criteria of 65%, the best single predictors of having a criminal record are the offender using alcohol or drugs prior to setting fire, making general threats or threats of arson, the fire being set in an outburst, forced entry to and theft from the fired property, the offence forming part of a series, and setting fire to an institution. A multiple regression analysis was performed on these in combination to identify the best predictor variables of an arsonist having a criminal history. This yielded five discriminant variables ( $R^2 = .15$ ,  $F[5,233] = 9.13$ ,  $p < .001$ ). These were: alcohol, illegal entry, institution, outburst and threat of arson.

Conversely, if the arsonist sets fire to miscellaneous property, uses multiple items, endangers his own life and leaves a suicide note, the table indicates that he is less than 40% likely to have a criminal record.

Table 10.2.2.3 Frequencies of criminal record variables for each crime-scene variable

offence <sup>1</sup>	arson	assault	burglary	crim dam	deception	drugs	drunk	pol court	pub dis	robbery	theft	theft from car	traffic	TWOC	weapon
	10.9	17.2	21.8	21.8	5.9	5.4	6.3	7.5	13	2.9	30.1	7.1	6.3	10.5	8.4
business	22.2	25.9	25.9	22.2	0	11.1	11.1	7.4	18.5	3.7	44.4	11.1	7.4	3.7	7.4
car	9.8	17.1	24.4	22	4.9	4.9	4.9	9.8	12.2	2.4	34.1	7.3	4.9	14.6	4.9
finance	10.5	21.1	15.8	21.1	15.8	10.5	10.5	0	15.8	0	31.6	5.3	0	10.5	21.1
illegal	14.3	24.7	35.1	31.2	5.2	3.9	6.5	9.1	19.5	3.9	51.9	11.7	7.8	15.6	14.3
mat brought	13.1	16.8	22.6	18.2	3.6	5.8	5.8	7.3	13.1	2.2	28.5	4.4	5.1	8.8	9.5
misc	5.9	9.8	15.7	11.8	2	2	3.9	2	9.8	0	21.6	9.8	0	3.9	3.9
mult offndr	10.7	12	26.7	24	4	4	4	4	9.3	2.7	37.3	10.7	4	10.7	9.3
other crime	9.5	9.5	33.3	28.6	4.8	0	2.4	4.8	7.1	2.4	50	14.3	7.1	14.3	4.8
outside	11.7	15.3	21.6	17.1	2.7	6.3	5.4	7.2	10.8	3.6	27	6.3	3.6	9.9	5.4
public view	14.4	15.1	20.9	18.7	2.9	6.5	5.8	7.2	11.5	2.9	27.3	5.8	3.6	9.4	6.5
school	17.6	11.8	29.4	41.2	0	0	0	5.9	17.6	5.9	41.2	17.6	5.9	23.5	5.9
spree	7.5	17.5	15	20	0	10	7.5	0	15	0	25	5	2.5	5	15
theft	21.4	25	42.9	32.1	10.7	3.6	3.6	14.3	17.9	0	60.7	10.7	17.9	14.3	10.7
weekday	12.5	19.5	21.9	22.7	3.1	7.8	5.5	6.3	14.8	2.3	28.1	4.7	3.9	8.6	7.8
accelerant	10	20	28.9	20	6.7	11.1	7.8	8.9	16.7	4.4	33.3	8.9	8.9	13.3	11.1
alcohol	11.9	25.7	23.9	25.7	9.2	9.2	11	12.8	19.3	3.7	33.9	9.2	10.1	13.8	13.8
argument	9.9	25.9	24.7	21	7.4	12.3	8.6	11.1	18.5	4.9	28.4	7.4	12.3	9.9	12.3
mult seat	12.8	25.5	25.5	31.9	12.8	6.4	10.6	8.5	19.1	4.3	44.7	6.4	8.5	10.6	17
outburst	7.3	24.4	43.9	46.3	12.2	12.2	12.2	17.1	24.4	7.3	48.8	9.8	19.5	14.6	22
partner	4.8	23.8	21.4	23.8	9.5	9.5	7.1	11.9	19	2.4	26.2	4.8	19	14.3	9.5
planned	12.9	17.3	21.6	19.4	5.8	6.5	6.5	8.6	14.4	2.2	30.2	5.8	6.5	10.1	9.4
targeted	12.8	19.6	23.6	21.6	7.4	7.4	8.1	9.5	16.9	2.7	33.1	8.1	9.5	11.5	10.1
threat arson	16.7	33.3	16.7	25	12.5	12.5	8.3	8.3	37.5	0	29.2	8.3	20.8	16.7	8.3
threats	5.6	22.2	22.2	20.4	9.3	14.8	5.6	9.3	16.7	5.6	24.1	9.3	16.7	14.8	14.8
trig spec	7.1	21.4	20.4	18.4	8.2	9.2	8.2	9.2	17.3	3.1	26.5	6.1	11.2	11.2	11.2
vict known	10.2	20.4	21	22.9	8.3	7.6	8.3	9.6	16.6	3.8	28.7	7	8.3	12.1	11.5
witness	4.5	9.1	15.9	15.9	6.8	6.8	4.5	4.5	9.1	2.3	15.9	6.8	11.4	6.8	4.5
lives del	11.3	17	18.9	17	11.3	11.3	7.5	13.2	18.9	5.7	30.2	7.5	9.4	15.1	13.2
lives loc	14.7	22.1	19.9	23.5	9.6	5.9	8.8	9.6	16.2	3.7	31.6	5.9	8.8	13.2	11
mult item	16.7	22.9	29.2	32.3	8.3	6.3	9.4	7.3	20.8	3.1	38.5	9.4	7.3	11.5	15.6
own home	16.1	21	22.6	29	12.9	8.1	12.9	12.9	17.7	3.2	29	6.5	9.7	12.9	9.7
residential	10.1	21.1	20.2	22.9	11.9	7.3	9.2	11	17.4	2.8	28.4	4.6	10.1	12.8	11
self	6.7	6.7	13.3	20	13.3	13.3	6.7	13.3	6.7	13.3	20	13.3	6.7	13.3	6.7
crusade	21.1	10.5	21.1	10.5	10.5	5.3	10.5	15.8	10.5	0	26.3	0	10.5	5.3	5.3
daytime	14.5	15.9	14.5	18.8	4.3	4.3	4.3	2.9	14.5	1.4	23.2	4.3	8.7	4.3	4.3
drugs	20	36.7	36.7	40	10	16.7	10	20	23.3	6.7	53.3	16.7	6.7	16.7	20
inst	25	25	33.3	8.3	8.3	0	0	8.3	0	8.3	16.7	0	8.3	16.7	8.3
prior arson	37.3	22	22	22	3.4	0	8.5	8.5	20.3	3.4	30.5	6.8	3.4	15.3	10.2
public	17.6	5.9	17.6	11.8	0	0	5.9	0	0	0	29.4	0	0	5.9	5.9
remain	12.7	16.7	17.6	13.7	6.9	5.9	7.8	6.9	12.7	3.9	21.6	4.9	5.9	9.8	6.9
serial	37.2	23.3	20.9	23.3	4.7	0	11.6	7	18.6	0	30.2	2.3	4.7	9.3	9.3
trig nonspec	27.8	19.4	19.4	22.2	2.8	5.6	5.6	8.3	8.3	5.6	25	2.8	0	2.8	5.6
less mile	10.7	19.8	21.4	22.9	9.9	6.1	10.7	9.9	17.6	2.3	32.1	6.9	8.4	9.9	10.7
not alert	12.4	19.4	23.7	25.3	4.8	5.4	7	7.5	14.5	2.7	32.8	8.1	7	11.8	8.6
set fire	10.5	17.5	23	22.5	6.5	5.5	6.5	7.5	18.5	2	32	7.5	6.5	11	8

<sup>1</sup> the frequencies shown are base rates across the sample as a whole, i.e. including those arsonists with no convictions



This results indicate that particular groups of crime-scene actions increase the likelihood of the offender having a criminal history that includes certain offences. These results can be represented visually for each offence type as shown in Figures 10.2.2.a to 10.2.2.m.

### Arson

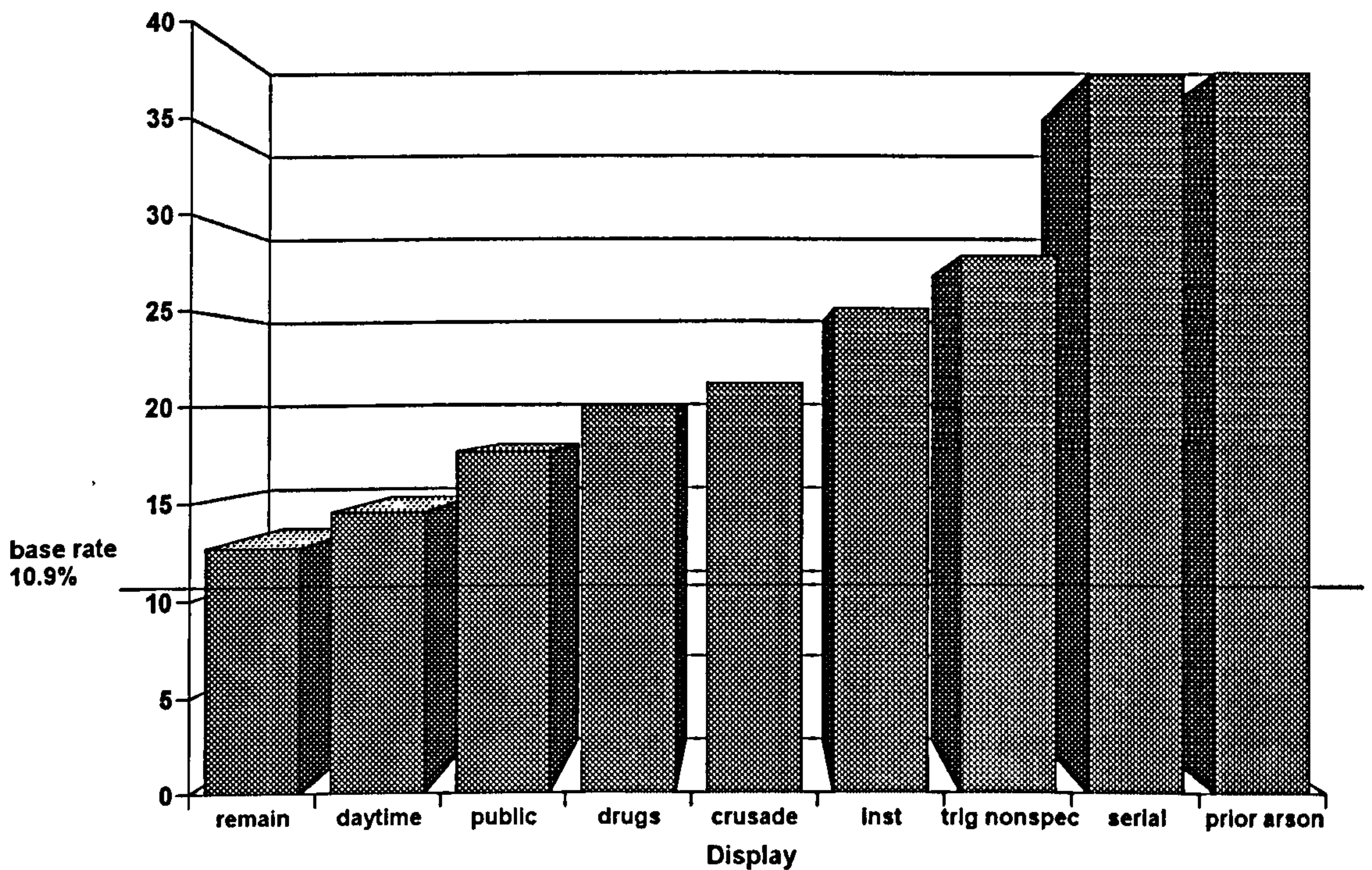
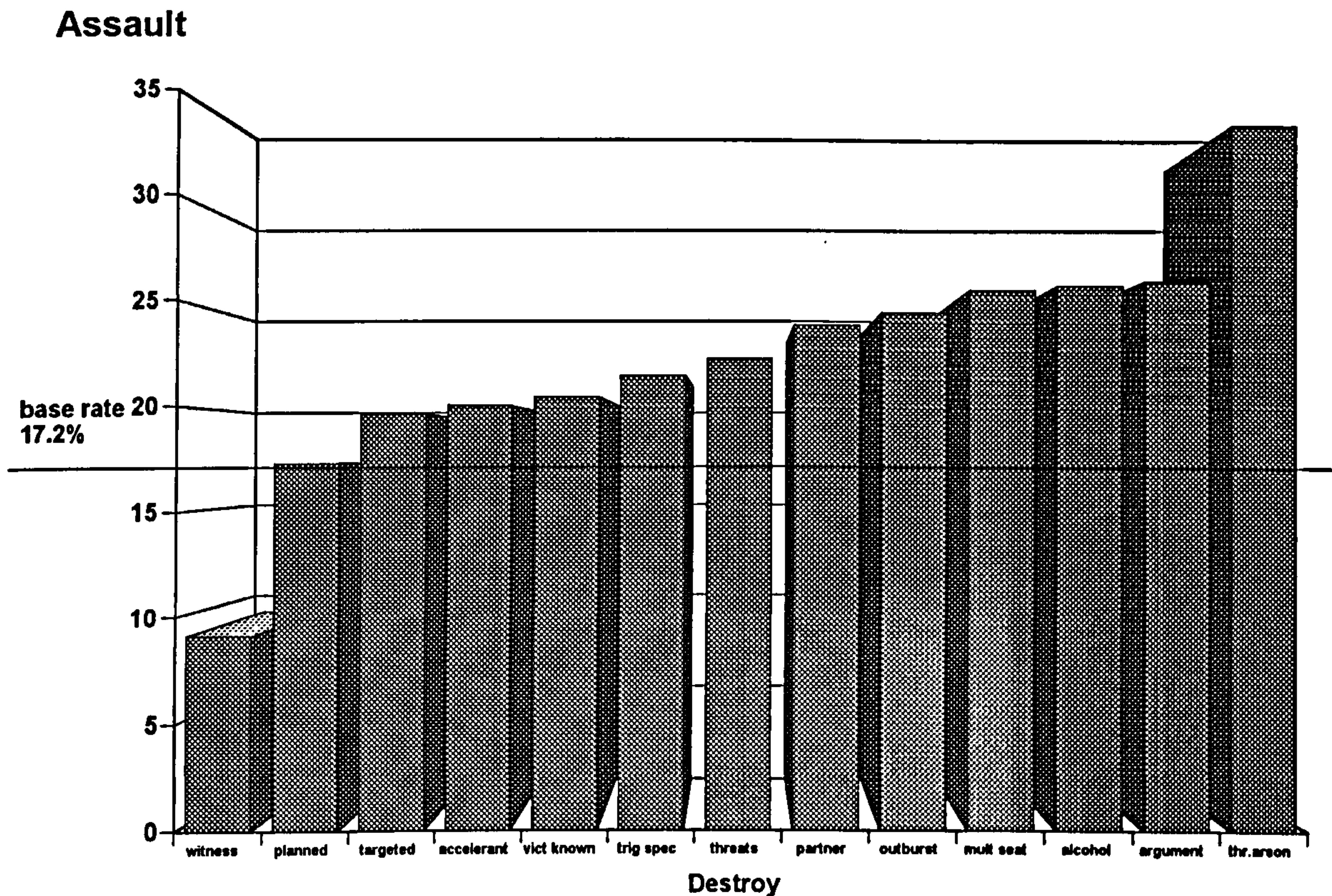


Figure 10.2.2.a: Frequency of convictions for arson

This shows that how each of the variables from the Display theme increases the likelihood of a previous conviction for arson from the base rate of 10.9%.

These variables had the strongest overall effect on frequencies for any of the prior convictions, particularly the variables 'serial' and 'prior arson' both of which trebled the likelihood of a conviction for arson. The other variables in the theme, however, also increased the probability by about 50%. The variable with the lowest predictive value was 'remained', this is probably due to the fact that people who set Despair fires also remain at the scene, and such individuals do not tend to have prior arson convictions.



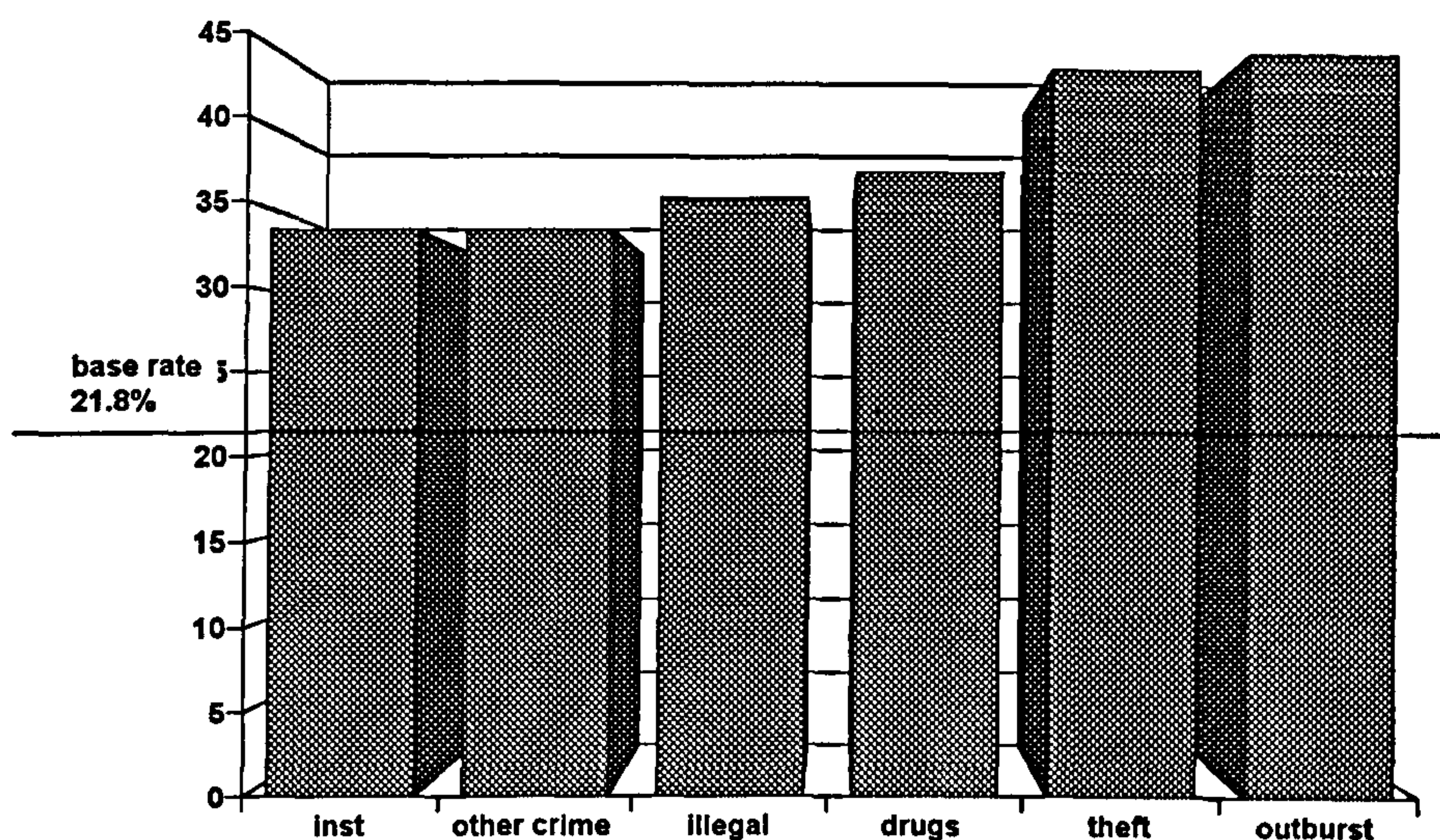


**Figure 10.2.2.b:** Frequencies of convictions for assault

Again, the majority of the variables from the expected crime-scene theme (Destroy) increase the likelihood of the offender having a previous conviction for assault. However, one of the Destroy variables, witness, actually decreases this frequency. This is probably because setting fire to someone's house in front of them is actually a very passive form of aggression in that it does not involve any physical violence towards the victim. Therefore we might not expect such an individual to also engage in more actively confrontational forms of aggression.



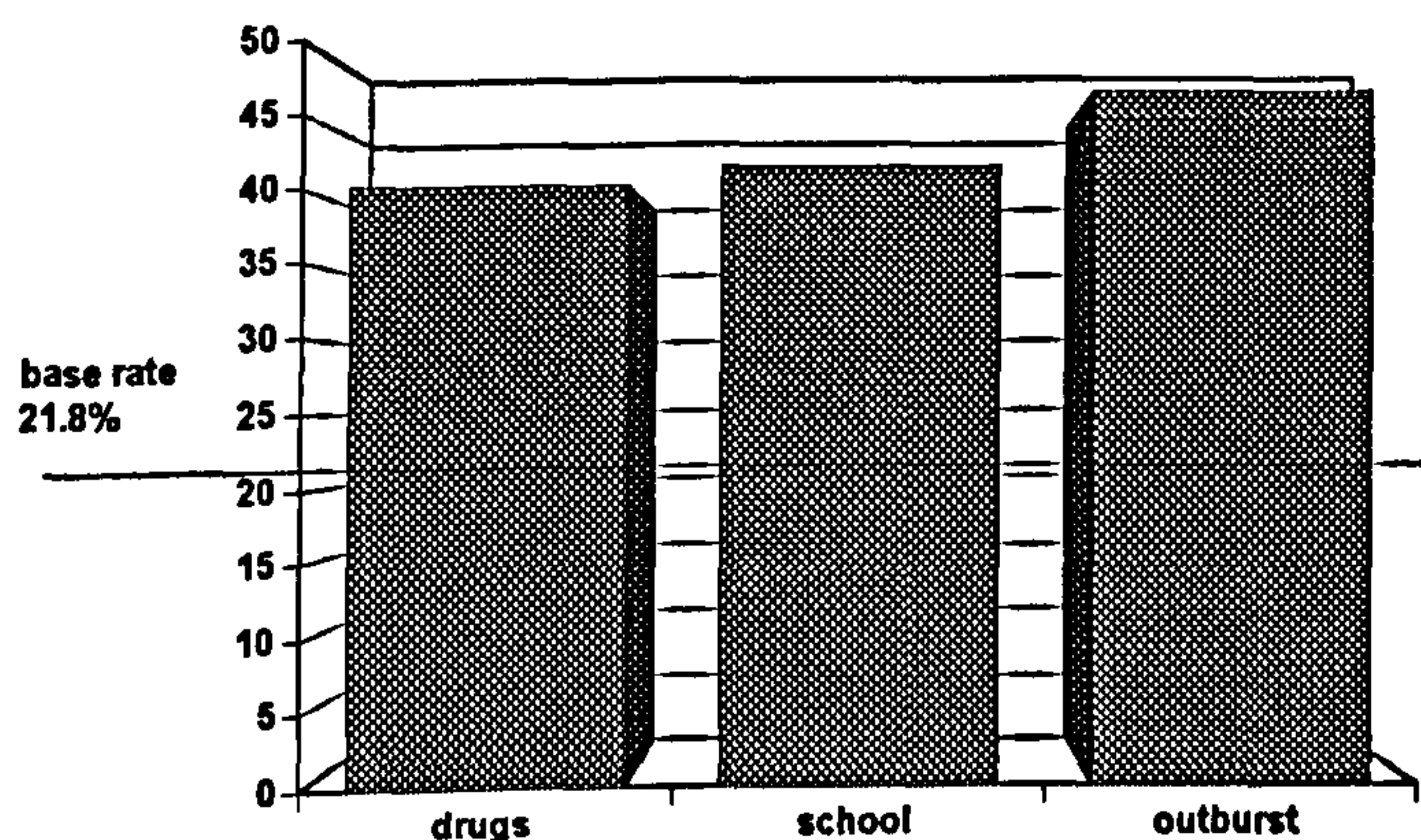
## Burglary



**Figure 10.2.2.c** Frequencies of convictions for burglary

The variables which increase the likelihood of the offender having a conviction for burglary are not from a single crime-scene theme as in the previous two cases. Three of the variables are from the Adaptive theme; other crime, illegal and theft, and two are from the Display theme; institution and drugs. These are both object-oriented forms of arson which were hypothesised as being associated with property convictions. However, the variable which increases the frequency for burglary by the most is 'outburst'. Although this is associated with the Destroy form of arson, the variable itself relates to the destruction of property which ties in with the general theme of the other variables.

## Criminal Damage



**Figure 10.2.2.d:** Frequencies of convictions for Criminal Damage



There were only three variables that significantly increased the likelihood of the offender having a conviction for criminal damage. These were: drugs and school, which are both from property-oriented forms of arson, and 'outburst' which also has a connection with this theme of behaviour as mentioned above.

### Deception

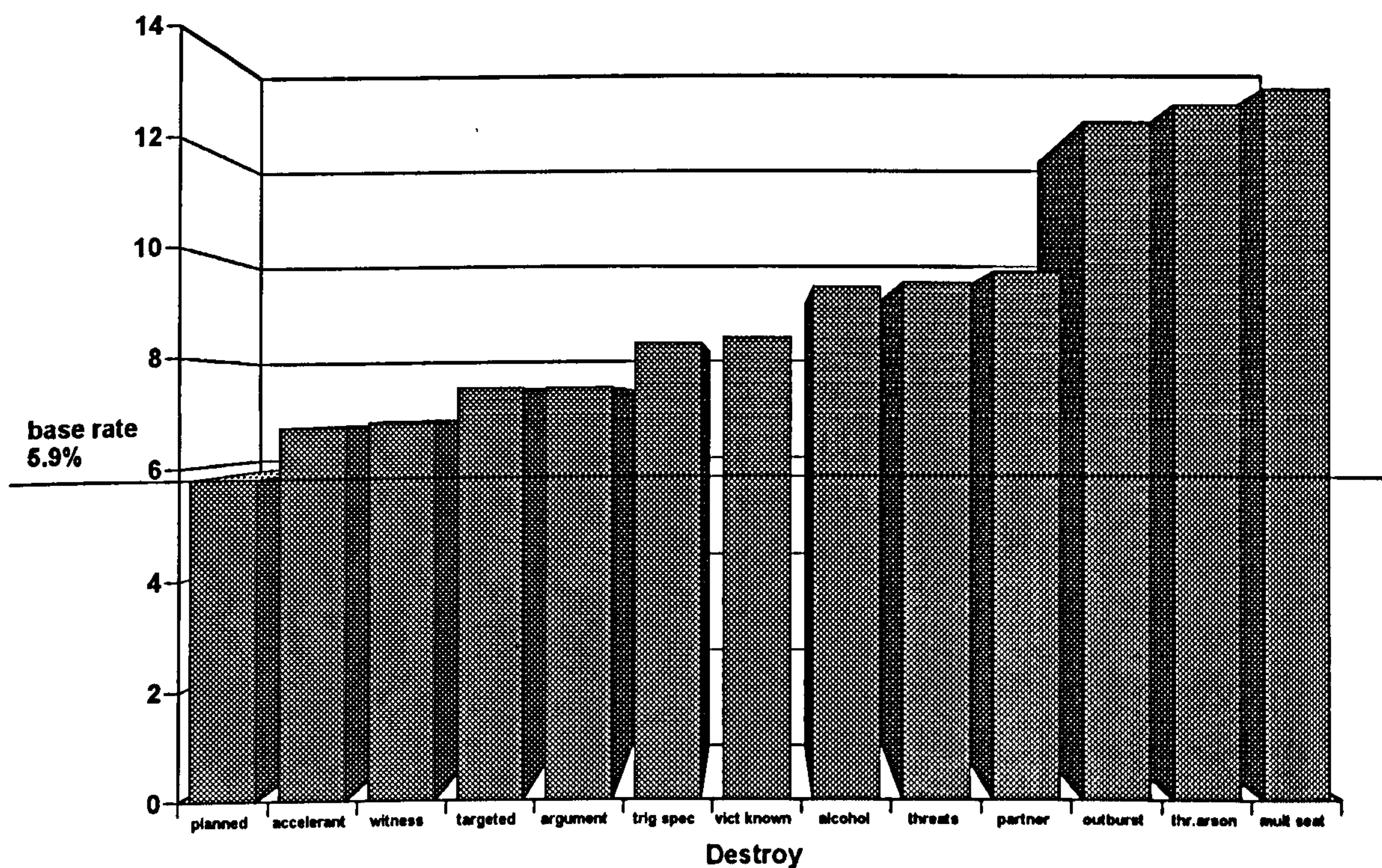
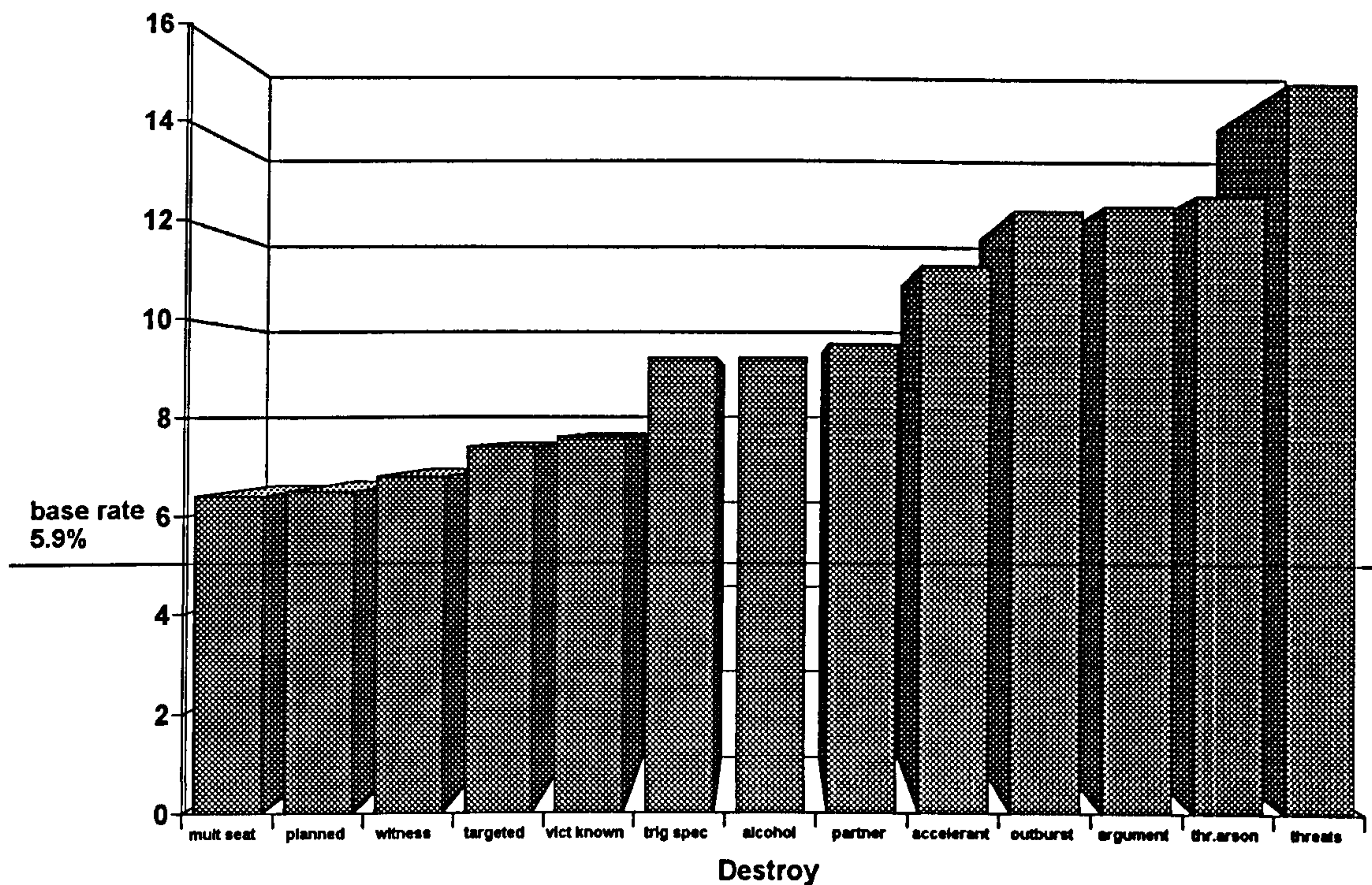


Figure 10.2.2.e: Frequencies of convictions for Deception

The variables that indicate a likely conviction for deception are mainly those associated with the Destroy form of arson. The common theme underlying this association is the Person orientation of both of these offences since the most frequent type of deception offence in the current sample was cheque forgery. Additionally the variable 'finance' more than doubles the chances of this conviction. This variable relates to an instrumental motive for arson which also relates to Deception being an instrumental offence.



## Drugs



**Figure 10.2.2.f:** Frequencies of convictions for Drugs

Again, this type of conviction is associated mainly with the Destroy theme of variables. Many of these actions were previously found to have significant correlations with drugs convictions. The use of drugs may be regarded as Conservative in the action systems sense of external factors being used to change aspects of the internal system.

Drugs convictions are also found in the criminal histories of individuals who take drugs prior to setting fires.

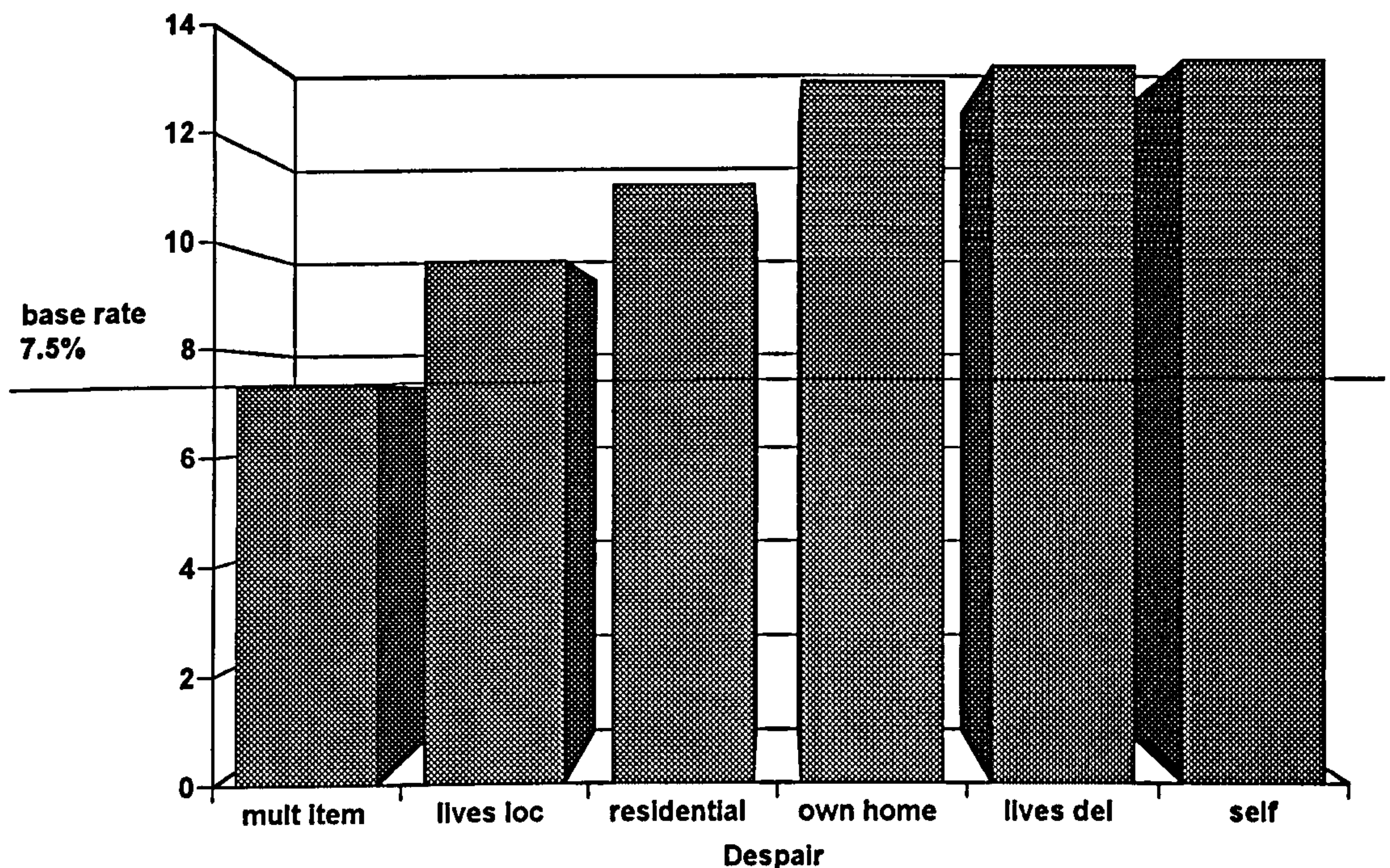
## Drunk

The two variables which carry a significantly higher likelihood of a conviction for alcohol-related offences are 'own home' and 'outburst' both of which carry more than double the frequency. These are both associated with expressive forms of behaviour in which the offender often consumes alcohol prior to setting a fire. Although the variable 'alcohol' itself did not raise the likelihood of a conviction for



this type of conviction by as much as these two variables, this may be due to the large number of the offenders who consumed alcohol prior to setting a fire but did not actually have a history of such convictions.

### Police/Courts



**Figure 10.2.2.g:** Frequencies of convictions for Police/Courts

The theme of arson behaviour which carried the greatest likelihood of this type of conviction was Despair. Although police/courts convictions was classified as Instrumental, it may also be regarded as Expressive in that some individuals may be making a statement by refusing to pay a fine or to answer charges in court.

### Public Disorder

The main variables that increase the likelihood of a convictions of this kind are 'outburst' and 'threat of arson' both of which are from the Destroy type of arson. The common theme underlying these behaviours is violence and threatening behaviour.



### Robbery

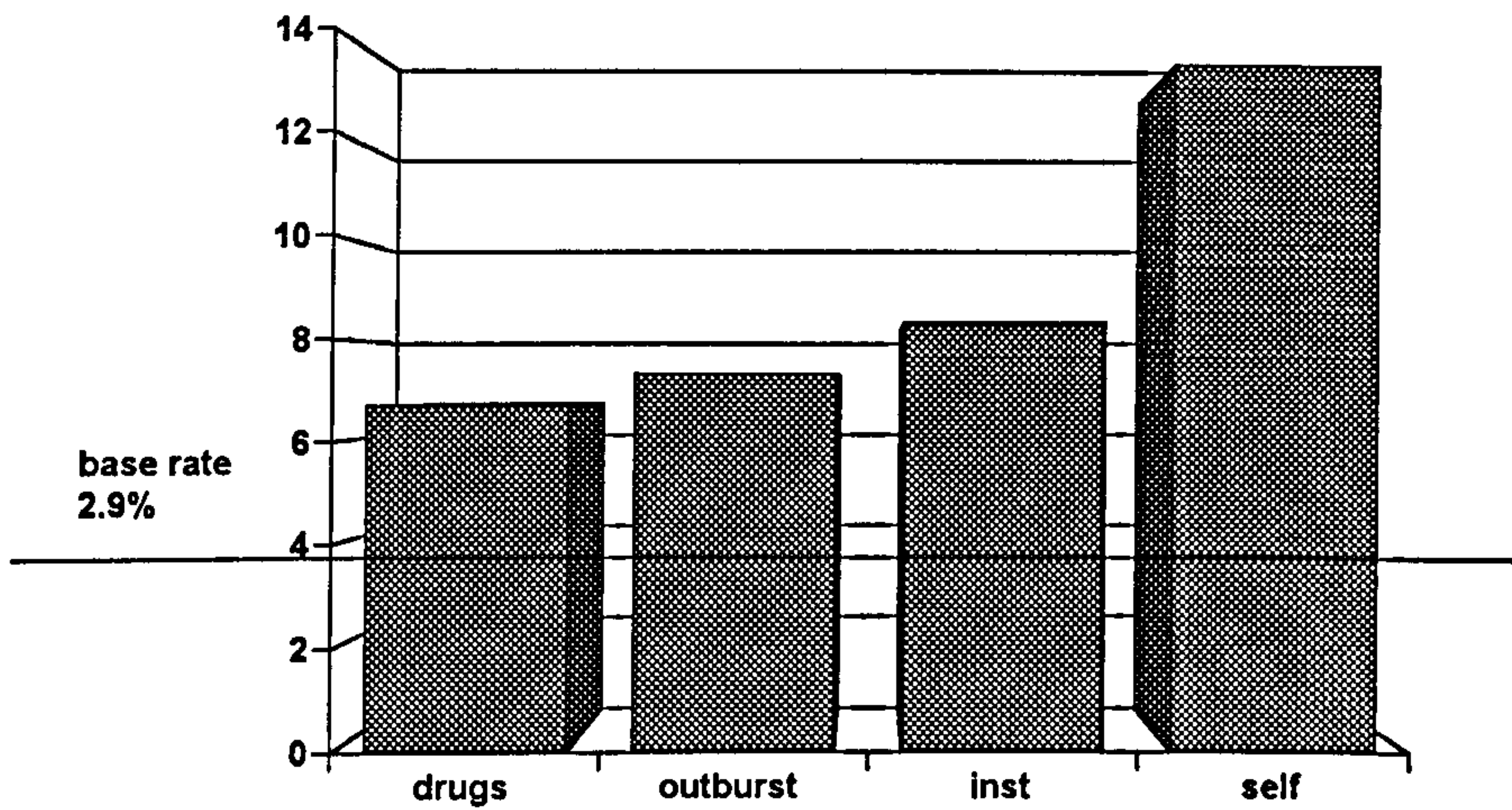


Figure 10.2.2.h: Frequencies of convictions for robbery

Four of the arson actions carried a much higher rate of conviction for robbery. These were: 'drugs' and 'institution' from Display, 'outburst' from Destroy and 'self' from Despair. These are all expressive acts against both people and property which reflects the fact that robbery is a person oriented offence which can be both expressive and instrumental.

### Theft

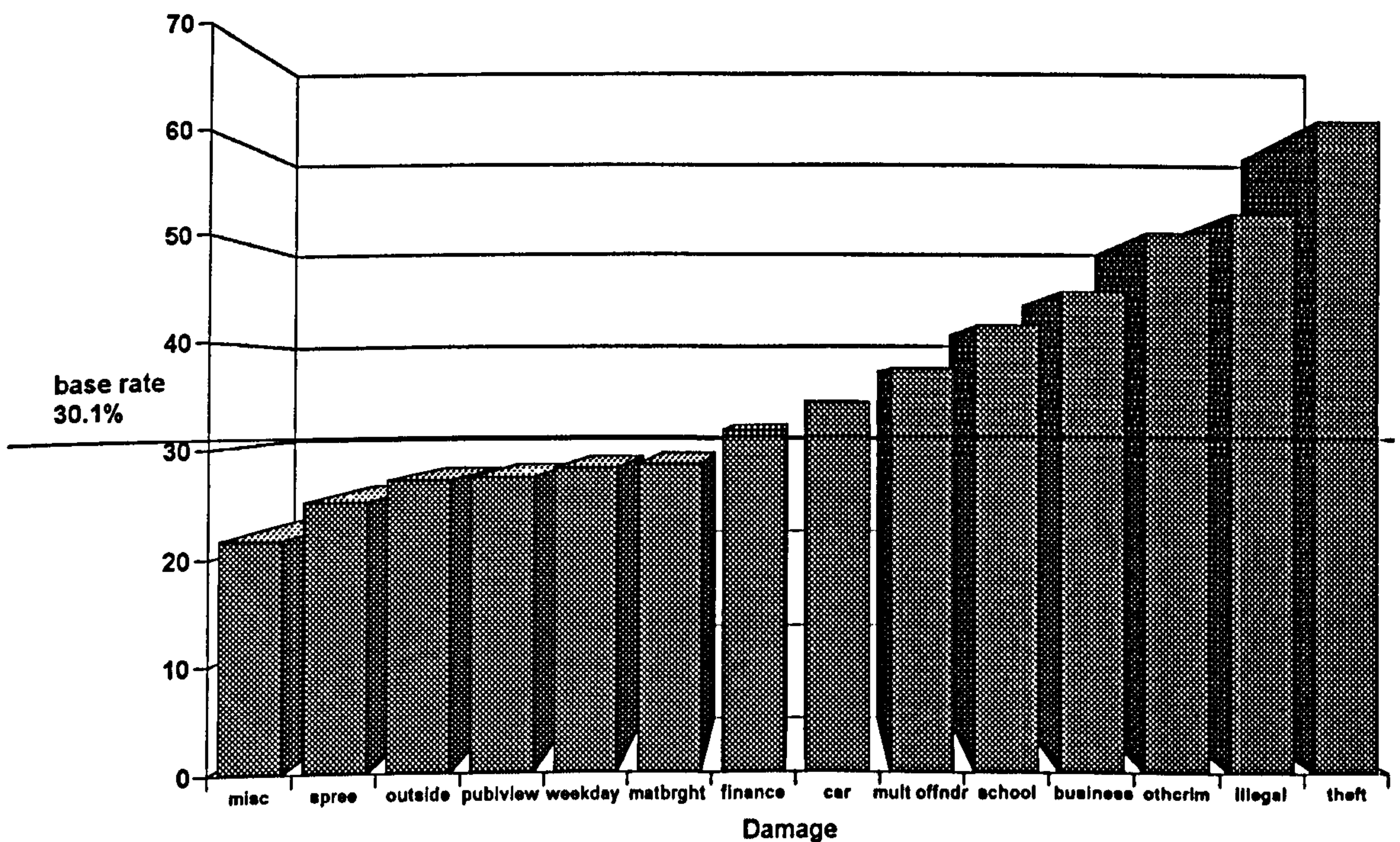
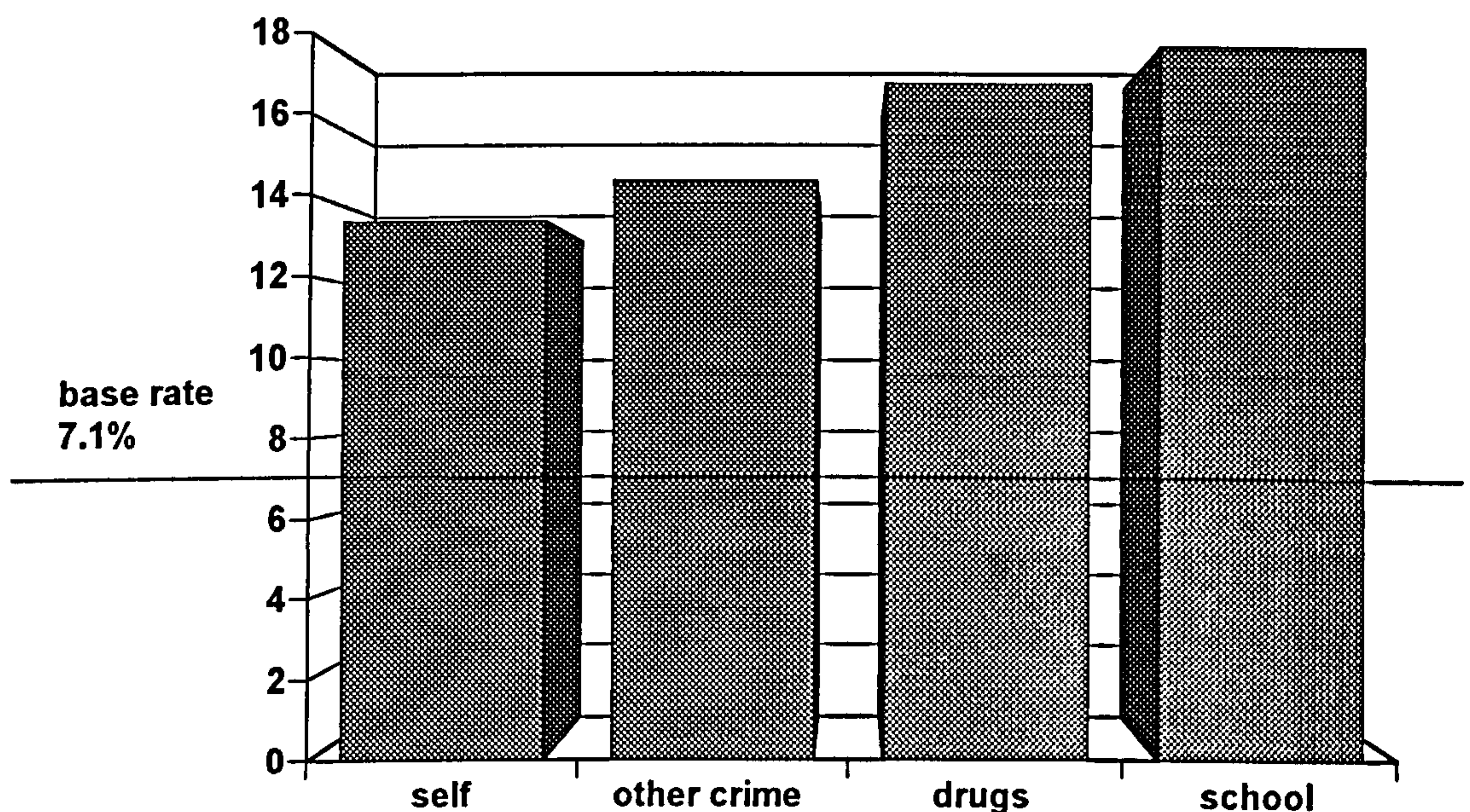


Figure 10.2.2.i: Frequencies of convictions for theft



This figure shows that the majority of the Damage variables increased the likelihood of a previous conviction for theft. However, some of the variables actually had a lower than base-rate frequency. These were: 'miscellaneous', 'spree', 'outside', 'weekday' and 'material brought'. These variables are associated with the vandalism form of Damage in which fires are set to rubbish skips and areas of waste land. The other form of Damage in which arson is used to cover up evidence of a crime - as indicated by the variables 'illegal entry', 'theft', and 'other crime' - is the one which increases the likelihood of the offender having a previous conviction for theft.

### Theft from a car



**Figure 10.2.2.j:** Frequency of convictions for theft from car

Two of the Damage variables, school and other crime, were found to affect the likelihood of the offender having a previous conviction for theft from a car. The other two variables were expressive: drugs and self. The first of these may be explained by an offender stealing from cars in order to get money for drugs. The second is less clear, however, it must be noted that the percentage for 'self' actually translates to only two people.



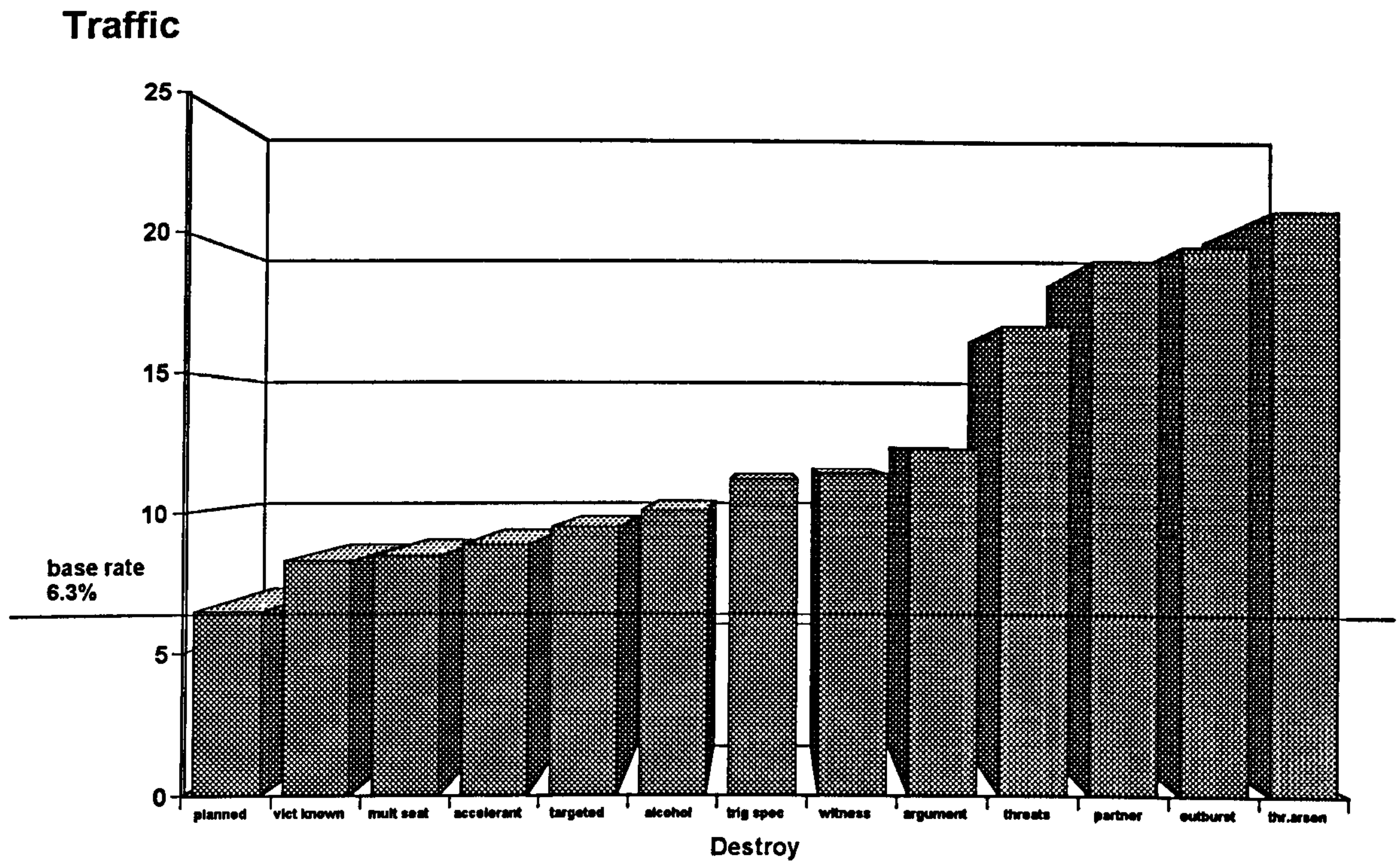


Figure 10.2.2.k: Frequencies of convictions for traffic

Once again the variables that increase the probability of a conviction for this offence type are those associated with Destroy arsons. Traffic offences are instrumental and of the two person-oriented forms of arson, Destroy is also the more instrumental. The association between the two may also reflect some underlying disposition towards antisocial behaviour and rule-breaking.

### TWOC

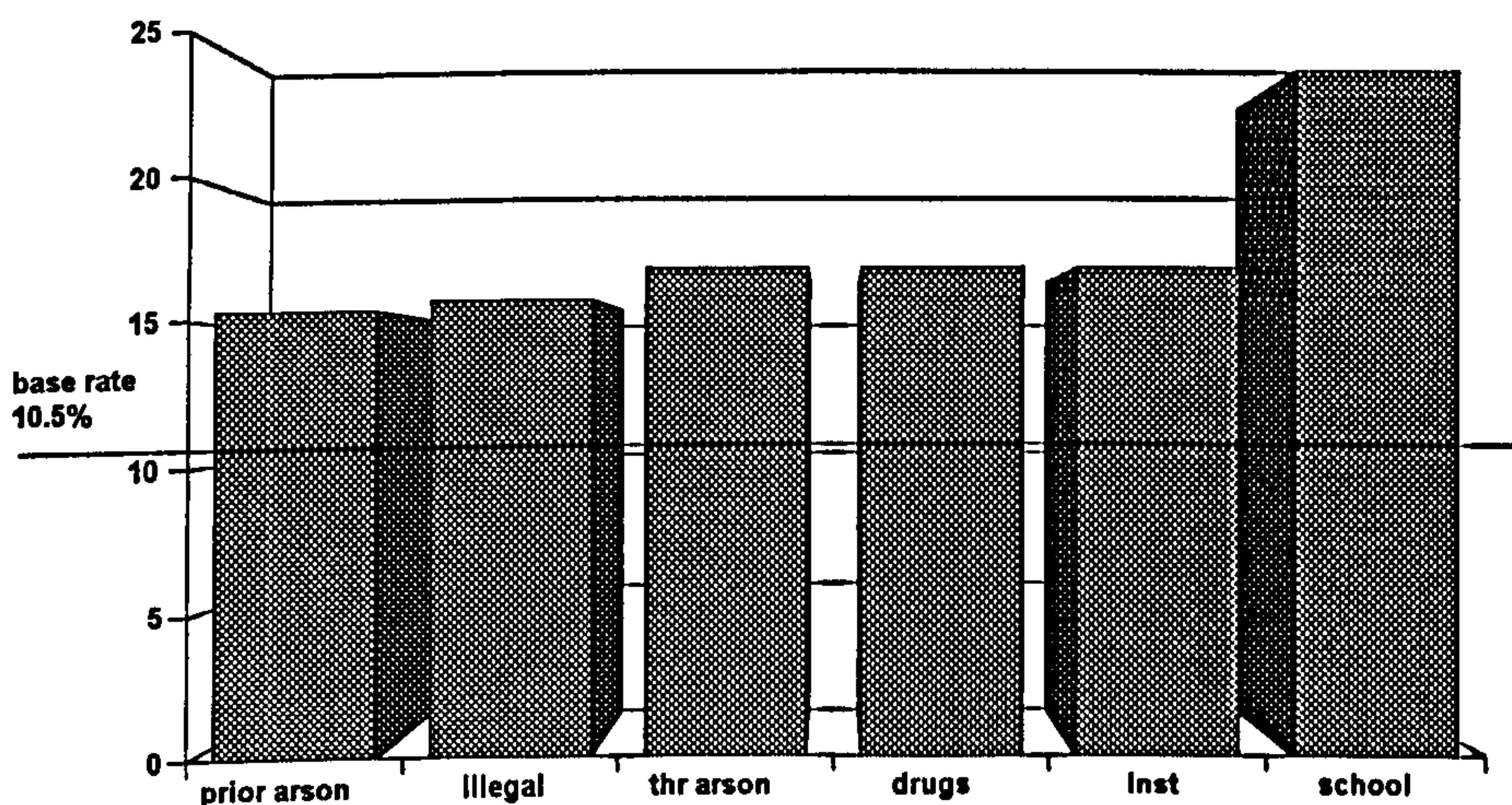
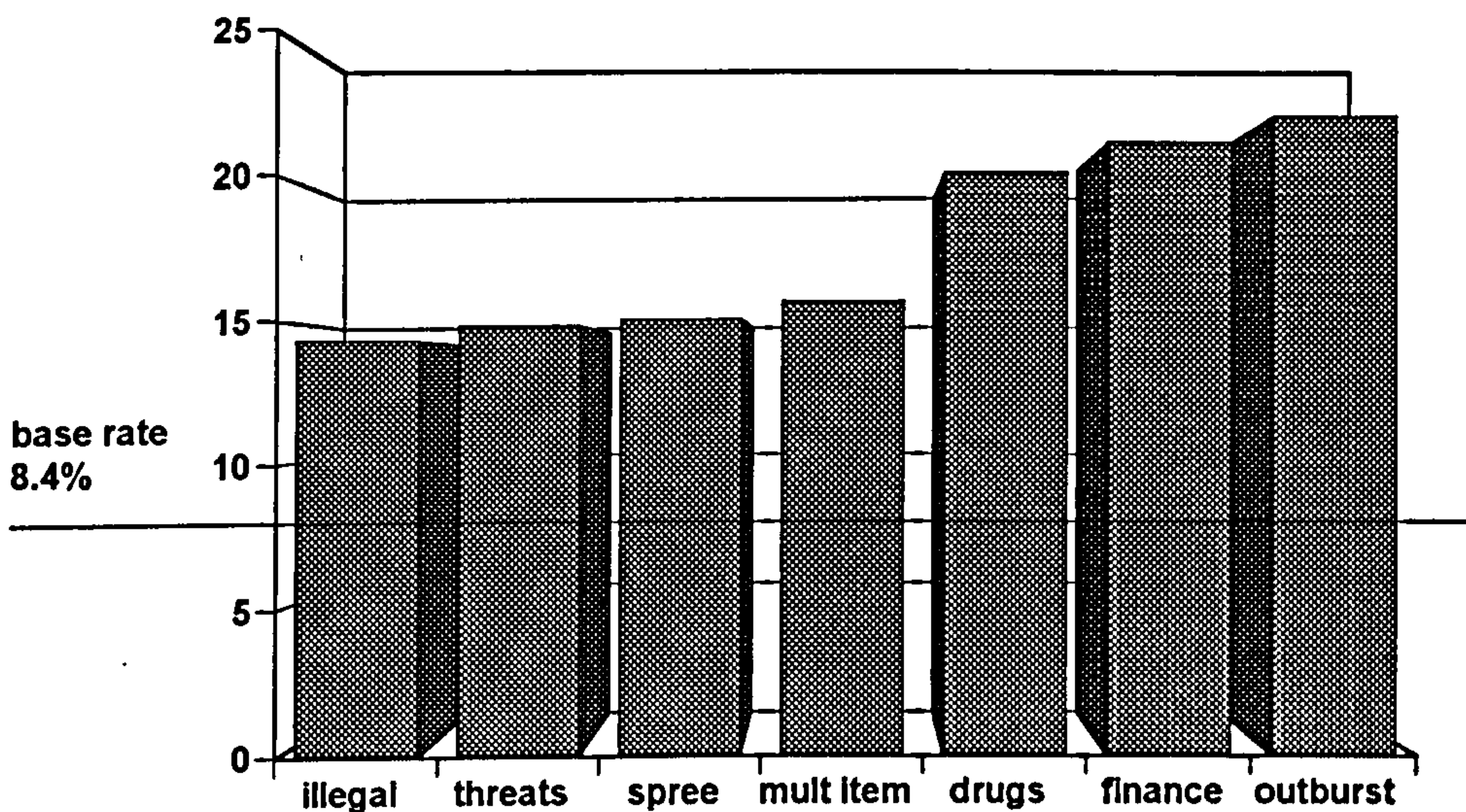


Figure 10.2.2.l: Frequencies for theft of car



This figure shows that variables associated with object-oriented arsons are more likely to be set by people with convictions for stealing cars. This shows the propensity for these individuals to commit property-related offences.

### Weapon



**Figure 10.2.2.m: Frequencies for Weapons convictions**

It is interesting to note that the variables that increase the probability of weapons convictions are both instrumental and expressive in nature. This reflects the finding in Chapter 8 that 'weapon' was located on the boundary between instrumental and expressive crimes in the SSA of criminal history. Weapons can be used in both types of offences and are therefore found in the criminal records of both types of offender.

Overall, then, these findings have enriched our understanding of not only the nature of particular styles of firesetting, but also of the sorts of individuals who are likely to be responsible. It is interesting to note the themes underlying both the styles of firesetting and the background characteristics including criminal history variables. There seems to be strong evidence in support of both the action systems framework and Canter's (1995) offender consistency hypothesis. The final objective of this chapter is to give these results a more tangible framework, in the form of examples taken from the present sample of cases.



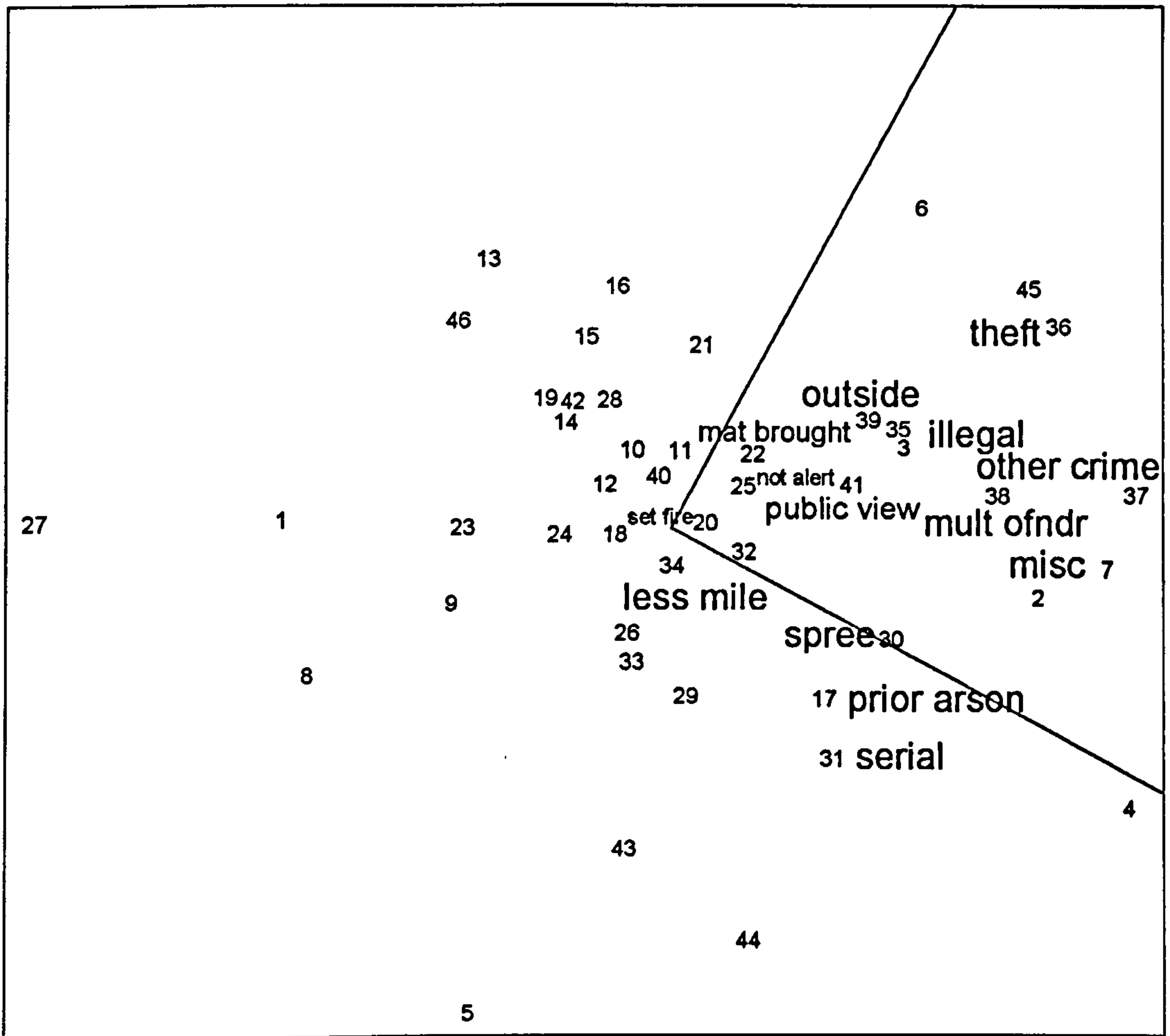
### 10.3.1 Adaptive Arson (Damage)

Paula is a 17 year old girl from Camberley in Surrey with a history of behavioural problems. She left school at 15 with no qualifications and in the space of two years had accumulated a total of 35 convictions, 7 of which were for acts of violence and public disorder. Among the remaining 28, most were for petty theft and damage to property including arson.

Her firesetting offences tended to be committed with other girls of a similar background, and they tended to occur over the weekend and at night-time.

Curiously, although Paula and her firesetting gang didn't seem to show any preference for the types of objects they set fire to, they would often fire a number of similar objects on the same occasion. For example, during a fun-fare in June 1993, they set fire to three separate skips in one night. On another occasion, on a Sunday evening in July, they set fire to five large plastic waste bins behind a couple of restaurants in town. Later in the year, in October when her friends had perhaps returned to school or college, Paula went out on her own and set fire to four bus shelters. In general, though, most of her firesetting activities occurred in the company of other girls.

By plotting the variables present in Paula's arsons on the SSA of crime-scene actions, as shown in **Figure 10.3.a**, we can see that the majority fall in the Damage region. They all involved miscellaneous objects, often more than one on the same occasion, and were usually committed by more than one offender. In some cases, there was forced entry and theft, for example the girls broke into a charity shop and stole some jewellery and as they were leaving they set fire to a bag of clothing which had been left outside for donation to the shop. Apart from the obvious instrumental purpose in this case, it is likely that Paula gained peer approval by her friends through her leading role in the firesetting.



**Figure 10.3.a** Case study of arson to Damage

In terms of the actions systems framework, Damage arsons are regarded as Adaptive forms of behaviour. Their fundamental function for the individual who commits them is to manipulate aspects of the environment. In this sense they most resemble what previous literature has referred to as acts of vandalism. The offence features which are usually cited as being associated with this form of arson are very similar to those found in the current study, e.g. school and miscellaneous targets, as are the associated offender characteristics, e.g. juveniles living with parents (Icove and Estep, 1987). However, this study goes further both in providing a theoretical framework for understanding this sort of offence and in describing a more enriched picture of both the actions and characteristics that are associated with this form of arson.



In 1980 a Home Office Report “Fire Caused by Vandalism” recognised this as a major cause of fire. Although the frequencies of the Damage variables are not among the highest in the present sample this is probably due to under-reporting to the police of this form of arson. Because the targets are often derelict buildings or refuse, the fires may not be noticed and burn out before the fire service are alerted. Some fires may be reported later depending on the ‘victim’, e.g. local authority buildings, or British Telecom phone boxes, however, by that stage, the report suggests, there is very little that can be done in terms of apprehending the perpetrator.

The results of this study do, however, suggest a number of ways of tackling this problem. These are discussed in the Conclusions chapter.

### **10.3.2 Integrative Arson (Despair)**

Sharon was a 20-year-old afro-caribbean girl living in a high-rise block of flats in Sutton Coldfield in the West Midlands. She had a history of mental illness peppered with suicide attempts and was known locally for her bizarre behaviour. In particular she had a very ambivalent relationship with one of her elderly neighbours who helped her out with her laundry as Sharon couldn’t afford a washing machine and was nervous of using the launderette down the road.

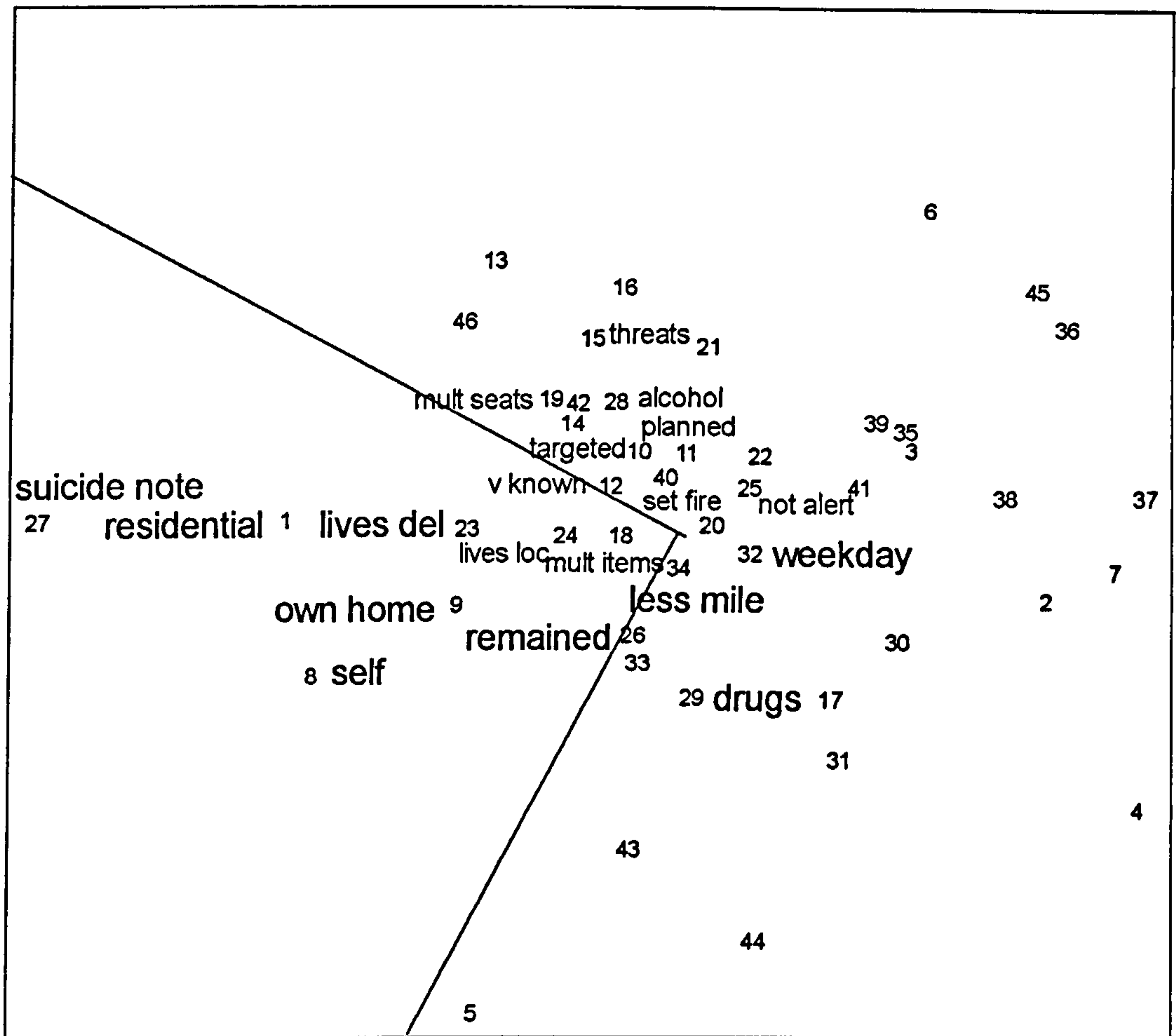
Around the beginning of 1993, this particular neighbour started receiving anonymous notes which were of a very abusive and threatening nature. She began to suspect that these were from Sharon as they referred to conversations that the two of them had had and also contained remarks such as “You know where you can stick your stupid washing machine, you stupid old cunt”. The neighbour eventually confronted Sharon about these notes at the end of March. About a week later another neighbour smelled burning which seemed to be coming from Sharon’s flat. When she banged on the door there was no response and as she knew that Sharon rarely went out, she became alarmed and called the fire brigade. When they arrived there was a definite pall of smoke coming from Sharon’s door and since there was still no response from inside, they broke it down. They found Sharon sitting on the floor surrounded by

burning objects which they were able to extinguish quite quickly. She had smeared faeces and blood on the walls and had also written (in pen) "I want to die" and "Everyone hates me, especially that bitch Mrs Jacobson". She was taken to hospital and placed under psychiatric care.

The features of this case which fell into the Despair category were: own home, more than one item fired, self, suicide note (although this was very perfunctory) and lives endangered deliberately. It is unclear whether Sharon actually wanted to die but what is certain is that she needed help and treatment of some kind and by setting fire she was able to draw attention to this. The fire was therefore her way of expressing her unhappiness and need for attention.

It is worth noting that although some of Sharon's pre-arson behaviour might have suggested the Destroy style of firesetting, in fact as shown in **Figure 10.3.b**, most of the points are in the Demonstrative region. This again demonstrates the thematic nature of this approach.





**Figure 10.3.b:** Case study of arson as Despair

Wiklund (1987) describes how this form of 'reactive' firesetting involves an "emotionally triggered impulsive reaction to an acute crisis or a long chaotic social situation. The build up of tension before the fire is associated with a growing inner uneasiness, anxiety, despair or feelings of powerlessness. An unpleasant physical or mental tension becomes worse and worse because of external setbacks - but which are eased by the act of firesetting".

According to Liebowitz (1987) the common themes reported by individuals who injure themselves in this way are: "(1) dysphoric states precipitated by some form of rejection that leads to (2) mounting anger, anxiety, depression, and despair with (3) relief gained through self-cutting, banging or burning." (pp 325).

Liebowitz also discusses the communicative aspects of this behaviour (cf. Geller, 1987; 1992c) which in his terms involve a desire to express the persons unhappiness, as well as wishing to retaliate against the source of their anguish.

Gardner and Cowdry (1985) have described four distinct sub-groups of suicidal and parasuicidal behaviour: melancholia, despair, and true suicidal acts; impulsive, nihilistic, or retributive rage; communicative parasuicidal gestures; and self-mutilation or overdose to relieve dysphoria. It is interesting that similarities can be observed between these descriptions and the four themes of arson actions. With the exception of the first category which concerns genuine acts of suicide, the others resemble the Destroy, Display and Despair respectively.

Liebowitz argues that women and homosexual men are more likely to harm themselves in response to rejection, rather than directly attack the rejecter. He explains this in terms of social factors which mean that it is safer for physically weaker women to gain personal influence in some way other than attacking more powerful men. This is supported by the findings of the present study which indicated that female arsonists displayed more of both the crime-scene and background characteristics associated with this form of firesetting behaviour.

### **10.3.3 Conservative Arson (Destroy)**

Tony was a 26-year-old roofer who lived with his girlfriend in Tottenham. He had a number of convictions mainly for property crimes such as burglary, theft and criminal damage, the first of which he received when he was 19.

There had been a history of trouble between Tony and his girlfriend's family culminating in Tony being stabbed by her ex-husband. This occurred in July of 1992 and the ex-husband subsequently received a prison sentence of 9 months. Tony felt this to be an inadequate punishment and became somewhat paranoid that his girlfriend's entire family were now out to get him. In particular he formed the view that her brother, Peter, was following him.





Previous studies have referred to this form of arson as “revenge” motivated and have indicated that they are associated with the use of accelerants and alcohol (e.g. Icove and Estep, 1987). By examining the details of this case, however, to say that Tony acted merely out of a desire for revenge seems rather simplistic. As noted previously, it is always unwise to speculate on the motivational processes underlying a person's behaviour, so it is perhaps better to view this form of arson simply as an expression of frustration. Zeegers (1982) proposes that aggression as a reaction to frustration plays a strong part in many cases of violence between intimate partners, and that loneliness and the failure of communication, is very often the root of violence. Again, the emphasis on communication is made by Rasch (1964) who remarks that violence may be the last possible means of communication when all other connections have been cut off. He also describes that there are three aspects of aggression: instinct, reaction to frustration and mode of communication. In the case of conservative forms of arson, then, the mode of communication can be seen as implicit rather than explicit aggression directed at the source of frustration.

### **10.3.4 Expressive Arson (Display)**

Arthur was a 60 year-old resident in a nursing home in Wolverhampton. He had run away from boarding school at the age of 13 and completed his education at home, but did not gain any qualifications. He had worked as a local farm labourer for a while and then joined the army at 18. He did not last long, however, going AWOL after only a few months. Arthur remained unemployed from that point on.

He had a history of alcohol abuse and in May 1990 was diagnosed with multi-infarct dementia. Immediately after this, Arthur set fire to his nursing home and was imprisoned for a year. Following his release from prison he returned to the same nursing home where he was additionally diagnosed as having a psychopathic personality disorder.

Arthur had a chequered criminal history both for offences against property and violence. He had received four prison sentences amounting to a total of five and a

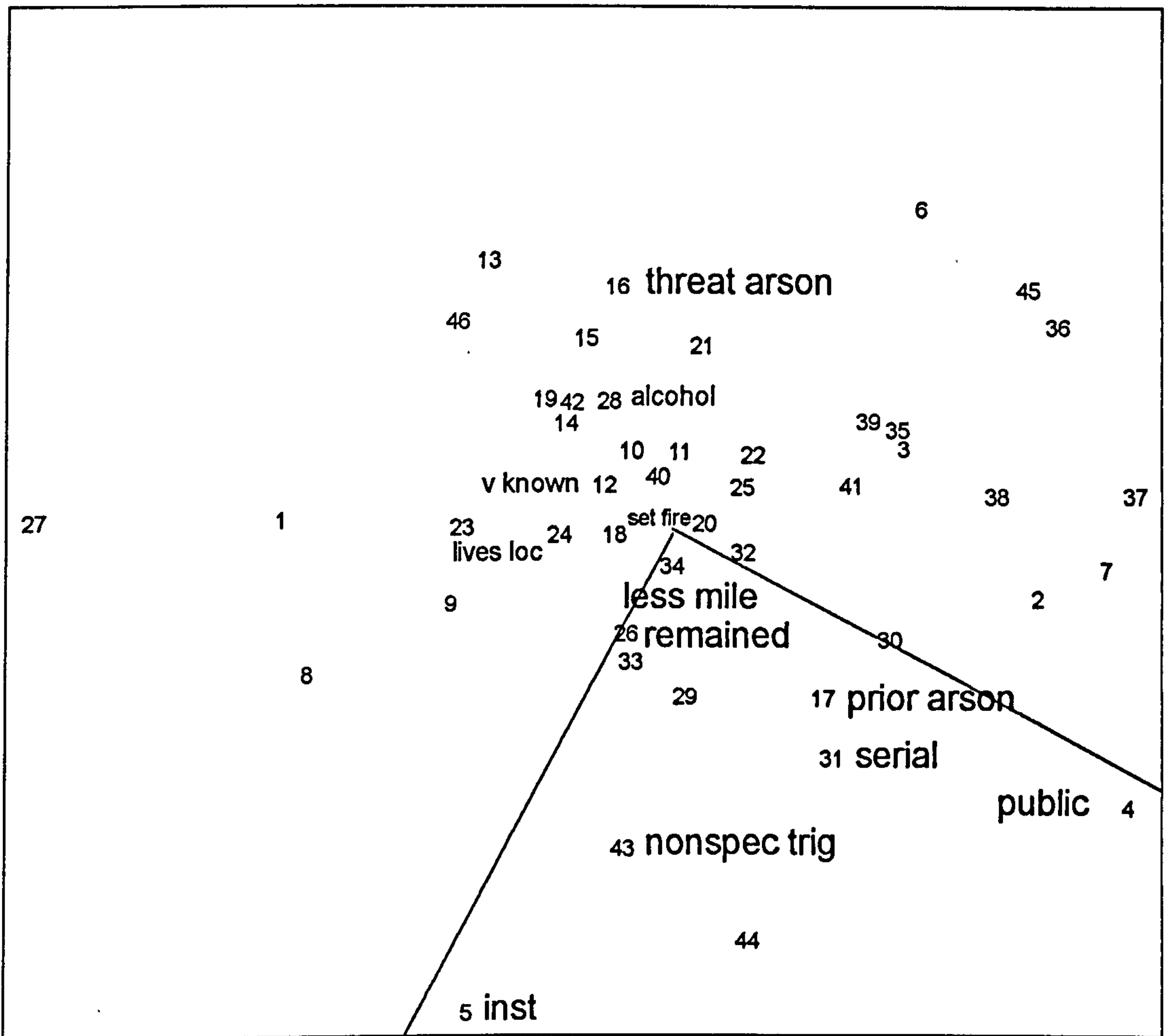


half years - 1½ years for assault and four years for arson, including the 1990 sentence. A psychiatric report had noted that the most serious fires and assaults tend to occur when he's been particularly angry and upset, such as when he received his dementia diagnosis. On a previous occasion Arthur had set fire to a hotel room which he claimed was because the TV didn't work. He reported that he enjoyed watching the fire engines and has also maliciously set off fire alarms for the same reason.

At the end of January in 1993 a fire broke out in an office in a hospital at 2 p.m. The fire brigade was called and the fire was extinguished in a matter of minutes as the only burning items were paper materials.

Following the arrival of the fire engines, Arthur took himself to the police station just down the road from the hospital and confessed to starting the fire. He received a two year prison sentence.

This fire would be classified as Expressive because of Arthur's previous involvement with firesetting, the fact that the venue chosen was a hospital, and that Arthur remained at the scene until the arrival of the fire engines. In general, as the psychiatric report mentioned, Arthur's firesetting tended to occur as a reaction to some strongly emotive event.



**Figure 10.3.d:** Case study of arson as a Display

This case would probably be classified as excitement-motivated according to the FBI typology (e.g. Douglas *et al*, 1992), and indeed this form of arson shares a number of both offence features and offender characteristics with the expressive style of firesetting as described by the present framework. For example, offenders often make false alarm calls and remain at the scene. However, as indicated in the first section of this chapter, there has been some disagreement in the descriptions of both the offence behaviour and associated characteristics of excitement-motivated arsonists within the FBI related literature. This is most likely due to a lack of clearly defined criteria according to which these studies make classifications of arson cases; this is a limitation which is overcome in the present study by adopting the action systems approach as a theoretical framework which provides a clearer and more objective basis for differentiation.



## 10.4 Chapter Summary

This chapter has shown that the action systems model of arson leads to testable hypotheses relating to the background characteristics and criminal histories associated with each of the four forms of arson. The hypothesised correspondences between adaptive, conservative, integrative and expressive actions and characteristics have been supported. These findings also provide support for the Offender Consistency hypothesis (Canter, 1995) in that the mode of functioning exhibited at the arson crime-scene is consistent with the offender's previous criminal behaviour and other aspects of his background history.

These findings have developed the action systems framework by providing a richer understanding of what it means for an arsonist to be operating in each of the four modes of functioning. Adaptive arson which is about manipulating aspects of the external environment is committed by individuals who show a tendency towards behaving in other similarly deviant ways. As well as coming into conflict with various authority figures, these arsonists will often include in their criminal repertoire minor and petty offences such as theft (mainly shoplifting) and criminal damage.

The Conservative mode of functioning involves an individual reacting to an external source of frustration by setting a fire which is directed at a person within their circle of close relationships. These sorts of arsons are committed by people who have been unsuccessful in many areas of their lives, including employment and personal relationships. These individuals also have the most extensive criminal records of all four groups particularly for offences involving other people. This indicates a great difficulty in dealing with situations of conflict and a tendency to react to provocation by recourse to either direct or indirect forms of aggression.

The Integrative form of arson was directed internally with the aim to draw attention to or change some aspect of the individual's own inner state. These arsonists have a history of emotional and psychiatric problems and their criminal histories are reflective of this disorganised dysfunctional lifestyle. The strongest correlations with

previous convictions are for offences involving deception. These are usually fairly low-level and, of course, ultimately unsuccessful attempts at cheque forgery. Integrative arsonists also have convictions for offences involving the police and courts, which often involve the individual failing to turn up for a court appearance or non-payment of a fine; again these sorts of behaviours are indicative of a disorganised lifestyle.

Finally, the Expressive mode of functioning in relation to arson is reflective of an intrinsic fascination for fire which is used primarily in an attention-seeking way. This repeated fire-related behaviour is reflected in the background characteristics of these individuals, which includes being known both locally and officially for setting fires. These arsonists also have dysfunctional lifestyles and often have personality disorders causing them to be institutionalised.



## Chapter 11: The Journey To Fire

A number of psychological theories have been advanced in relation to the spatial behaviour of offenders. These have tended to emphasise the logic of the choices made by the offender in deciding where to commit his offences. Some researchers have suggested that offenders identify opportunities for committing crimes following the same patterns as locations of their other routine activities (Brantingham and Brantingham, 1981). An alternative but compatible approach is rational choice theory in which qualities of the target are stressed (Brantingham and Brantingham, 1981). A third perspective is one that emphasises the transaction between the offender and his surroundings. This is the optimal foraging model which draws attention to the region available to the offender around his home, rather than focusing on the pathways and nodes of non-domestic activities as the dominant influence on crime site selection. In some ways this is a combination of the first two approaches, in which both environmental opportunities and aspects of the target are regarded as important.

These three models give different emphases to various aspects of the domain over which offenders operate and how that area may relate to the residential location of the offender. It is also feasible that some models are more relevant to some offences and/or offenders than others. In relation to arson, therefore, the empirical question is which model accounts for the spatial behaviour of each of the four identified forms of firesetting behaviour. This is the focus of the present chapter.

### 11.1 Geographical issues in arson research

Compared to other offences such as burglary (Rengert and Wasilchick, 1985) and rape (Amir, 1971), there have been few studies examining the spatial behaviour of arsonists. The majority of these (e.g. Brady, 1983; Bennett, Merlo and Leiker, 1987) have simply identified areas within a city where incidences of arson are most frequent. Furthermore, this research appears to be relevant to only certain forms of

arson. For example, Brady (1983) identified areas of Boston, Massachusetts where the incidence of arson was particularly high, predominantly those populated by ethnic minorities. Brady argued that these areas were particularly vulnerable to arson because they have a high proportion of abandoned properties. Studies in other American cities have identified that abandonment patterns follow closely the discriminatory mortgage-lending policies of banks which deny credit to certain districts of inner cities, preferring instead to invest in more profitable suburban real estate. These practices lead to the decline of certain areas of a city which provides the context and motivation for several varieties of arson, particularly those which would be regarded as Adaptive within the current framework.

Similarly, Bennett *et al* (1987) studied arson in Springfield, another town in Massachusetts, and again explained the finding of certain 'hot-spots' in terms of a variety of social, economic and housing conditions. The highest concentration of arson in this study was also in areas characterised by deteriorated buildings, high poverty and high ethnic minority population. The researchers performed multiple regression analysis on a number of variables in order to determine the exact nature of these high arson areas, and found that the two variables, 'vacancy' and 'tenements' together accounted for over 70% of the variation in arson rates.

Taken together, then, these two studies are a first step towards highlighting a possible causal link between socio-economic factors and arson. However, beyond the instrumental property-related arson, they do not offer broader psychological insight into how the existence of these "natural areas for crime" actually translates into firesetting behaviour at an individual level.

One possibility is that the people who live in these areas may be more likely to use arson because of a perceived lack of alternative methods for achieving goals (Fannin and Clinard, 1965). This has been examined by Pettitway (1987) as discussed in Chapter 1, who found that the rate of retaliative (revenge) arson in so-called 'natural' crime areas was higher than in other areas. However, this study still only deals with one form of arson and has a predominantly socio-economic focus.



In summary, then, these studies have all focused on the geographical distribution of arson at a macro level, i.e. across a given city, rather than examining spatial patterns operating at the individual, micro level. In order to open up hypotheses for examining the spatial behaviour of individual arsonists, it is therefore necessary to turn to geographical research on other crime.

## 11.2 The Spatial Behaviour of Offenders

There have been three main approaches to the study of criminal spatial behaviour. The first of these is known as the Ecological approach, of which probably the best known study was conducted by Shaw and McKay (1942). Their research concerned juvenile delinquency and identified similar patterns to the studies on arson reported above (Brady, 1983; Bennett *et al*, 1987), namely that high crime rates occurred in areas characterised by poor housing quality, poverty and ethnic minority population. All of these studies, however, including the ones on arson, suffer from what is known as the “ecological fallacy” which results from an attempt to apply patterns of associations between crime and its potential causes at an aggregate level to all individuals within that environment.

The second approach to studying offender’s spatial behaviour is called Environmental Criminology. This focuses on the relationship between where an offender lives and the location of his/her offences, rather than looking at the potential causes of crime within an environment. What studies adopting this approach have tended to find is that, generally, criminals do not travel very far from home to commit their crimes (e.g. Stephenson, 1974). The most frequently cited research within this field is that conducted by the Brantinghams (1981) who proposed a theoretical model for explaining offender’s spatial behaviour. This model has a number of components which offer up specific testable hypotheses about the location of an offender’s crimes in relation to his home. The first concept is that of a “buffer zone” existing around the offender’s home in which he/she is less likely to commit crimes due to the risk of recognition. Another finding is that offenders travel further to commit property

offences than crimes against people (e.g. White, 1932). Within property crimes themselves, greater distances are travelled when the value of the property is larger (Baldwin and Bottoms, 1976). Similarly, Capone and Nichols (1975) found that robbers travel further if they are armed than if not. It has been suggested that this is linked to the level of planning required by armed robbers (Gabor and Gottheil, 1984). Therefore this may be a factor which would affect the spatial behaviour of offenders committing other crimes involving planning, such as arson.

These studies have tended to focus on property offences, where there is an underlying assumption that an offender is acting to maximise his personal gain from the crime, and minimise the effort involved in committing it. Research on more person-focused offences, such as rape, however, have indicated that here also offenders are seeking to minimise the amount of effort required to commit the assault. For example, LeBeau (1987) looked at the method of approach used by rapists and found that those who used methods that required the most effort (illegal entry, kidnap-attack and meeting at a party) tended to travel shorter distances from home.

As well as these findings which show a relationship between the nature of the offence and distance travelled, there has also been research showing that certain offender characteristics appear to affect the journey to crime statistic. For example, Repetto (1974) found that younger offenders tend to travel shorter distances than older ones. Also, female offenders are more likely to commit offences within their own residential area than males (Rengert, 1975). Finally, Nichols (1980) noted that white offenders travelled almost three times as far as black offenders.

Taken together, the findings from these studies indicate that certain identifiable characteristics of offenders, together with specific aspects of the offence, may be useful in predicting offenders' spatial behaviour.

Finally, a relatively new approach to criminal spatial behaviour is that of Environmental Psychology. This argues that the journey to crime is an interaction



between aspects of the offender, and the location and type of target. The starting point of this perspective is also the offender's home base, and it is argued that the area in which offences are committed, the 'criminal range' will have a clear relationship to the home. The importance of an offender's criminal range has recently been highlighted in a study by Canter, Hodge, and Missen (in press). Their study of 79 US serial murderers who had each killed between 2 and 24 victims found that sub-groups of offenders could be differentiated in terms of the size of the area over which they offend.

Canter and Larkin (1993) proposed two possible models to characterise the relationship between the criminal range and an offender's home, both of which represent the area defining the criminal range as circles. These circles are constructed by identifying the two offences in a series that are furthest from each other and taking the distance between them as the diameter of the circle. The first model is called the Commuter hypothesis and suggests that an offender travels from his home base into a separate area to commit offences. The second model is called the Marauder hypothesis and this proposes that the area encompassing the home base is contained within a larger area where the offender travels out to commit offences. The critical difference between these two models is that the second assumes that there will be a relationship between the distances travelled from the home base and the distances travelled between separate offences, whereas the first model does not. An elaboration of the Marauder hypothesis was developed by Canter and Gregory (1993), called the Circle hypothesis. This model defines the area of an offender's criminal range, as well as providing a method of extrapolating where his likely home base will be, based on the location of his offences. The model was tested by Canter and Larkin (1993) using 45 serial rape cases. They found that for 91% of the cases the criminal range circle encompassed all offences committed by an offender. Furthermore, in 84% of the cases the offender's home base was also within the same circle, in other words the study found overwhelming support for the Marauder model.

Two other recent studies have examined the environmental range of serial offenders. Godwin and Canter (1997) applied the principles of the circle hypothesis to the study of US serial killers. This study focused on the so-called Points of Fatal Encounter (PFE), or last known whereabouts of victim as the basis for examining the criminal range of these offenders. It was found that these PFE sites were generally located closer to the offenders' homes than the Body Dump (BD) sites which was taken as support for routine activity theory in relation to these offenders.

The circle model has also recently been used in Australia to examine the spatial behaviour of burglars, rapists and arsonists. Kocsis and Irwin (1997) derived data on 24 rapists, 22 arsonists and 27 burglars from the criminal records of the New South Wales police service. They found that in 79% of rape, 82% of arson and 70% of burglary cases the criminal range circle encompassed all offences. Furthermore, in 71% of rape, 82% of arson and 48% of burglary cases the offender's base was located within the circle. Therefore, support was found for the marauder model in relation to rape and arson, suggesting that arsonists are more like rapists in relation to both their criminal range and the relationship this has to their home. This similarity is possibly due to the importance of the target or victim in both of these offences. It could be argued that the spatial behaviour of burglars is more random because essentially the opportunity to commit burglary exists everywhere. The location of their crime-sites, therefore, might be expected to be more dependent on concerns about detection or opportunistic factors like coming across a house which is unoccupied. Rapists on the other hand, do not have such a widely available choice of targets and so victim selection may be the primary factor which affects the location of their crimes. Based on the previous analysis in this thesis it might be expected that certain forms of arson will be target focused, like rapists, whereas others will be more opportunistic, like burglars. These hypotheses can be tested both in relation to single and serial offenders, although obviously arsonists with multiple crime-sites allows for a more detailed examination of the patterns in their offending. The spatial behaviour of this group of firesetters will be examined in section 11.4.



## **11.3 The Spatial Behaviour of one-off Arsonists**

As previously discussed, three broad models of offenders spatial behaviour have been proposed: routine activities, rational choice and optimal foraging. In combination with the above research findings a number of empirical questions are raised in relation to the spatial behaviour of arsonists. The first of these is how the relationship between an offender's residence and the location of his fires will relate to each of the four sub-groups of arsonists identified in this thesis. It may be expected, for example, that the Adaptive form of arson would relate best to the routine activities model, since this is essentially an opportunistic form of behaviour. On the other hand, Expressive arsons in which some aspects of the target are important might be approached from the rational choice perspective. The Conservative form of arson in which it is the interaction with the target which is emphasised, might be explained by application of the optimal foraging model.

The second is whether the findings in relation to other crime types will also be found to apply to arson. For example, whether arsons targeted at people will involve travelling shorter distances than those directed at objects (e.g. White, 1932) or that younger arsonists will travel shorter distances than older (e.g. Repetto, 1974). This relates to the issue of whether arson is distinct from other crimes as has been shown by the analysis of criminal histories, for example (Chapter 9).

### **11.3.1 Procedure**

These hypotheses were tested by examining the distances travelled by the offenders in the sample and examining associations with both individual variables and groups of variables, specifically those that make up the four styles of arson described in Chapter 5. Of the 230 cases, 46 were serial offenders and as such their spatial behaviour is dealt with separately in section 11.4. A further thirty-seven cases could not be included as the police files did not contain a suitable address from which a distance measurement could be obtained (e.g. waste bins in local park, nearby field). This left a remaining 156 cases involving a single crime-scene which was fired by either a

single offender or multiple offenders. For the single offenders, the measurement of distance was between the offender's home and the location of his/her offence. Where there were multiple offenders, the shortest of the individual distances from each of the offender's home bases to the location of the fire, was taken to provide the overall distance travelled.

A number of the arsons had been coded as involving the offender's own home. However, there were a few cases where the fire was actually set in the garden of the home, or in the stairwell of a flat, but not actually inside it. This distance is not measurable on a map, but was fixed at 0.05 miles so as not to lose an important distinction.

The analysis is broken down into three separate sections to reflect the different factors that are hypothesised to affect distances travelled. The first analysis is a distance decay function which shows the pattern of distances arsonists travel from home. Among other things this examines the existence of a 'buffer zone' as has been found for previous offences (Brantingham and Brantingham, 1981). The second section focuses on specific features of the acts of arson and relates distance travelled to each of the four styles of firesetting; the third examines associations between distance travelled and characteristics of the offender; and the final section focuses on the serial offences.

These results are compared to research findings on distances travelled by other sorts of offenders to address the issue of whether or not arsonists are similar to other offenders in this respect.

### **11.3.2: Overall distances travelled from home**

The mean distance travelled from home for all arsonists was 1.28 miles. The minimum was 0 miles and the maximum was 72.2. This shows that generally speaking arsonists do not travel very far to commit offences. Other research on criminal mobility has shown that the distances travelled from home to commit crimes



tend to be quite short (Brantingham and Brantingham, 1981). White (1932) gave an average of 1.66 miles for all offenders, a finding which has subsequently been supported by other research (Barker, 1989). Other research has found that there are differences in the distances travelled according to the type of crime committed. In a summary of American studies, Harling (1972) showed that for drugs offences the distance was 2.17 miles, for theft it was 1.83 miles, burglary 0.77 miles and vandalism 0.62 miles. Rhodes and Conly (1981) additionally found that for robbery the mean was 2.10 and for rape it was 1.15. Again the similarity between arsonists and rapists is suggested by the fact that the mean of the current sample is closest to that for rape.

Figure 11.3.2.a below shows a bar chart of the distances travelled broken down into a series of steps. Most of these steps cover a distance range of 0.5 miles, except the first one which is shorter, and the later steps which cover a range of 1 miles. The difference in the range of these steps is due to frequencies; the vast majority of offenders travelled less than 0.5 miles from home, so this step was divided into two. Conversely, hardly any offenders travelled over 3 miles so the steps beyond this point were lengthened.

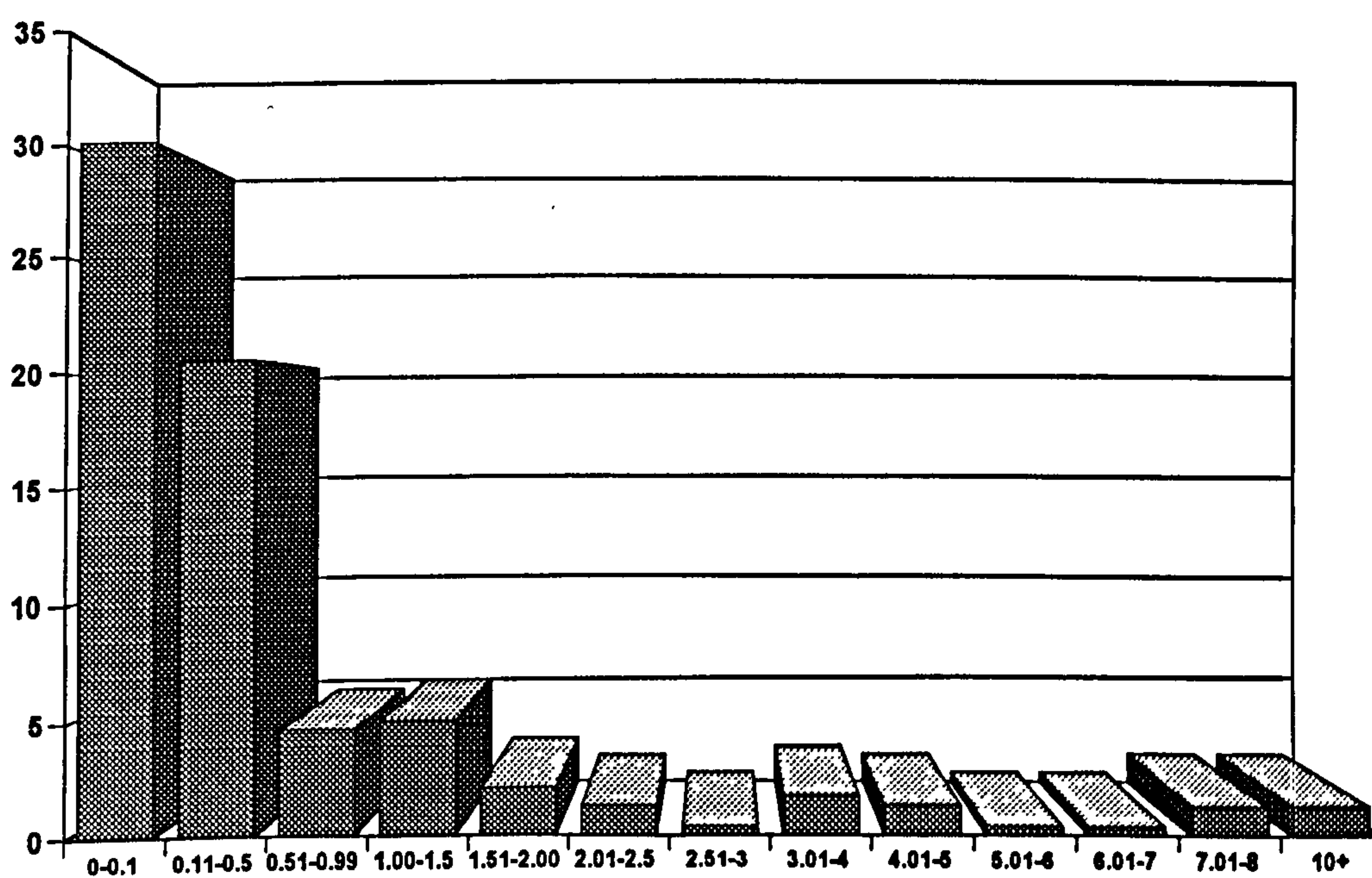
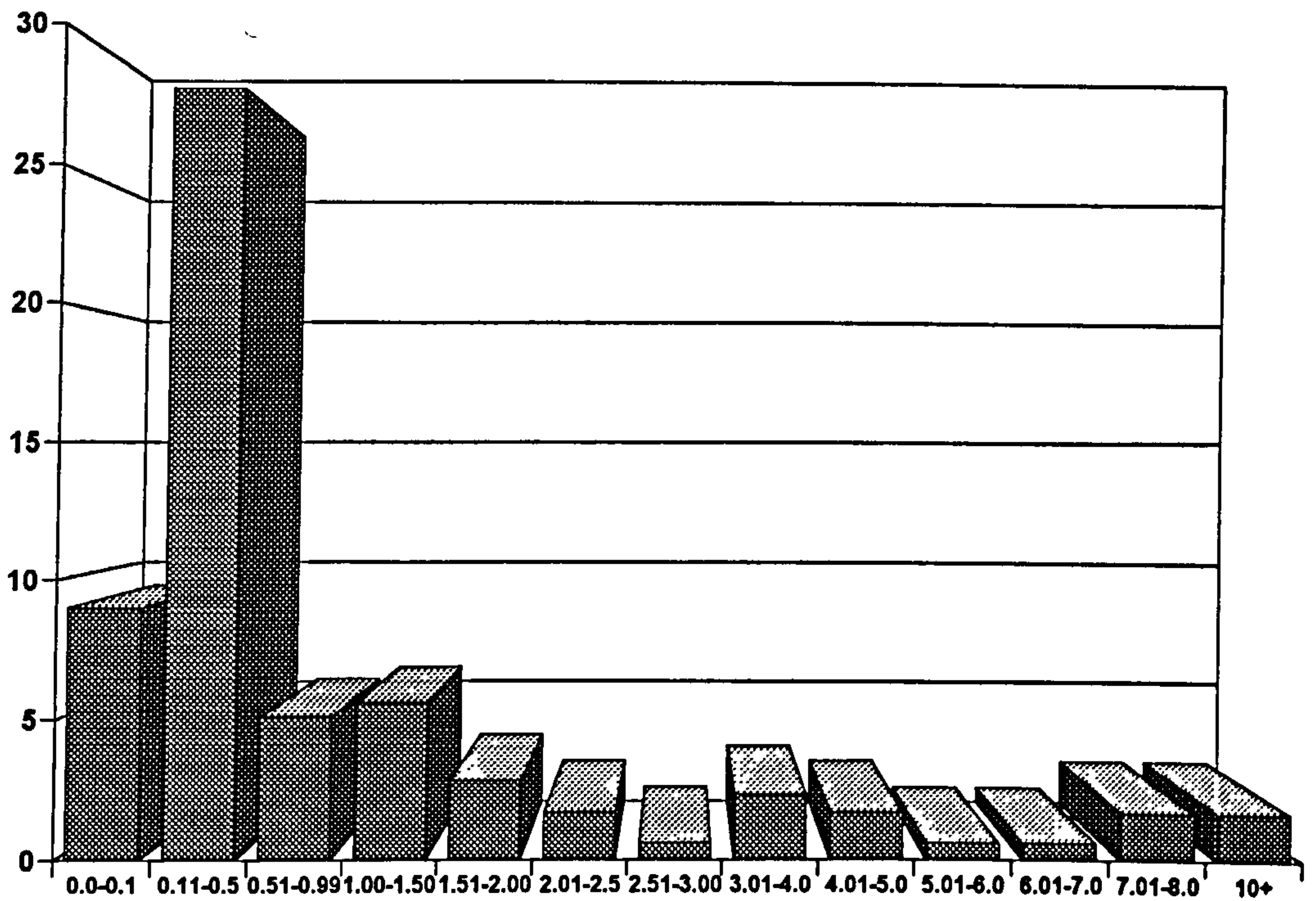


Figure 11.3.2.a: Range of distances travelled by arsonists

This graph shows that the majority of arsonists travel less than half a mile from home, and that as the distance from home increases, fewer offenders are found who travel those distances. This is known as 'distance decay' and has also been found in previous studies for crimes such as robbery, burglary and rape (e.g. Rhodes and Conly, 1981). One interesting difference between the above graph and those for the other offence types, however, is in relation to the sharpness of the decline in offences committed as distance increases. As can be seen in **Figure 11.3.2.a**, the number of offenders who travelled 1.0-1.5 miles was around 5%. This can be compared to the results obtained by Rhodes and Conly (1981). The number of offenders travelling over this range was approximately 13% for robbery and 9% for both burglary and rape. The decline beyond this point, however, was much sharper for the arsonists. Only around 2.5% of the arsonists travelled between 1.5 miles and 2.0, whereas for robbers it was around 8%, burglars around 10% and rapists around 5%. Once again, the results for arson are similar to those for rape.

One of the other interesting features of offenders' spatial behaviour reported in the literature is referred to as a 'buffer zone' (Brantingham and Brantingham, 1981). This is an area immediately surrounding an offender's home base where he is unlikely to commit offences. The existence of a buffer zone was not shown by graph in **Figure 11.3.2.a**, however, this is probably because of the large number of offences that took place in the offender's own home. By excluding those cases, the graph in **Figure 11.3.2.b** was obtained.





**Figure 11.3.2.b:** Range of distances travelled by arsonists without 'own home'

This graph does support the existence of a buffer zone in that arsonists who are not setting fire to their own property tend to travel at least 0.11 miles. This analysis has shown the value of examining the relationship between the distance travelled and other features of the offence. The following section shows how the presence of certain crime-scene variables affects the distances travelled by arsonists.

### 11.3.3: Distance travelled related to features of the offence

In order to discover whether the distances travelled by arsonists were affected by the presence or absence of particular crime-scene variables, t-tests were calculated on the differences between the mean distances travelled when a variable was present, and the mean distance travelled when that variable was absent. Table 11.3.3.1 lists the results of this analysis.

Table 11.3.3.1: Differences in distance travelled related to four themes in crime-scene actions

Theme	Action (n)	mean d if present	mean d if absent	t-test	significance
DAMAGE	outside (55)	2.53	0.66	7.43	<.01
	public view (78)	2.21	0.42	7.58	<.01
	car (18)	2.20	1.20	.042	n.s.
	other crime (17)	1.99	1.23	.11	n.s.
	weekday (85)	1.76	0.79	3.04	n.s.
	mat. brought (86)	1.74	0.80	2.09	n.s.
	spree (22)	1.50	1.29	.00	n.s.
	mult offender (35)	1.23	1.34	.22	n.s.
	business (17)	1.00	1.36	.39	n.s.
	illegal (37)	0.99	1.42	.99	n.s.
	finance (14)	0.97	1.35	.15	n.s.
	miscellaneous (30)	0.86	1.43	1.04	n.s.
	theft (14)	0.69	1.38	.87	n.s.
	school (7)	0.37	1.36	.47	n.s.
DESTROY	partner (37)	3.28	0.71	13.50	<.001
	threats (41)	3.01	0.71	11.39	<.001
	accelerant (60)	2.44	0.61	9.09	<.005
	argument (62)	2.20	0.73	6.13	<.05
	specific trigger (72)	2.01	0.72	4.67	<.05
	alcohol (78)	1.75	0.88	2.42	n.s.
	planned (89)	1.67	0.85	1.83	n.s.
	target (100)	1.61	0.79	1.74	n.s.
	victim known (115)	1.44	0.98	.94	n.s.
	multiple seat (36)	1.25	1.34	.05	n.s.
	threat of arson (21)	1.06	1.36	.21	n.s.
	witness (30)	1.03	1.39	.36	n.s.
	outburst (30)	1.02	1.39	.11	n.s.
	DESPAIR	lives end. del (46)	2.35	0.88	7.29
residential (93)		1.42	1.17	1.00	n.s.
lives end. loc. (103)		1.37	1.21	.66	n.s.
multiple item (72)		0.77	1.79	2.57	n.s.
suicide note (4)		0.15	1.35	.32	n.s.
self (15)		0.18	1.44	1.22	n.s.
own home (60)		0.07	2.10	7.62	<.01
DISPLAY	public (7)	2.64	1.25	.17	n.s.
	remain (75)	1.32	1.31	.46	n.s.
	daytime (51)	0.94	1.50	.49	n.s.
	crusade (13)	0.52	1.39	.48	n.s.
	prior arson (36)	0.37	1.60	2.69	n.s.
	serial (27)	0.36	1.52	1.84	n.s.
	drugs (23)	0.27	1.50	1.82	n.s.
	non-spec trig (25)	0.15	1.54	2.37	n.s.
	institution (11)	0.08	1.41	1.06	n.s.
CENTRAL	set fire (137)	0.86	4.58	25.08	<.001
	not alert (119)	1.52	0.65	1.64	n.s.



This table shows that the presence of certain crime-scene actions did relate to the average distances travelled by offenders who displayed those actions. Those variables which when present meant that the offender had travelled a greater distance from home were: partner, argument, threats, accelerant, lives endangered deliberately, specific trigger, public view and outside. With the exception of the last two variables, all of the others are associated with arsons which are targeted at a specific person and generally serve an instrumental purpose in the form of revenge. This supports the research findings outlined in section 11.2 which indicated that offences which are planned and targeted would tend to involve the offender travelling further from home than more spontaneous, eruptive crimes. Although it might be expected that offenders would live closer to partners, it must be remembered that these cases almost always involved prior arguments or even separation or divorce. Consequently, the offenders were not living with their partners at the time of the fire, but were usually temporarily staying with family or friends.

The finding that arsons that take place outside and in public view tend to occur further from home, is probably due to the fact that the likelihood of being caught setting fires outdoors is already greatly increased, without having the added possibility of being recognised close to home. Arsonists might therefore be expected not to set fires outdoors within a certain range of their home environment. This relates to the buffer zone previously mentioned, suggesting that this effect is particularly pronounced if the offences in question are taking place outside and in public view.

Variables which were associated with travelling shorter distances if present than if not present were own home and set fire. The former variable is associated with very minimal travelling for obvious reasons, although the value is not 0 due to one or two offences where the arsonist had been living elsewhere on a short-term basis (e.g. parents home) but had returned to their own home to set fire to it. The second finding is that fires which involve missiles are set further from home than ones where an object is physically set alight. This again relates to the offender being outside during the firesetting event; in the current sample missiles were always thrown at a

house from outside. This finding, then, is probably also related to the buffer zone effect.

These results show that certain crime-scene variables are associated with travelling significantly further or shorter distances than in the absence of those variables. The next analysis examined differences in distances travelled relating to the 4D model of arson behaviour.

### 11.3.4: Distance travelled related to styles of arson

This was firstly examined in relation to the overall range of distances travelled by arsonists within each of the four themes.

#### Damage

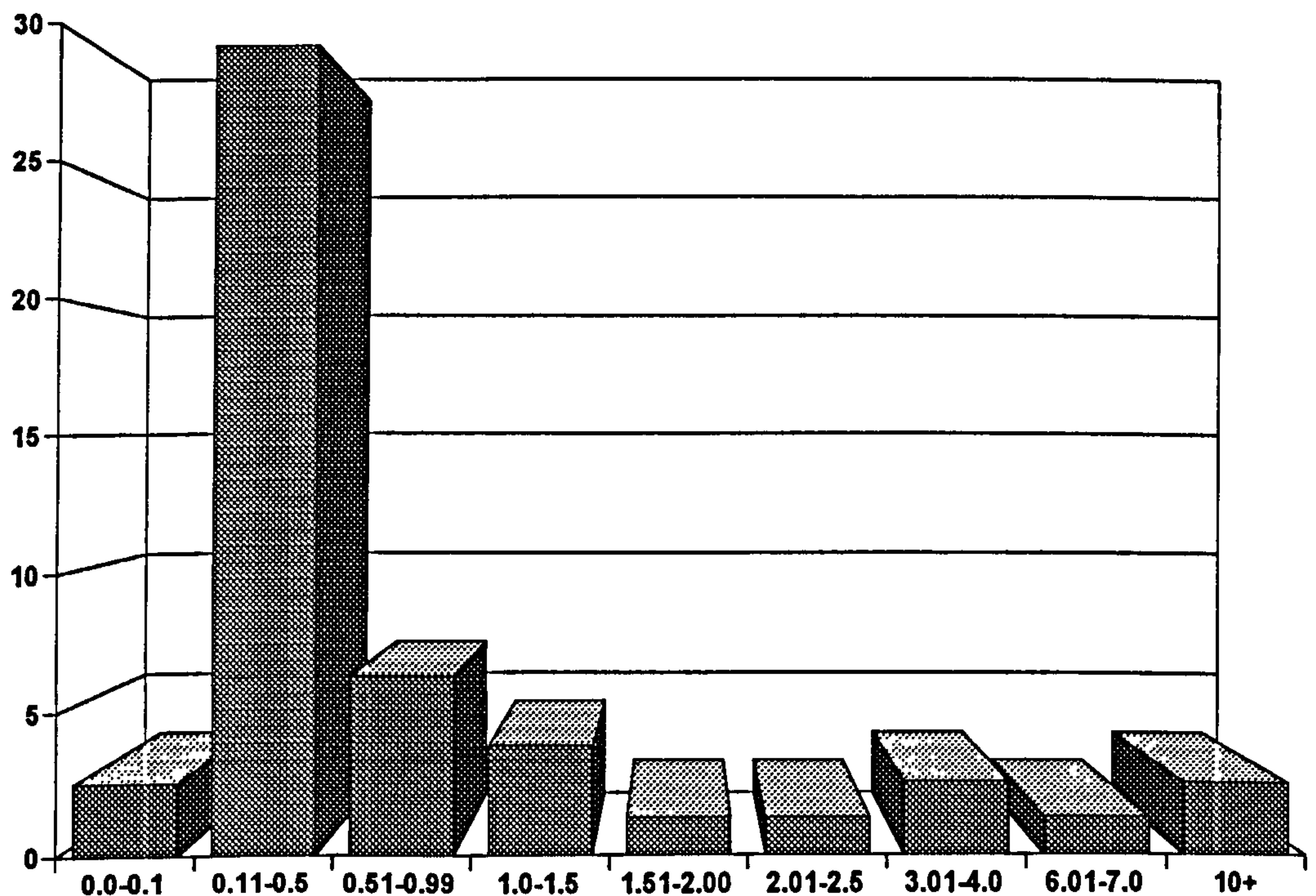
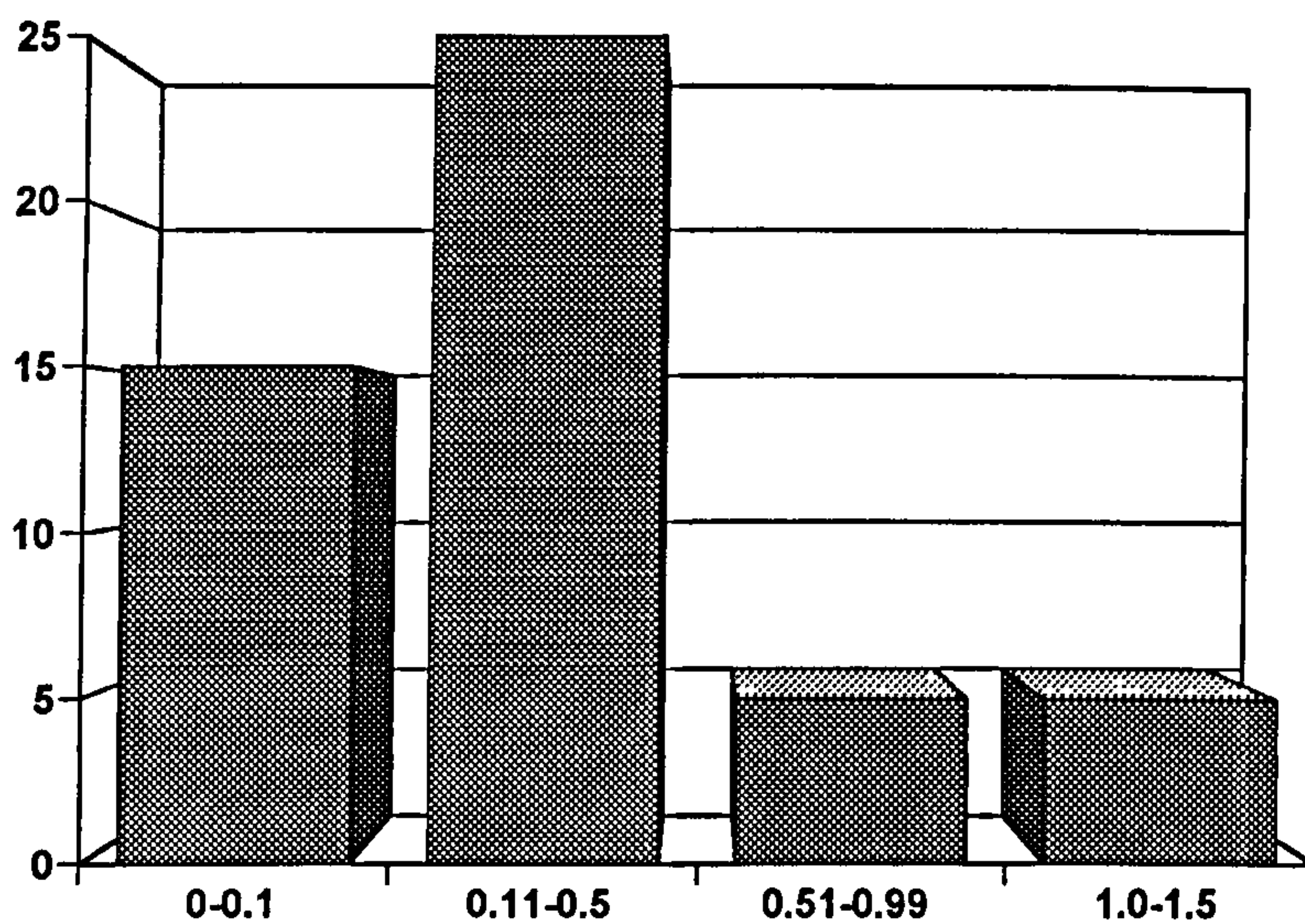


Figure 11.3.4.a: Distances travelled to Damage



This graph shows a very strong buffer zone effect for this form of arson, in that less than 3% of offenders set this type of fire less than 0.1 miles from home. The vast majority, however, do not travel very much further than 0.5 miles which is still a very short distance. This reflects the opportunistic, Adaptive nature of this form of arson.

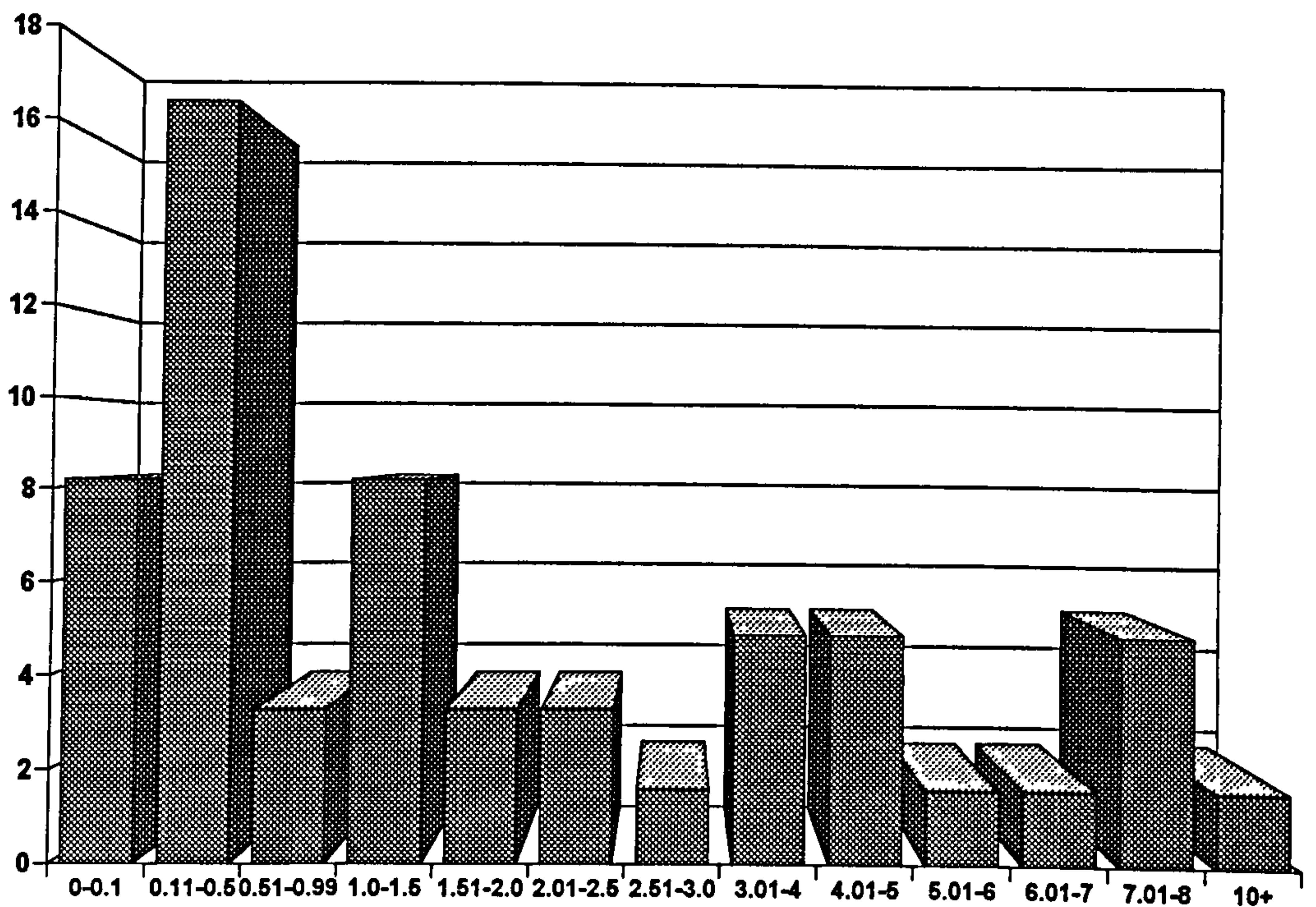
### Display



**Figure 11.3.4.b:** Distances travelled to Display

This figure shows that Display arsonists have a very limited pattern of spatial behaviour, in that none travel further than 1.5 miles from home. It is also interesting to note that even though those individuals who set fire to their own home were not included in this analysis, the graph shows that a substantial proportion of the Display arsonists set fire very close to home. This is revealing of the expressive nature of this form of arson which supports the finding in previous literature that these types of offences involve minimal travelling (e.g. White, 1932).

## Destroy



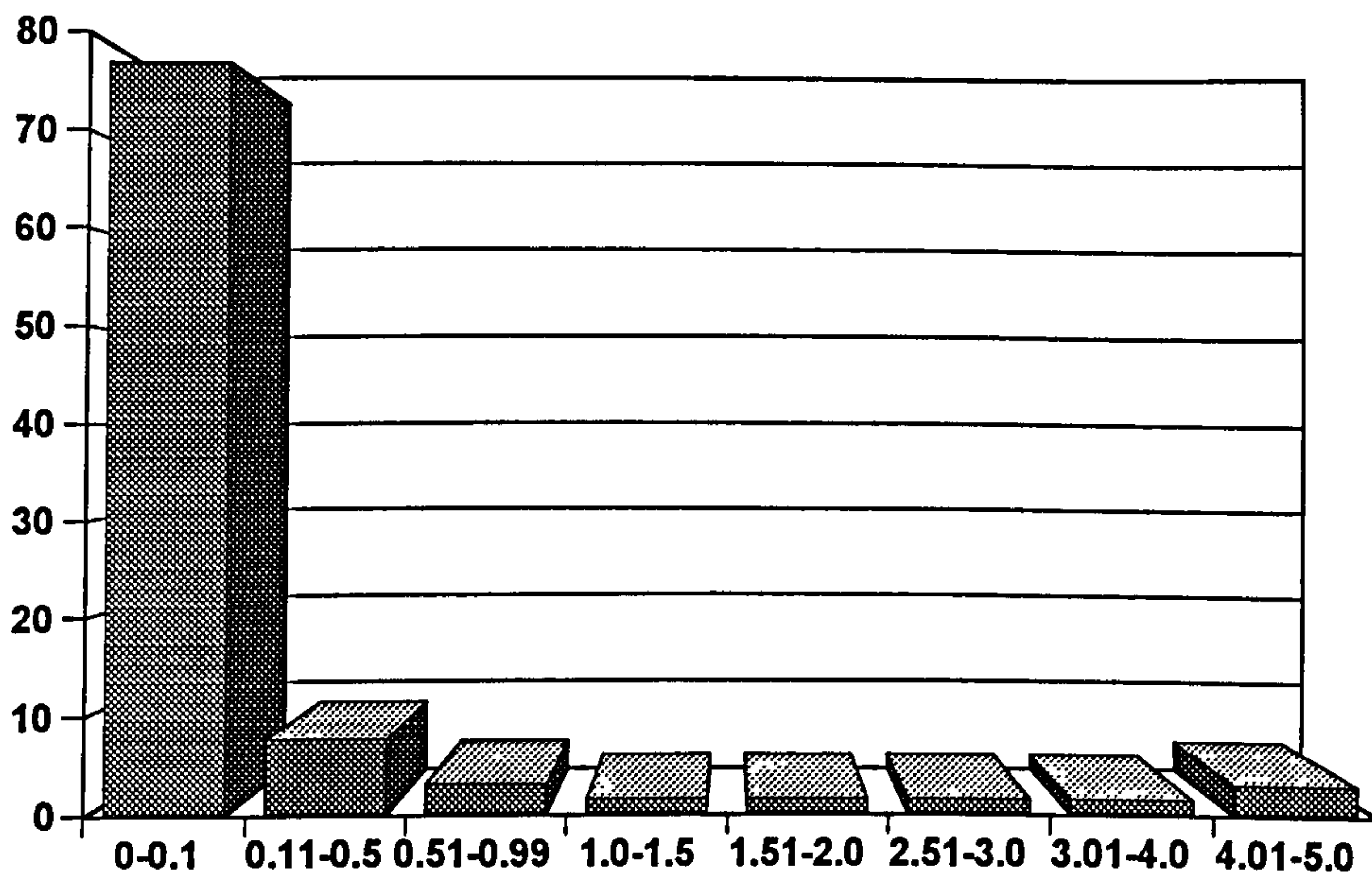
**Figure 11.3.4.c: Distances travelled to Destroy**

This form of arson showed the greatest variety in distances travelled by offenders. There is also a noticeable differences in the pattern of distance decay. Although there is a general trend towards fewer offenders travelling over greater distances, there are various smaller peaks occurring for certain distance ranges. For example, around ten percent of offenders travelled between 3 and 5 miles, which is a larger number than those who travelled between 1 and 1.5 miles. Again, the offenders who set fire to their own home were not included in this analysis, but the graph nevertheless shows that the majority of Destroy arson occurs very close to home. There were a number of cases, for instance, where a partner's clothing was taken outside and made into a bonfire in the back garden.

Overall this graph shows that this form of arson is very much dependent on the location of the target and that offenders will travel the required distance in order to burn the intended property.



## Despair



**Figure 11.3.4.d:** Distances travelled in Despair

This graph shows that the vast majority of these arsonists set fire to their own home or an area immediately surrounding it. However, a few individuals did travel further; these were mainly cases where they returned to an ex-partner's residence, or travelled back to their own home from temporary accommodation.

### Distance as an External Variable

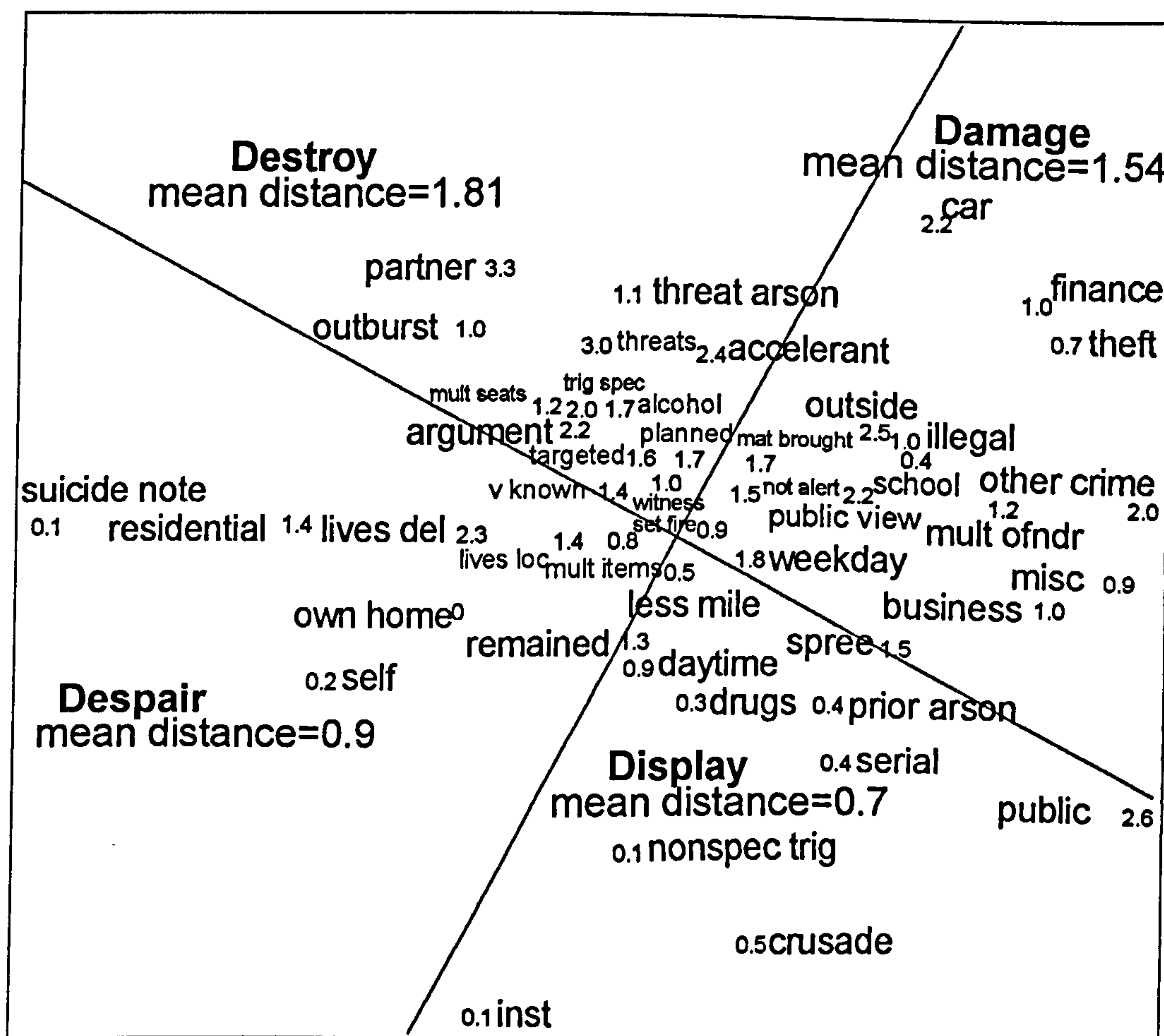
In order to relate distance travelled to the thematic aspects of offence behaviour, distance was plotted as an external variable on the crime-scene SSA presented in Chapter 5. Figure 11.3.4.e shows the mean distance travelled for each of the crime-scene actions on the SSA.





region of the SSA, but there are also a few variables from Damage where the offenders travelled further than was typical of the other items in that region. These were again associated with being outside, e.g. setting fire to a car.

The SSA in **Figure 11.3.4.f** shows how these distances relate to the four styles of firesetting by giving the mean distances travelled overall for all the variables in the regions. The differences in these mean distances were not found to be statistically significant.



**Figure 11.3.4.f:** Mean distance travelled for each region

This plot would suggest that the shortest distances travelled overall are for the Display forms of arson (0.7 miles) rather than for Despair as might have been expected. However, this is due to a single variable, 'lives endangered deliberately' being associated with travelling much further than any of the other variables in the

Despair theme. This variable is also present in arsons which are targeted at another individual (Destroy) which is the group that travels the furthest (1.81 miles). This variable therefore can have two meanings; one is that *another* life is endangered deliberately, the second is that the arsonists' *own* life is endangered deliberately. In the former case the arsonist is prepared to travel greater distances as with the majority of the other variables in Destroy. But when the variable is associated with the arsonist setting fire to him/herself, much shorter distances are typically travelled (0.18 miles versus 3.33,  $t=9.01$ ,  $p<.005$ ). Therefore, if the mean distance for Despair is calculated without the variable 'lives endangered deliberately', the result is 0.65 miles. On the whole then, Despair is the form of arson associated with travelling the shortest distance from home.

Overall, these two analyses have confirmed the first hypothesis which is that certain crime scene actions will have an effect on the distance travelled. Namely, arsons which are targeted at specific individuals tend to involve the offender travelling further, and crimes which have a strong emotional component involve very minimal distances. Additionally it was found that arsonists who set fires outside tend to travel greater distances than those who set fires inside. This is the same finding as Canter and Heritage (1990) obtained for rape, which was hypothesised to be due to searching for targets. A similar explanation might also underlie the finding for arson, or it could be due to the greater risk of recognition close to home

The next analysis looks at the characteristics of the offenders themselves to examine the impact of these features on the distances travelled.

### **11.3.5: Distance travelled related to characteristics of offender**

Again, t-tests were calculated to establish whether mean distances travelled were significantly higher in the presence of certain characteristics. Table 11.3.5.1 shows these results.



Table 11.3.5.1: Differences in distance travelled related to characteristics

Theme	Characteristic (n)	mean d if present	mean d if absent	t-test	significance
DELINQUENT	no cro (69)	1.85	.90	3.30	n.s.
	caution (12)	1.38	1.31	.00	n.s.
	sch trouble (53)	1.07	1.41	.28	n.s.
	age (<16) (37)	0.98	1.39	.30	n.s.
	pupil (34)	0.94	1.41	.27	n.s.
	social svcs (39)	0.90	1.44	.39	n.s.
	parents (58)	0.68	1.62	2.79	n.s.
FAILED RELATIONSHIP	child (29)	3.35	0.85	14.88	<.001
	separated (35)	3.07	0.81	9.98	<.005
	partner (37)	2.89	0.82	11.30	<.001
	age (26-35) (43)	2.33	0.92	7.1	<.01
	alcoholism (46)	2.21	0.96	5.64	<.05
	alone (59)	2.13	0.88	4.07	<.05
	age (36-45) (16)	0.85	1.35	.19	n.s.
	manual (18)	0.84	1.37	.83	n.s.
	high quals (30)	0.72	1.46	1.52	n.s.
REPEAT ARSONIST	inst (12)	1.07	1.34	.00	n.s.
	AWOL (13)	1.01	1.34	.06	n.s.
	pers dis. (27)	0.72	1.44	.56	n.s.
	false alarm (12)	0.54	1.38	.52	n.s.
	prior arson (44)	0.43	1.60	2.58	n.s.
PSYCHIATRIC	psychosis (15)	5.63	0.86	31.93	<.001
	female (27)	2.99	0.97	11.29	<.001
	depression (28)	2.82	0.99	10.41	<.005
	age (46+) (11)	0.12	1.39	.96	n.s.
	psych treat (18)	0.48	1.43	.82	n.s.
	suicide (29)	0.36	1.54	1.98	n.s.
CENTRAL	left sch <16 (77)	1.94	0.86	4.35	<.05
	unemployed (101)	1.64	0.83	2.28	n.s.
	white (156)	1.32	1.24	.001	n.s.
	age (17-25) (59)	1.08	1.42	1.15	n.s.

The only significant differences found were in relation to variables who's presence increased the mean distance travelled by an arsonist. These were: age 26-35, alcoholism, alone, child, depression, female, partner, psychosis, left school before the age of 16 and separated. These are mainly characteristics associated with the Failed Relationship sub-group of arsonists. These are the same individuals who set the Destroy form of arson who were also previously found to travel furthest.

In relation to the Psychiatric History arsonists, a number of slightly surprising findings emerged. These were that female, depressed and psychotic offenders travel longer distances to set fires. The first of these results contradicts research on distances travelled by female offenders generally (e.g. Rengert, 1975). However, the number of females in the current sample was relatively small and the results may have been skewed by the fact that the person who travelled the furthest distance for the whole sample (72.2 miles) was female. Also surprising was the fact that persons with mental problems (psychosis and depression) travelled longer distances from home. Again, though, this may be due to one or two outliers. For example, there was one case where a mental patient (also female) was on day release from a hospital in a town in Dorset when she set a fire in another village 23 miles away.

Finally, these results supported the findings of previous research that older offenders tend to travel further than younger ones. This was true for this sample of arsonists to the extent that those in the age band 26-35 travelled the furthest distance, although as age increased beyond this the distances travelled became shorter again. This is probably due to the associations found in Chapter 8 between the older age categories and the Despair and Display forms of arson, both of which involve minimal travelling.

A separate analysis was conducted on criminal history variables to see whether previous convictions for particular offences were associated with travelling further or shorter distances to set fires.

**Table 11.3.5.2** shows the results of the t-tests on the criminal history variables. These are organised into the Expressive/Instrumental dichotomy used by previous research which was supported in the present study by the analysis in Chapter 9.



**Table 11.3.5.2:** Differences in distance travelled related to previous convictions

<b>Theme</b>	<b>Offence Type (n)</b>	<b>mean d if present</b>	<b>mean d if absent</b>	<b>t-test</b>	<b>significance</b>
<b>INSTRUMENTAL</b>	robbery (6)	3.7	0.62	38.99	p<.001
	traffic (14)	1.69	0.62	10.64	p<.005
	twoc (18)	1.39	0.68	7.18	p<.01
	theft (57)	1.01	0.48	2.93	n.s.
	burglary (39)	0.98	0.69	.90	n.s.
	theft fr.car (13)	0.97	0.79	.16	n.s.
	police/courts(16)	0.73	0.83	.00	n.s.
	deception (14)	0.19	0.94	4.36	p<.05
	MEAN (i)	1.33			
<b>EXPRESSIVE</b>	drugs (12)	2.20	0.56	22.04	p<.001
	crim dam (41)	1.06	0.60	2.73	n.s.
	assault (34)	1.01	0.68	1.21	n.s.
	weapon (17)	0.88	0.80	.00	n.s.
	publ disdr (26)	0.58	0.93	1.19	n.s.
	drunk (14)	0.11	0.97	5.71	p<.02
	MEAN (e)	0.97			
	arson (16)	0.15	0.96	5.02	p<.05
	prison (26)	0.76	1.41	.62	n.s.

This table shows that having a previous conviction for certain offences affects the distances travelled to commit a subsequent arson. The results for expressive and instrumental offences were mixed, although on the whole offenders with instrumental offences travelled further than those who had committed expressive crimes (1.33 miles compared to 0.97). This result accords with previous research findings (e.g. White, 1932).

Within the instrumental category, those offences associated with travelling the largest distances were robbery, traffic and TWOC. People who commit traffic offences and steal cars will be used to the high level of spatial mobility associated with driving a car. The greatest distances were associated with having a previous conviction for robbery. At the more sophisticated end of the range of robbery offences, the use of getaway cars and selecting targets for maximum gain would be expected to be associated with travelling large distances, but even at the level of street robbery, an offender may want to avoid committing these offences close to home for fear of recognition. This might explain, therefore, why arsonists with robbery convictions travel further than those without.

On the other hand, it was found that arsonists who had previously committed offences involving deception travelled shorter distances to set fire. This is probably due to the association identified in Chapter 10 between this offence history and the Despair form of arson which tended to occur very close to home.

The category of offences which are associated with travelling shorter distances are mainly expressive crimes which do not require a high level of criminal sophistication. Having a prior conviction for arson is associated with the Display form of arson which was one of the categories that was committed closest to home. The shorter distances travelled by arsonists with alcohol related convictions was somewhat surprising given that the variable alcoholism had the opposite association. As previously mentioned, one of the reasons for coding an offender as alcoholic was if he had a number of convictions of this nature. However, there were a substantial number who were also described by their partners in the police interview as having a drinking problem, which was a second criteria for coding them as alcoholics. These offenders were also the ones who committed the Destroy form of arson, and were not necessarily the same ones who had convictions for alcohol related offences. The possibility of two separate groups of individuals with different alcohol-related backgrounds may explain the differences found in the distances travelled by arsonists depending on whether they were described by their partners as alcoholics or had drunk convictions.

Within the expressive category, however, it was found that people with drugs convictions travelled further. This may be due to such an individual having to travel reasonable distances, especially when dealing, but also when buying drugs. This also supports the finding by Haring (1972) who found that greater distances were travelled in relation to drugs offences.

These results support the value of the distinctions captured in the action systems model of both actions and characteristics. It has been shown that each of the four themes of arson and arsonist carried implications for the distances typically travelled



by the individuals concerned. The most important factor, however, seems to be the nature of the fires themselves as most of the results relating to the way that offender features affect distance travelled were best explained by reference to the style of firesetting associated with those background characteristics.

The final section focuses on one specific form of firesetting behaviour, namely serial arson. As discussed in chapter 7, these tend to be the Display form of arson which has been shown to involve minimal travelling by the offenders concerned. However, the examination of spatial patterns in the location of several fires set by one individual allows for a fuller exploration of how those locations relate to the offender's home.

### **11.4 Serial arsonists' spatial behaviour**

Of the 37 serial arsonists in the sample, only 10 contained enough geographical information to allow for a detailed analysis of their spatial behaviour. The remaining 27 cases had either only set two fires one of which was in their own home, or the police file did not give the addresses of the offences (e.g. "a number of skips in town centre"). A third reason for not including them was that they had no fixed abode. The remaining ten offenders had committed a total of 44 arsons; between 2 and 9 each.

The spatial behaviour of the arsonists were tested against the two models, 'commuter' and 'marauder' proposed by Canter and Larkin (1993) and Canter and Gregory (1994). This was achieved by examining whether the arsonists' home base was located within the circle encompassing his/her offences. If this was the case, support would be found for the marauder model, whereas a home base found to be outside this circle would suggest that the commuter model was more appropriate. The difference between these two models has been discussed in terms of target selection. For example, rapists who target prostitutes or other specific types of victim, tend to be commuters, i.e. travelling from home into a particular area. On the other hand, if the criteria for target selection in an offence does not relate to a particular area, then offenders may be more likely to commit crimes in a more

uniform pattern. These hypotheses can be tested in relation to the serial arsonists in the present study.

In order to define the area of the offences, the two offences furthest from each other were identified and a circle was drawn around them. These offence circles are contained in Appendix D.

### 11.4.1 Mean distance from home to fire

In seven (70%) of the cases the residential locations of the offenders was found to fall within the offence circles; only one of the 47 offences lay outside the circle circumscribing the two furthest offences. The overall mean distance travelled to set a fire was 0.41 miles, with a minimum of 0 miles (i.e. own home) and a maximum of 5.20 miles.

Figure 11.4.1.a shows the distances travelled by the serial offenders across all of their offences. The distances in each step cover a shorter range than before (0.14 miles) because of the high numbers who travelled less than 0.5 miles.

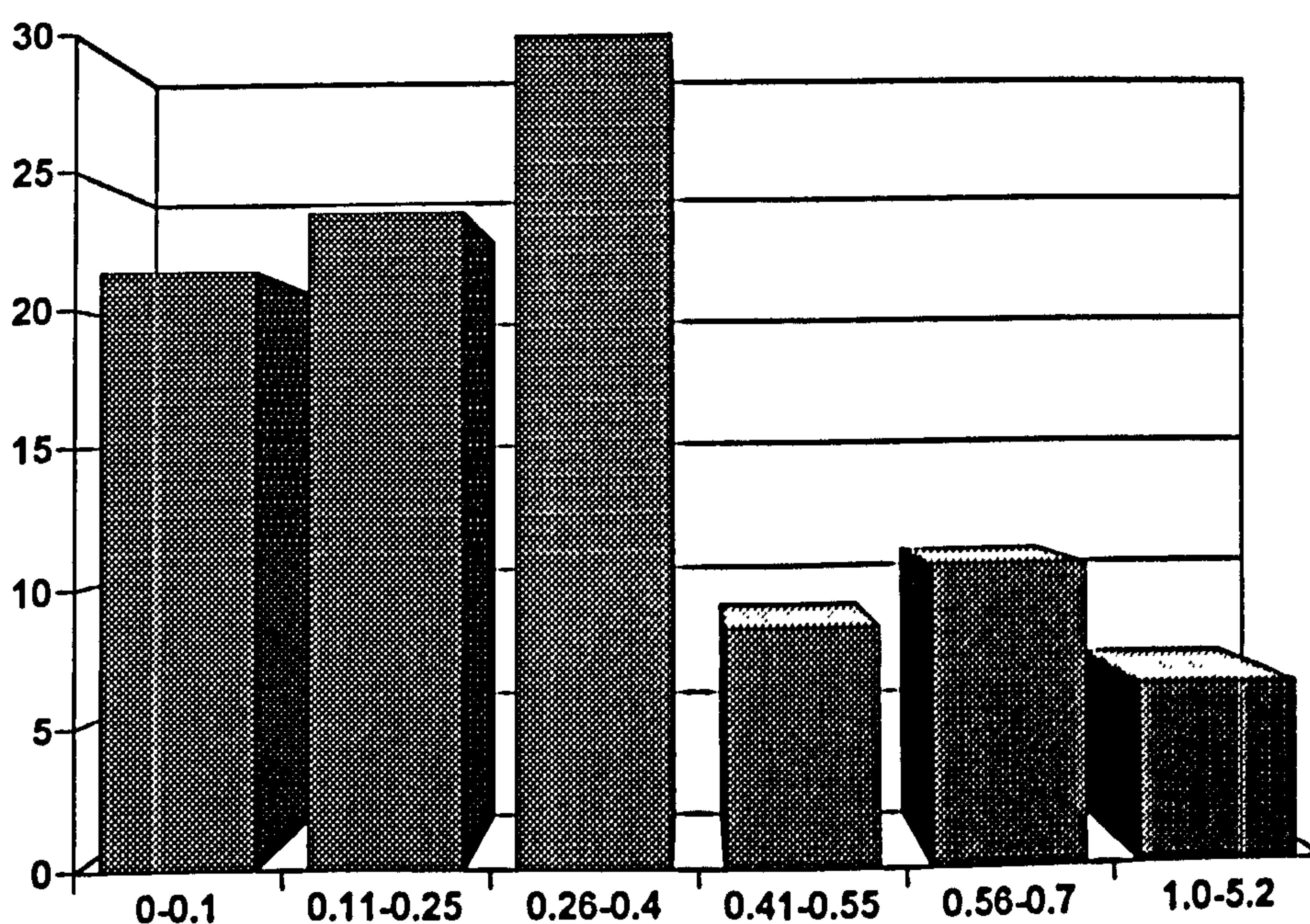


Figure 11.4.1.a Distances travelled by serial arsonists



This figure shows a rather different distance decay than was found for the single offenders. There is an increase in the number of serial arsonists who commit offences up to 0.4 miles from home, and then a sharp fall. Just over 5% of the serial arsonists travel further than a mile to set fires. The range of distances travelled is very limited, as was the case for the Display forms of arson. This suggests that most of the fires committed by the ten serial arsonists studied here could be classified as Display.

The mean distances travelled from home base to each individual arson site is shown in Figure 11.4.1.b

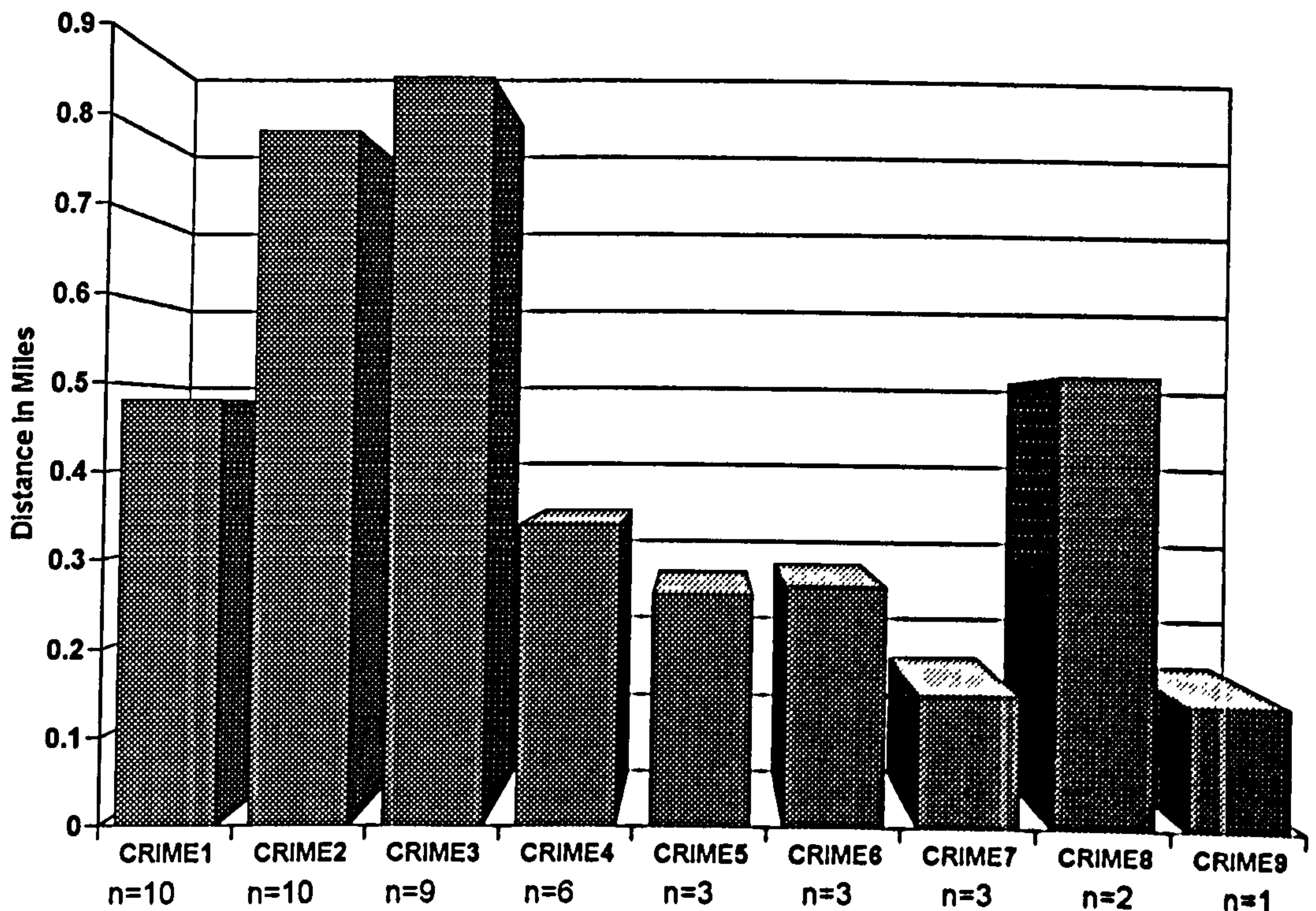


Figure 11.4.1.b. Mean distance from home to arson location (miles).

This graph shows that in general offences committed later in the series occur closer to home than those at the beginning of the series. The second and third offences occur further from home than the first, which may be due to a fear of being recognised driving the arsonists out of their immediate locale. Subsequent offences occur closer to home, perhaps as the arsonist grows in confidence. The distance travelled to commit offence number eight does not follow the general downward trend. With only two arsonists committing this number of offences, however, one cannot draw overall conclusions about why this may be. In an individual case it

could be due to local press coverage of the series of fires alerting the offender and driving him further from home.

A two tailed t-test revealed a significant difference between the distance travelled to fire sites 1 - 3 and the distance travelled to sites 4 - 9 ( $t=6.77$ ,  $df=5$ ,  $p<.001$ ) revealing that offenders did travel significantly shorter distances as their series progressed.

Given that a number of the arsonists in the sample were noted in the police files as being suspected of setting previous fires, it is of interest to look at the mean distance travelled by those individuals compared to the serial arsonists. The mean for individuals with 'prior arson' was 0.35 miles which corresponds almost exactly with the mean for offence number four in a series. Although it is based on very small numbers, this result could potentially be used to predict the number of previous fires that may have been set by an individual suspected of being a serial arsonist.

The results of this analysis show that there is a basis for an arsonists' choice of target that can be modelled from relatively simple environmental psychology principles. As was found for sexual offenders (Canter and Larkin, 1993), most of the serial arsonists in this study move out from their home base to a region around that base to carry out their offences. In other words the serial arsonists' spatial behaviour conformed to the marauder model proposed by Canter and Larkin. However, the correlation between maximum distance between fires and the maximum distance to the home was not significant ( $r=.45$ ,  $p=.197$ ), whereas Canter and Larkin found a positive regression gradient of 0.84. This suggested that there was some bias for committing a number of offences rather closer to home than would be predicted from a simple circular model.

It therefore seems that the serial arsonists in this study were moving out in a different geometric pattern than that which was established for sexual offenders. Although the home base was within the boundaries of the marauder model, the correlations indicated that offenders travelled even shorter distances to the targets than the sexual



offenders in the Canter and Larkin study. An explanation for this findings may lie in the nature of the offences of serial arson themselves. It is possible, for example, that serial arson is a more impulsive crime than rape which might explain why the offences occur closer to home.

Although the marauder model was most strongly supported by the results of this analysis, there were a few individuals who demonstrated a strong commuter process. It seems feasible then that the differences between 'commuting' and 'marauding' serial arsonists could be a function of the stages in their development as criminals, with more experienced arsonists perhaps preferring to 'commute' to target specific types of property.

Finally by examining the nature of the offences committed by the serial arsonists it was possible to classify them in terms of the 4D model. Approximately equal numbers were Damage (n=4) and Display (n=3) and these travelled mean distances of 0.26 and 0.31 miles respectively. One individual was Despair, and she travelled an average distance of 0.28 miles from home. Finally the offender who travelled the furthest on average (4.42 miles) was classified as Destroy. This individual was targeting a specific person who he believed to be responsible for evicting him from his previous residence. He set two separate fires at the same address 5.2 miles from his home and a third fire at the home of his target's parents, 2.85 miles away. The indicates that for serial offenders who commit Destroy arson, as with singles, it is the location of the target that is of paramount importance in determining how far these arsonists will travel.

## **11.5 Chapter Summary**

This chapter has tested a number of hypotheses about the relationships between the spatial behaviour of single and serial arsonists and aspects of the 4D model of arson. These relationships support previous research findings, for example in relation to expressive crimes occurring closer to home than instrumental. It was also found that arsonists travel further to target people than to set fire to objects.

In terms of the 4D model it was found that Display and Despair forms of arson both occur very close to home, whereas Damage and Destroy involve the offender travelling slightly further. For example, in relation to Damage, offences which occurred outside were further from home, probably due to concerns about recognition. The distances associated with committing the Destroy form of arson were found to be very much dependent on the location of the victim. This has parallels with the spatial behaviour of rapists, who are also concerned with target selection.

These findings also enrich our understanding of the action systems framework. The integrative and expressive modes are both concerned with internal processes and therefore do not require the arsonist to travel very far in order to express these processes. The adaptive mode can be seen as fundamentally opportunistic and so the distances travelled relates to the location at which the environmental opportunity for firesetting is found. Generally, the individuals who commit this form of arson have limited resources and so will not travel very far from home. In some cases, however, particularly where the arson is associated with joyriding, the use of a car will mean that the arson can occur further from home. Finally, the conservative form of arson involves a reaction to an external source of frustration and so the distance travelled will depend on the location of this source.

The results of this chapter have particularly important implications for police investigations of arsons in that they can potentially be used to prioritise suspects based on where they live in relation to the crime and its features.



## Chapter 12: Female Firesetters

Within the current study, it has been found that female firesetters are a distinct subgroup, being more likely than males to have some form of psychiatric history. This raises questions about the specific process underlying arson by females, and whether significant differences exist between fires set by women compared to men.

Previous research has also studied this group of arsonists in more detail. This has been prompted primarily by differences in the incidence of female firesetting compared to arson by males. For example, recent Home Office figures indicate that while women are responsible for almost 23% of all recorded offences, only 12.3% of the total number of persons convicted or cautioned for arson is female (Home Office, 1996). This translates into a ratio of approximately 8 male arsonists for every female. It is important to note however, that the proportion of people convicted of criminal damage who are female is even lower, at just under 10%. Therefore, compared with other forms of property damage, women do in fact commit slightly more arson, proportionately, than their male counter-parts.

Furthermore, as seems to be occurring for other forms of offending, the relative male-female incidence rate for arson is changing. Akiyama and Pfeiffer (1984) noted that in 1965 there were 12 male arson arrests for every female arrest in the US. By 1983 the ratio had dropped to 8 males for every female. In 1993, the ratio was 6 to 1. A recent paper by Dombrowsky (1991) indicated that about 17% of the arson in Germany is committed by young females.

However, there does not appear to be any general agreement on the issue of whether the characteristics of either female arsonists themselves, or the acts they perform, differ significantly from their male counterparts. For example, Tennent, McQaid, Loughnane and Hands (1971) found that, like males, female arsonists are often illegitimate, single, in their mid-twenties and likely to suffer from sociopathy, schizophrenia, or mental retardation. However, Flaszar-Szumigajuwa (cited in Bradford, 1982) reported that female arsonists tend to be over 40 years old and to

suffer from involuntional psychoses and organic psychoses. By contrast, none of the 8 female arsonists in Bradford's (1982) clinical study of arson were over 40 years of age, or revealed organic psychosis. The primary clinical classification diagnosed in his study was depressive neurosis.

Again, the disparity in these results point to the possibility that characteristics of female arsonists, like those in the general group of arsonists studied in this thesis, differ according to the nature of the arsons they commit. In other words, it is entirely possible that with small sample sizes (e.g. 8 in the Bradford, 1982 study), the females in each of the studies represented different samples of a general population of 'female arsonists'. As the previous chapters of this thesis have shown, it is not useful or even accurate to talk about "an arsonist" as a single individual, rather it is necessary to recognise that different forms of arson exist which tend to be committed by different sorts of individuals.

One interesting finding relates to the age of female firesetters. Lewis and Yarnell were the first to note very distinct peaks in firesetting activity at certain ages among females. These peaks occurred at eighteen, twenty-four, thirty-five, forty and forty-seven years of age (Lewis and Yarnell, 1951, pp 349). The correlation between firesetting and developmental periods was much stronger for women than men, which suggests either that females are more affected by the hormonal or psychological changes that take place at these ages, or are more likely to express the emotional disturbances through firesetting. It would be very difficult to disentangle the direction of causality, if any exists, between certain developmental stages and firesetting in females. Whether an individual who is predisposed to set a fire is more likely to do so in times of emotional lability; or the occurrence of such a crisis itself triggers firesetting behaviour in a previously 'stable' person is not an issue which can be resolved here.

However, the former possibility is given tentative support by the fact that several studies have reported female firesetters to be significantly more disturbed than their male counterparts (Fineman, 1995; Tennent *et al*, 1971). This suggests that pre-



existing psychological disturbances may become overwhelming during times of age-related physiological changes, and that this is then expressed through setting fires.

In terms of the motives of female arsonists, most research cites revenge as being the most common single motive (Bourget and Bradford, 1989; Harmon, Rosner and Wiederlight, 1985; Stewart, 1993). However, as with most motivational typologies these classifications of female arsonists is based on a framework of overlapping categories in which anger or attention seeking are often cited as contributing factors. For example, Harmon *et al*, 1985 classified 27 female arsonists referred to a forensic psychiatric unit according to the motives listed in **Table 12.1**.

**Table 12.1:** Classification of arson by motives (Harmon *et al*, 1985)

Motive	Number
Anger	3
Anger/revenge	10
Anger/revenge/delusional	4
Cry for help/inappropriate response	4
Depression/cry for help/anger	3
Accidental/unintentional	3

The authors do not explain how this classification system was derived, or their basis for distinguishing between anger as a single motive, or as a contributing factor.

One consistent finding that does emerge from the literature, however, is that arson committed by females has a strong emotional component. As with other arsonists it has been suggested that women set fires when they feel they do not have alternative, more directly confrontational, ways of achieving goals (e.g. Kidd, 1996).

These findings, then, offer up some specific hypotheses for the current study. These can be tested by examining, firstly, whether the acts of arson committed by the females in the present sample can be differentiated from the overall sample (which, as previously noted, is 86% male). The fact that the relative rates of arson in male and females most closely mimics the figures for violent crimes, coupled with the findings on the emotional aspect, suggests that for females, firesetting may be used

predominantly as a tool for expressing aggression. Other forms of arson, such as crime concealment and vandalism, may be committed less frequently by females, as indicated by their low conviction rate for criminal damage.

The second research question is whether the individual characteristics point to one general profile of a 'female arsonist' (as some of the previous literature has assumed) or several sub-types each of which tends to commit a particular form of arson.

## 12.1 The Nature of Female Arson

The first hypothesis refers to the nature of the acts of firesetting performed by the females in the current sample. It is useful, firstly, to consider the frequencies of the various firesetting behaviours performed by these arsonists in order to provide an overall picture of the nature of the arsons that they commit.

### 12.1.1 Descriptive Characteristics of Arsons Committed by Females

This stage of the analysis examined the frequencies of occurrence of arson actions for the 33 female arsonists in the current sample. These are presented in **Table 12.1.1.1** below which also shows the equivalent frequencies for the male firesetters. Those differences which are statistically significant are highlighted in bold.

**Table 12.1.1.1: Frequencies of arson committed by females compared to males**

Theme	Action	Female Frequency (%) n=33	Male Frequency (%) n=197	Chi Square	Sign. (p)
	daytime	13 (39.4)	56 (28.4)	1.62	n.s.
	drugs	8 (24.2)	21 (10.7)	4.73	<b>p&lt;.05</b>
	remain	17 (57.5)	85 (43.1)	.80	n.s.
	public	2 (6.1)	15 (7.6)	.10	n.s.
<b>DISPLAY</b>	institution	5 (15.2)	7 (3.6)	7.69	<b>p&lt;.005</b>
	prior arson	16 (48.5)	42 (21.3)	11.06	<b>p&lt;.001</b>
	serial	14 (42.4)	29 (14.7)	14.27	<b>p&lt;.001</b>
	non-spec trig	15 (45.5)	21 (10.7)	25.92	<b>p&lt;.001</b>
	crusade	4 (12.1)	15 (7.6)	0.76	n.s.



Theme	Action	Female Frequency (%) n=33	Male Frequency (%) n=197	Chi Square	Sign. (p)
<b>DAMAGE</b>	business	5 (15.2)	21 (10.7)	0.56	n.s.
	school	1 (3)	14 (7.1)	.77	n.s.
	car	1 (3)	36 (18.3)	4.87	p<.05
	miscellaneous	6 (18.2)	44 (22.3)	.29	n.s.
	mat. brought	22 (66.7)	111 (56.3)	1.23	n.s.
	spree	7 (21.2)	32 (16.2)	.49	n.s.
	weekday	23 (69.7)	102 (51.8)	3.66	p<.05
	illegal	7 (21.2)	62 (31.5)	1.42	n.s.
	theft	1 (3)	22 (11.2)	2.08	n.s.
	other crime	3 (9.1)	32 (16.2)	1.12	n.s.
	mult offender	5 (15.2)	61 (31)	3.45	n.s.
	outside	10 (30.3)	94 (47.7)	3.46	n.s.
	public view	16 (48.5)	116 (58.9)	1.25	n.s.
	finance	3 (9.1)	15 (7.6)	.08	n.s.
<b>DESTROY</b>	target	21 (63.6)	120 (60.9)	.09	n.s.
	planned	18 (54.5)	115 (58.4)	.17	n.s.
	victim known	24 (72.7)	131 (66.5)	.49	n.s.
	partner	6 (18.2)	36 (18.3)	.00	n.s.
	argument	8 (24.2)	72 (36.5)	1.89	n.s.
	threats	5 (15.2)	48 (24.4)	1.35	n.s.
	threat arson	3 (9.1)	21 (10.7)	.07	n.s.
	multiple seat	10 (30.3)	37 (18.8)	2.31	n.s.
	accelerant	5 (15.2)	82 (41.6)	8.42	p<.005
	alcohol	8 (24.2)	100 (50.8)	7.98	p<.005
	witness	4 (12.1)	40 (20.3)	1.22	n.s.
	specific trig	9 (27.3)	88 (44.7)	3.51	n.s.
	outburst	4 (12.1)	36 (18.3)	.74	n.s.
	<b>DESPAIR</b>	residential	20 (60.6)	88 (44.7)	2.88
self		4 (12.1)	11 (5.6)	1.98	n.s.
own home		13 (39.4)	49 (24.9)	3.03	n.s.
lives end. del.		9 (27.3)	43 (21.8)	.48	n.s.
lives end. loc.		24 (72.7)	111 (56.3)	3.13	n.s.
multiple item		19 (57.6)	74 (37.6)	4.70	p<.05
suicide note		1 (3)	3 (1.5)	.38	n.s.
<b>CENTRAL</b>	set fire	27 (81.8)	166 (84.3)	.12	n.s.
	not alert	27 (81.8)	150 (76.1)	.51	n.s.
	less than mile	27 (81.8)	137 (69.5)	2.08	n.s.

A few clear results emerge from this table. First, it is apparent that the actions of female arsonists can be classified as being predominantly those associated with the Display form of arson. For example, having a history of prior firesetting ( $p<.001$ ), the offence forming part of a series ( $p<.001$ ) and the firesetting being preceded by

some kind of emotional trigger ( $p < .001$ ) are all more likely to characterise female firesetting, significant at  $p < .001$ . There are also a couple of differences in the targets selected by male and female firesetters. The former are more likely to fire cars ( $p < .05$ ), while targeting an institution is more common amongst females ( $p < .005$ ). This target preference is also associated with Display forms of arson.

There was also a noticeable trend for those variables associated with seriousness (multiple items, multiple seats, lives endangered deliberately and by location) to be more commonly found among female firesetters, although multiple items was the only one for which the difference was significant ( $p < .05$ ). Conversely, accelerant was much more likely to be used by male firesetters, at  $p < .005$ . This could be due to the males in the sample perhaps having easier access to petrol, for example through car ownership.

There were significant differences found in terms of substances consumed during or before the acts of arson. Females were somewhat more likely to be involved in drug use ( $p < .05$ ), but significantly less likely to have consumed alcohol prior to setting fire ( $p < .005$ ). This finding may be explained by reference to the personal characteristics of the female firesetters. As previous research has consistently noted, female arsonists tend to have a variety of psychiatric and personality disorders; indeed feminists argue that this is a general interpretation of all crime committed by women. The current coding system did not distinguish between recreational drug use and chronic prescription drug use due to low frequencies, so it is possible that the female firesetters were in fact more commonly taking the latter in treatment for psychiatric problems. These issues will be addressed in the second section of this chapter which relates to the background characteristics of the female arsonists.

Finally, female arsonists were more likely to set fire on a weekday ( $p < .05$ ). Again, this is a variable which was previously found to be associated with Display forms of arson.



It is interesting to note from this frequency analysis that, contrary to previous literature findings citing revenge as the most common motive (e.g. Bourget and Bradford, 1989), the female arsonists did not commit more of the behaviours associated with the Destroy form of arson, compared to the males. However, it is nevertheless possible that within the female sub-group itself, the actions associated with Destroy arson did predominate. This will be examined more closely in the section on assigning cases to themes.

The next stage of analysis looked at the underlying structure of relationships among the firesetting actions. For this analysis, the four lowest frequency variables (school, car, suicide note and theft) were removed. Because these only occurred in one case each, it was felt that their inclusion in the analysis could artificially distort the SSA plot, and certainly they would provide little benefit in terms of an understanding of the nature of female firesetting.

### **12.1.2: Analysis of Themes in Female Arson**

The SSA shown in Figure 12.1.2.a is the 1 by 2 projection of the three dimensional solution. The coefficient of alienation for this SSA is 0.15 which is a good fit.





**Table 12.1.2.1** Comparison of items in SSA of all cases and SSA of female cases

	<b>all cases</b>	<b>female</b>
<b>DESPAIR</b>	own home multiple items lives location lives deliberate suicide note residential self	own home multiple seats lives location lives deliberate  residential self drugs outburst remained planned targeted victim known
<b>DESTROY</b>	targeted planned victim known partner arguments threats threat of arson mult seat accelerants alcohol witness specific trigger outburst	partner arguments threats threat of arson mult item  witness specific trigger  crusade daytime weekday
<b>DAMAGE</b>	business car misc school material brought spree weekday illegal theft other crime multiple offenders outside public view finance	inst misc  material brought spree  illegal  other crime multiple offenders outside public view  accelerant

	all cases	female
<b>DISPLAY</b>	inst	business
	public building	public building
	prior arson	prior arson
	remained	
	drugs	
	serial	serial
	daytime	
	non-specific trigger	non specific trigger
	crusade	
		alcohol
		finance

The differences in the particular variables' associations with each of the regions is mainly in relation to certain items having transferred from Destroy to Despair. Specifically, victim known, targeted, planned and outburst are all now associated with Despair whereas they previously fell in the Destroy region. In other words, it appears that these variables when present in arson committed by males, indicates a 'revenge'-type attack on partners and other individuals who they wish to hurt or remove; whereas for females the variables indicate that emotions generated by external events are turned inwards. This is an interesting finding in light of a recent study by Campbell and Muncer (1994) who examined sex differences in aggression. They found that women tend to view aggression as fundamentally expressive whereas for men aggression is seen as an instrumental process. This might also explain why the variable 'outburst' - which indicates an aggressive act involving the destruction of property - is associated with a more expressive form of arson (Despair) in this sample, whereas originally (in the overall sample which is 86% male) it fell in a more instrumental region of the plot (Destroy).

The Destroy region has now taken on a more attention-seeking aspect, as indicated by the variable 'crusade'. This suggests that when women do commit acts of revenge directed at other individuals, these acts contain a strong element of self-interest. This again makes the aggression more expressive, in terms of highlighting distress, than instrumental, in terms of wishing to harm an individual. The absence of accelerants in this form of firesetting when committed by women also indicates that serious damage



is not intended. Furthermore these offences are not planned in quite such a deliberate way as when they are committed by males.

The regions of Damage and Display have retained essentially the same variables and underlying meaning as for the overall sample. The main change in relation to the former group is that women tend to use accelerants when committing Damage arson which suggests that these fires are somewhat more planned and destructive than when they are committed by men. This form of arson includes the motive of covering up another crime, so it may be that women are simply more effective at achieving this goal than their male counterparts.

In relation to Display arson, there appears to be less of a fascination for fire when these are committed by females, as suggested by the absence of 'remained'. Although there is still an expressive component, as indicated by 'non specific trigger', it is not the desire for heroic recognition which motivates these offenders, as they are not on a 'crusade'.

### 12.1.3 Assigning Cases to Themes

In terms of classifying each case as belonging to either of the four forms of arson or one of their hybrids, twenty-five of the thirty-three cases could be categorised as such. This was done in the same way as previous classification of cases into themes. **Table 12.1.3** below shows the breakdown of how many cases fitted into one of the four main types, and how many into hybrids.

**Table 12.1.3:** Number of cases assigned to each behavioural theme

	<b>N</b>	<b>%</b>
Demonstrative Object	8	32
DO-DP	2	8
Demonstrative Person	7	28
DP-IP	4	16
Instrumental Person	1	4
Instrumental Object	2	8
IO-DO	1	4
<b>TOTAL</b>	<b>25</b>	<b>100</b>

This table shows that the majority of arson committed by the females in this sample were predominantly expressive (Demonstrative) in nature. Eight-eight percent of the classifiable cases were either one of the two Demonstrative forms of arson, or a hybrid thereof. Only three cases were purely instrumental in nature. These findings support the hypothesis that female arson is best seen as a predominantly demonstrative act. This confirms what previous literature on female firesetting has suggested, that such fires tend to have a strongly emotional component (e.g. Rider, 1980; Bourget and Bradford, 1989).

These results do not support the argument made by previous studies (e.g. Bourget and Bradford, 1989) that the most common single motive for female firesetting is the desire for revenge. Although the variables associated with the Destroy form of arson were equivalent in frequency to those for the sample as a whole, the number of cases for which the proportion of these variables dominated was much lower (4% versus 20% for the whole sample). In other words, women do commit arsons which contain a component of the actions associated with Destroy, but those actions are not as dominant as they are in males; they are more frequently integrated with other non-Destroy actions.

Similarly, the number of cases classified as Damage was also much lower ( $n=2$ ; 8% versus 26%). This latter finding is supported by the results from the largest study of female arsonists to date (Helmer, 1958) which found that compared with men, women less often set fire for criminal, non-psychological reasons.

The findings must be viewed with caution, however, as the number of female firesetters in the current sample was quite small, although larger than many other studies (e.g. Stewart's, 1993 sample size was 28).

The next section deals with the personal characteristics of the female firesetters in the sample.



## 12.2 Characteristics of Female Firesetters

As discussed at the beginning of the chapter, studies have found various features to be present in female arsonists. The most common finding is of psychiatric disturbances (e.g. Fineman, 1995; Tennent *et al*, 1971). The hypothesis of a possible relationship between female firesetting and psychiatric disturbances can be considered by examining the background characteristics of the female firesetters in the current study. Table 12.2.1 below lists the frequencies for each of the 25 background variables together with the ages (categorised into five bands) of the women in the sample. Again, the equivalent figures for the males are also given for comparison, and statistically significant differences are highlighted.

**Table 12.2.1** Comparison of male and female arsonists' background characteristics

Theme	Characteristic	Female Frequency (%) n=33	Male Frequency (%) n=197	Chi Square	Sign. (p)
<b>DELINQUENT</b>	age (<16)	5 (15.2)	52 (27.7)	2.32	n.s.
	caution	2 (6.1)	24 (12.2)	1.06	n.s.
	no cro	20 (60.6)	89 (45.2)	2.70	n.s.
	parents	10 (30.3)	79 (40.1)	1.14	n.s.
	pupil	4 (12.1)	50 (25.4)	2.77	n.s.
	school trouble	9 (27.3)	63 (32)	.29	n.s.
	social svcs	12 (36.4)	37 (18.8)	5.21	p<.05
<b>FAILED RELATIONSHIP</b>	age (26-35)	12 (36.4)	44 (23.4)	2.58	n.s.
	age (36-45)	2 (6.1)	18 (9.6)	2.66	n.s.
	alcoholism	6 (18.2)	47 (23.9)	.51	n.s.
	alone	7 (21.2)	72 (36.5)	2.95	n.s.
	child	9 (27.3)	23 (11.7)	5.74	p<.05
	high quals	7 (21.2)	36 (18.3)	.16	n.s.
	partner	14 (42.4)	33 (16.8)	11.46	p<.001
	separated	5 (15.2)	35 (17.8)	.13	n.s.
unskilled	2 (6.1)	26 (13.2)	1.35	n.s.	
<b>REPEAT ARSONIST</b>	AWOL	4 (12.1)	16 (8.1)	.57	n.s.
	false alarms	3 (9.1)	12 (6.1)	.42	n.s.
	inst	5 (15.2)	10 (5.1)	4.71	p<.05
	pers disorder	12 (36.4)	29 (14.7)	9.04	p<.005
	prior arson	19 (57.6)	41 (20.8)	19.81	p<.001

Theme	Characteristic	Female Frequency (%) n=33	Male Frequency (%) n=197	Chi Square	Sign. (p)
PSYCHIATRIC HISTORY	age (46+)	2 (9.1)	10 (5.3)	.70	n.s.
	depression	13 (39.4)	19 (9.6)	20.88	p<.001
	psychosis	5 (15.2)	14 (7.1)	2.41	n.s.
	psych treat	12 (36.4)	12 (6.1)	27.71	p<.001
	suicide	12 (36.4)	19 (9.6)	17.30	p<.001
CENTRAL	age (17-25)	11 (33.3)	64 (34)	.005	n.s.
	left sch <16	19 (57.6)	77 (39.1)	3.97	p<.05
	unemployed	21 (63.6)	105 (53.3)	1.22	n.s.
	white	29 (87.9)	188 (95.4)	3.02	n.s.

The mean age of the female firesetters was 27 with a range from 12 to 56 years. This is similar to that previously reported, e.g. 26.5 years in Bourget and Bradford's (1989) study, 29.1 years in Stewart's (1993) and 25.8 in Tennent *et al's* (1971) study. It is also slightly older than the overall average for the males, which also fits with previous findings (e.g. Bourget and Bradford, 1989). This suggests that the current sample is representative with respect to female arsonists. As indicated in **Table 12.2.1**, there were fewer females than males in the lowest age range (<16) and more in the third (26-35), although neither of these differences were statistically significant.

The possibility that female arsonists are more likely to have psychiatric histories and social problems is supported by these results. The largest differences are for depression, psychiatric treatment and suicide, at p<.001; personality disorder is significant at p<.005, and social services and living in an institution are more common in female arsonists at p<.05. The actual percentages for each of the psychiatric variables are similar to those reported in previous studies. For example, Stewart (1993) found that 37% of her female arsonists were diagnosed with depression (compared to 39.4% in the current sample), and a similar number were reported as suicidal (40.7% versus 36.4% here). However, Stewart's sample contained over twice the number of women diagnosed as psychotic (33.3% compared to only 15.2% for the present sample). It is quite probable that the number of psychotics was under-reported in the current study, because in very few cases did the police files contain an actual psychiatric report. Therefore this variable may well have been present in some



cases where the file did not contain enough information to code it as such with a reasonable degree of certainty. For probably similar reasons, the number of women who had received psychiatric treatment was also much lower than in Stewart's study (36.4% versus 73.1%). A personality disorder was diagnosed in 58.3% of Bourget and Bradford's (1989) group of female firesetters. This is again higher than the 36.4% identified in the current study.

In terms of the social variables, Stewart's study reported that 40.7% of the arsonists had been taken into care as a child. This compares with 36.4% in the current sample who had a history of social services involvement.

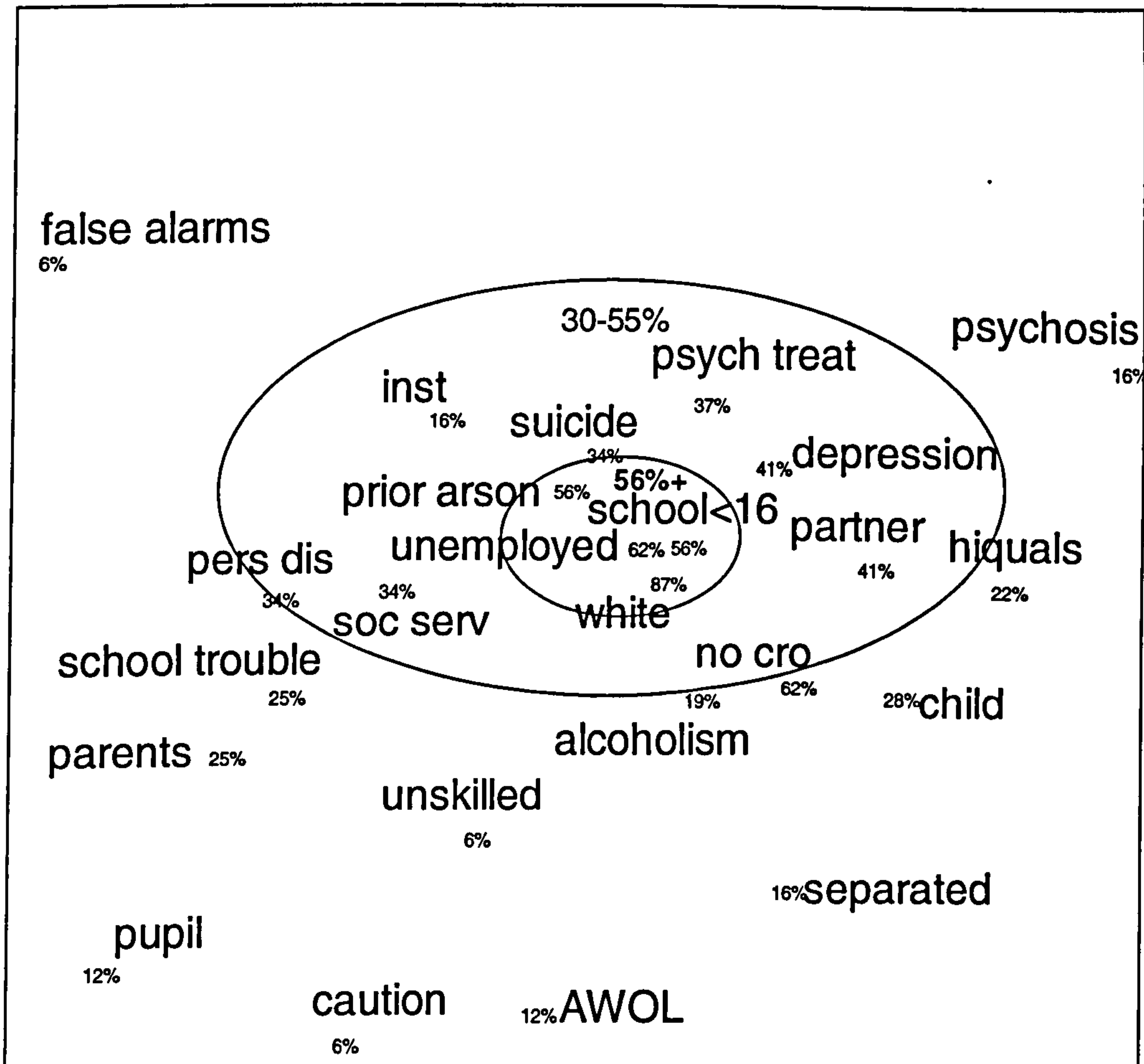
Differences between the male and female arsonists also existed in terms of the relationship variables partner and child, which are both more frequent for the females at  $p < .001$  and  $p < .05$  respectively. The actual frequencies of these variables are similar to previous research findings. For example Stewart (1993) reported that 29% of her sample of female arsonists had been married or cohabiting and 32.1% had a child. The percentage of women with a partner was slightly higher in the current sample, at 42.4%, while the number with a child was 27.3%.

Finally, the female arsonists were significantly more likely to have left school before 16 than their male counterparts ( $p < .05$ ). The frequency, 57.6%, is similar to that reported by Bourget and Bradford (1989) who found that 53.4% of their sample completed up to grade 8 which is the US equivalent.

The next stage in the analysis of background characteristics of the female arsonists in the study was to examine whether similar thematic relationships existed as those identified for the sample as a whole. This involved performing a Smallest Space Analysis of the 25 personal characteristics variables.

## 12.2.2 Smallest Space Analysis of Background Characteristics

The background variables were subjected to Smallest Space analysis, the results of which are presented in **Figure 12.2.2.a** below. The coefficient of alienation of this plot was 0.15 in 17 iterations which is a good fit.



**Figure 12.2.2.a:** SSA of female arsonists' characteristics

As with the plot for males, there is a central region containing those variables with a frequency higher than 56%. These were:

left school before age 16

prior arson

unemployed

white



The second frequency band of items which occurred in 30-55% of the cases contains the majority of those variables that refer to various psychiatric and social problems:

depression

institution

personality disorder

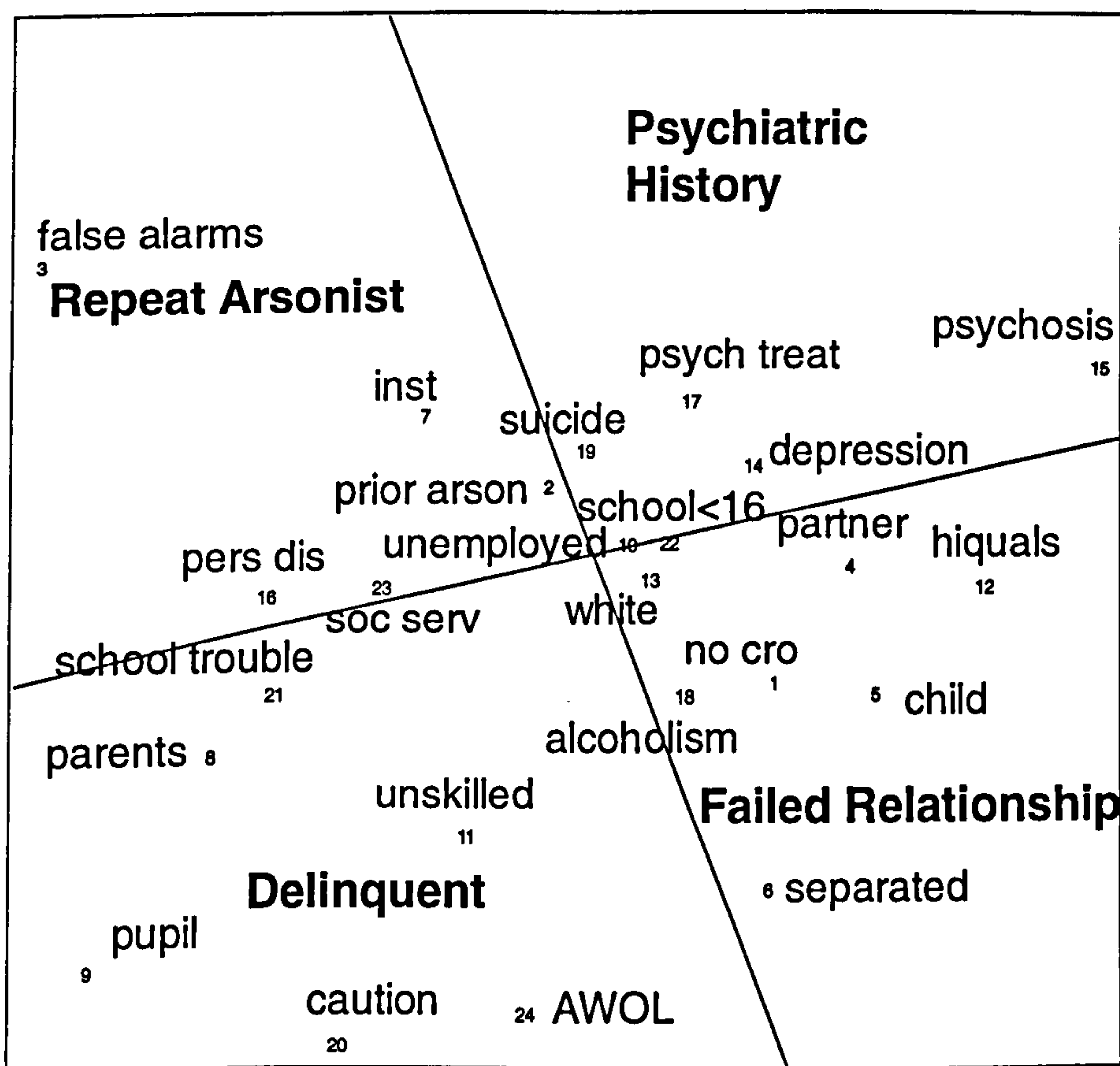
psychiatric treatment

social services

suicide

These are also the same variables which were more frequent in females than in males, indicating the hypothesised bias in the characteristics of this sub-group of arsonists.

Overall, the variables form regions of thematically similar characteristics which can be partitioned as shown in **Figure 12.2.2.b**.

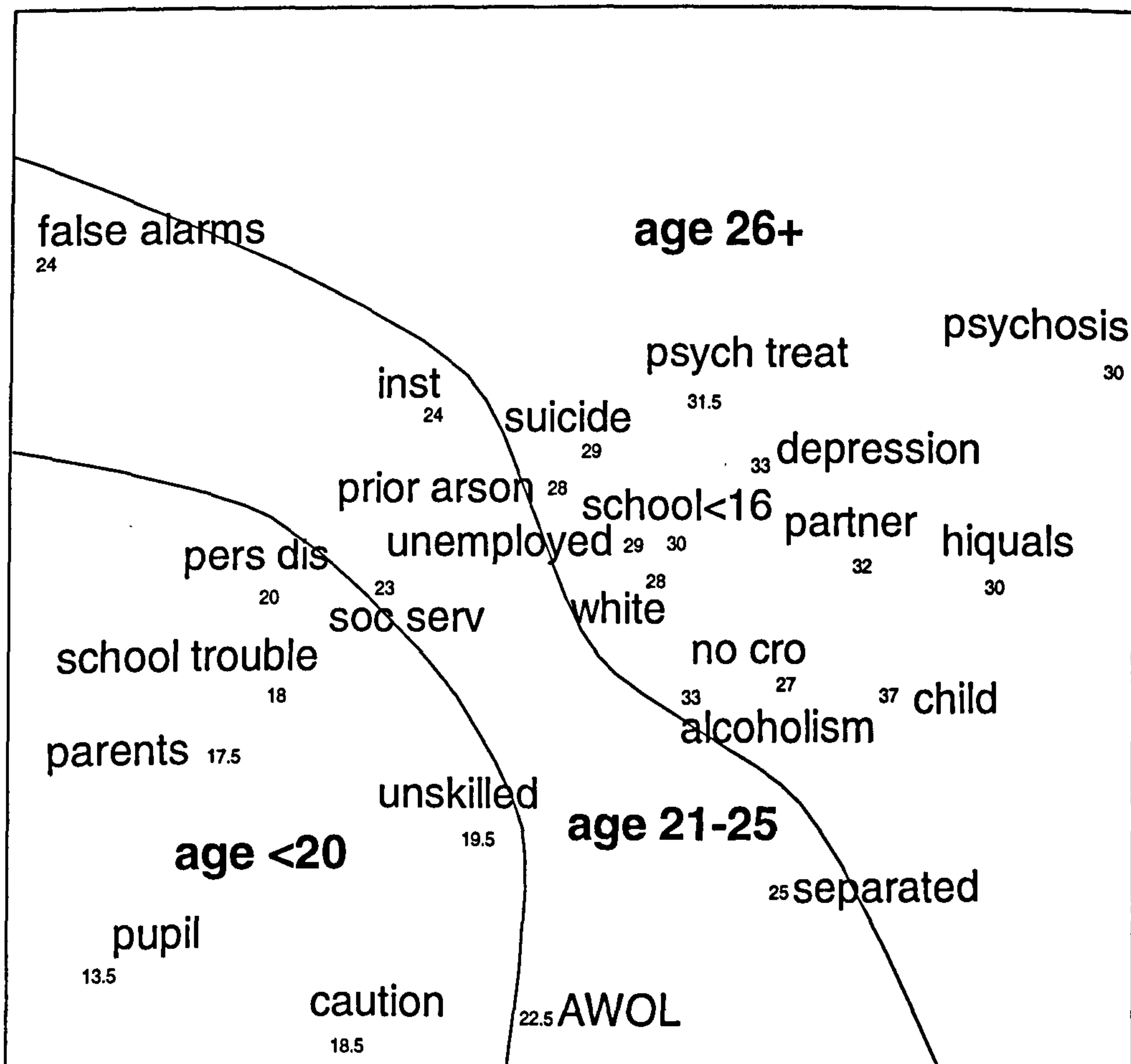


**Figure 12.2.2.b:** SSA showing themes of female characteristics

With the exception of two variables, this plot partitions in exactly the same way as the overall plot of all cases, including the border-line position of the variable 'social services' which traverses the Delinquent and Repeat Arsonist regions. The two variables which have changed position are 'awol' and 'unskilled work' which are both now found in the Delinquent region.

It is quite remarkable that the SSA for female arson should be so similar to the overall plot, given the difference in sample size (33 versus 230) alone. However, this finding reinforces the stability of the action system framework for examining the nature of various forms of arson.

As with the analysis of background characteristics of the sample as a whole, the age of the female arsonists was plotted on the SSA as an external variable. **Figure 12.2.2.c** shows the mean ages for all of the background characteristics.

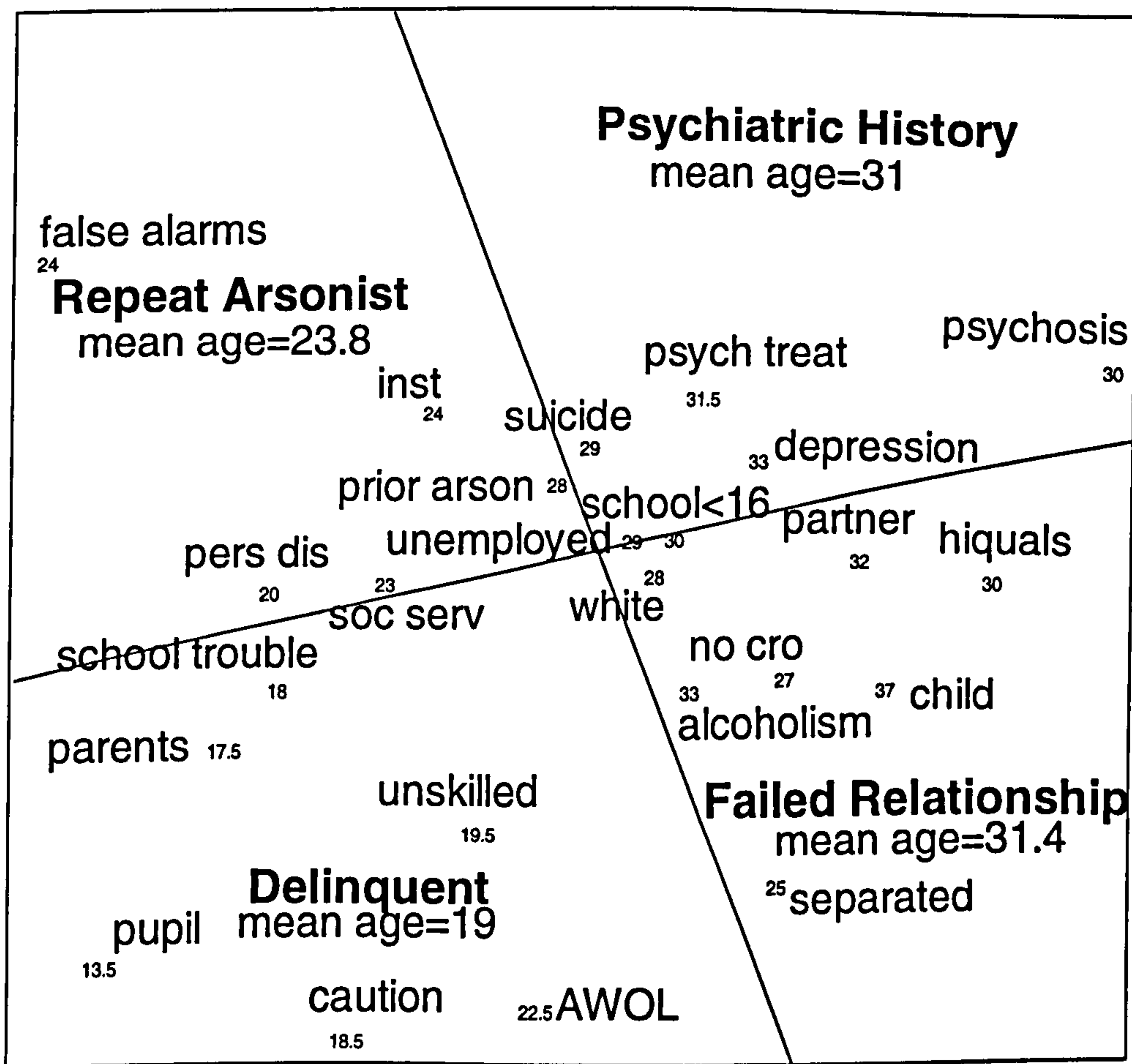


**Figure 12.2.2.c:** Age as an external variable on background characteristics



This plot shows that it is once again possible to distinguish regions of discrete age bands. The lowest age band is in the lower left hand corner and this relates to the variables associated with Delinquent arsonists. A central region exists of arsonists aged between 21 and 25. The variables associated with this middle age band relate mainly to the Repeat Arsonist region of the SSA. Finally, the older female arsonists, like those in the overall sample, are the individuals with Failed Relationships and Psychiatric Histories.

Finally, by calculating the mean of all the variables in each of the four regions, it is possible to give an overall mean for the thematic group as a whole. As shown in **Figure 12.2.2.d** the mean ages for Psychiatric History and Failed Relationship are very similar, at 31 years and 31.4 years respectively. The Repeat Arsonists are around the mean age for the females as a whole, at 24 years, and the Delinquents are 19 which is slightly older than the equivalent group in the overall sample.



**Figure 12.2.2.d:** Mean age for all variables in four regions

In fact, this plot shows that the mean ages of the females for each of the four regions is slightly older than the overall sample, although this is most marked for the Delinquent region where the difference is slightly over 2 years. The female Repeat Arsonists are the same age as the overall sample, whereas the other two types were each a year older. T-tests did not reveal any significant differences between the sexes on the ages associated with each of the four groups.

### 12.2.3 Assigning Cases to Themes

The characteristics of the female arsonists were assigned to one of the four categories, or a hybrid category on the same basis as before. Twenty-six out of the 33 females could be classified which is a higher proportion than for the sample as a whole (79% versus 58%). Table 12.2.3.1 shows the number of cases assigned to each category and compares the frequencies with those of the overall sample.

**Table 12.2.3.1:** Number of cases assigned to each characteristics theme

	<b>N</b>	<b>Female %</b>	<b>Overall %</b>
Repeat Arsonist	4	15.4	8.3
RA-PH	4	15.4	1.9
Psychiatric History	8	30.8	12.7
PH-FR	1	3.8	3.2
Failed Relationship	5	19.2	24.3
Delinquent	3	11.5	39.5
RA-FR	1	3.8	0.6
<b>TOTAL</b>	<b>26</b>		

This table shows that the proportion of female firesetters in each of the main categories is different from the sample as a whole. As with the classification of offence actions, the characteristics which were of a more expressive nature (Repeat Arsonist and Psychiatric History), were much more frequently found in females than in the sample as a whole, as was the hybrid between these two groups. However, the proportions in these two categories were different from those in the equivalent actions categories. The highest number of acts of arson were classified as Display, whereas the highest number of individuals were those with variables in the Psychiatric History region. This suggests that there may be a difference in the associations



between actions and characteristics for female arsonists in that clearly not all of the same people who commit Display arsons are those that have Repeat Arsonist characteristics.

Conversely, the Failed Relationship and Delinquent characteristics were less frequent for this sub-group of arsonists, although both were more frequent than their equivalent actions themes.

Generally, these classifications again provide support for the findings from the literature on female arsonists which has found them to be characterised by a variety of emotional problems.

The next and final stage in this analysis was to examine the associations between the four sub-groups of female firesetters and the four actions themes. Large differences were found in both the characteristics of the females and in the nature of the fires that they set. This suggested that similar differences may exist in the associations between the themes, particularly in relation to the associations between Display actions and Psychiatric History backgrounds.

### **12.3 Associations between Actions and Characteristics**

Scales of actions and characteristics were created from the variables in the same regions of the SSA, and their reliability was tested using Cronbach's alpha. Tables 12.3.1 and 12.3.2 show the variables making up these scales and their alpha values.

**Table 12.3.1: Scales of Actions**

<b>Damage</b>	<b>Display</b>	<b>Despair</b>	<b>Destroy</b>
accelerant	alcohol	drugs	argument
illegal	business	lives location	crusade
institution	finance	lives deliberate	daytime
material brought	prior arson	multiple seats	mult items
miscellaneous	public building	outburst	partner
multiple offenders	serial	own home	threats
other crime	trigger non spec	planned	threat of arson
outside		remained	trigger specific
public view		residential	witness
spree		self	
		targeted	
		victim known	
$\alpha = .64$	$\alpha = .67$	$\alpha = .83$	$\alpha = .71$

These alpha values are all slightly higher than those of the sample as a whole, indicating that the coherence of each of the individual actions in making up the underlying themes is particularly strong for female firesetting behaviour. This also suggests that mixing sub-sets of arsonists reduces the reliability of the items which is an interesting and methodologically important finding.

**Table 12.3.2: Scales of Characteristics**

<b>Delinquent</b>	<b>Repeat Arsonist</b>	<b>Psychiatric History</b>	<b>Failed Relationship</b>
awol	false alarms	depression	alcoholism
caution	institution	psychosis	child
parents	personality	psychiatric	partner
pupil	disorder	treatment	separated
school trouble	prior arson	suicide	
social services	social services		
unskilled			
$\alpha = .63$	$\alpha = .59$	$\alpha = .60$	$\alpha = .58$

These alphas are also reasonable, but somewhat lower than those for the actions. This again suggests that possibility that the characteristics of female arsonists do not differentiate as coherently as their behavioural styles, and that this may affect the associations found between corresponding actions and characteristics themes.



To test these associations, Spearman's  $\rho$  were calculated between the actions and characteristics scales. The results of these correlations are presented in Table 12.3.3 below.

**Table 12.3.3:** Spearman's  $\rho$  between actions and characteristics

	<b>Integrative (Psych Hist)</b>	<b>Adaptive (Delinquent)</b>	<b>Conservative (Failed Rel)</b>	<b>Expressive (Repeat Arson)</b>
<b>Integrative (Despair)</b>	.31 n.s.	-.21 n.s.	.30 n.s.	-.03 n.s.
<b>Adaptive (Damage)</b>	-.26 n.s.	.43 p<.05	-.38 p<.05	.52 p<.005
<b>Conservative (Destroy)</b>	.15 n.s.	.08 n.s.	.21 n.s.	.15 n.s.
<b>Expressive (Display)</b>	.37 p<.05	-.06 n.s.	.07 n.s.	.49 p<.005

Although positive correlations exist between the actions and characteristics for all four modes of functioning, only two of these were statistically significant. The adaptive actions correlation with the adaptive characteristics is .43 ( $p<.05$ ) and the correlation between expressive actions and characteristics is .49 ( $p<.005$ ). The integrative actions and characteristics have a correlation of .31 which is only slightly less than statistically significant, and would probably reach significance if the trend was consistent for a larger sample. Two other combinations produced high correlations. These were adaptive actions with expressive characteristics at .52 ( $p<.005$ ) and expressive actions with psychiatric history characteristics at .37 ( $p<.05$ ). This latter finding is probably due to the fact that the highest number of cases were classified as Display actions and the highest number of individuals had psychiatric histories. These high frequencies would therefore increase the probability of an association between the two themes. With regard to the individual variables that make up these themes, the existence of 'trigger' events, for example, has been reported in Stewart's (1993) study of psychiatric female arsonists. Stewart also described these firesetters as essentially attention-seeking which is a description that accords with the action systems definition of Expressive (Display) arson. The finding of an association between this form of arson and a Psychiatric History is therefore supported by existing literature on female firesetters.

The fact that Damage arsons correlated with Repeat Arsonist characteristics may be due to the variable 'spree' which represents repetition of firesetting behaviour, albeit on the same occasion rather than spread out over a longer period. Also setting fire to an institution was associated with Display arson for the sample as a whole, whereas it fell in the Damage region of the female SSA, and was also a higher frequency variable for this sample. These two findings may account for the association between Damage actions and Repeat Arsonist characteristics for this sample of female arsonists.

## **12.4 Chapter Summary**

This chapter has focused on female firesetters as a distinct subset of arsonists. It has been found that although the same four underlying themes were found to characterise the fires set by females and their background characteristics as identified in the overall sample, a different pattern of associations existed between these themes. Overall the females display more variables associated with emotional and psychiatric disturbances which is supported by the previous literature on female firesetters. The model of associations between actions and characteristics presented here, however, uncovers much more detail about the different processes underlying arson committed by this sub-group of arsonists. It has been shown that essentially the same action systems framework applies to females as to the overall sample. This suggests that female arsonists must be considered to be more complex than the limited emotionally-driven creatures that have been portrayed by psychiatric studies.



## Chapter 13: Conclusions

It has been shown that arson can be seen as a destructive action system that is a product of an individual struggling with attempts to change their own inner state whilst concurrently attempting to influence aspects of their personal surroundings. Within this struggle different emphases are revealed through the details of what happens in the offence, especially the target that is selected. This framework encompasses a wide range of offences and activities that tend to have been dealt with separately in previous literature, or were not recognised as distinct.

### 13.1 A new classification of arson

The approach taken here brings together a number of different perspectives on arson and helps to resolve some of the apparent contradictions in previous attempts at classifying this offence. Some of these contradictions, like dealing with arson as person oriented or property oriented, were derived from the classification of arson on the basis of some overt motive, but it is now clear that different motives may be *post hoc* interpretations of similar behavioural themes. The Damage theme that is a dysfunctional adaptation, achieving instrumental objectives by manipulating aspects of the environment could represent what others have called 'motives' of vandalism, insurance fraud, excitement, desire for acceptance by peer group and politically motivated arsons. The particular circumstances may lead to an interpretation of the arson as 'motivated' by a number of different reasons, but from the action system perspective the crucial point is the source of the determination to set fires and the objective that is the target.

The model proposed here is consistent with the view that arson has a number of very different psychological origins. Damage arsons may be the consequence of a maladaptive, deviant life style, being used as one more criminal tool for people who have little other intellectual or physical resource. Despair arson may derive directly from an individual's disintegrative, self-destructive tendencies. For Destroy it is a

product of their inherently conservative constrained ways of dealing with other people. A fourth group, Display, for whom setting fires is a dominant means of expressing overwhelming emotions such as anger and frustration can also be identified.

Each of these four groups were also found to have different personal backgrounds which were also linked to the action systems framework. The Integrative form of arson in which individuals set fire to themselves in order to communicate emotional distress, were found to be committed by people with a variety of similarly Integrative characteristics, such as psychiatric illnesses and suicidal tendencies. These arsonists were also more likely to be female and to be older on average than the rest of the sample. In terms of previous criminal histories, the integrative arsonists were most likely to have committed offences of deception, primarily for attempted forgery. They also had convictions for offences involving the judicial system, such as failing to turn up for a court appearance or non-payment of a fine. Both of these forms of criminal activity are fairly trivial and are indicative of a disorganised, dysfunctional lifestyle. This is further emphasised by the distances travelled to commit this form of arson. On the whole, the integrative arsonists set fire to their own home, although occasionally they travelled to an ex-partners residence. This reinforces the emotional nature of this type of activity and the fact that these individuals are constrained and confined to activities centred primarily around their homes.

The Expressive mode of action in which firesetting becomes a habitual way of communicating which is directed at significant types of properties, is usually committed by people with similarly Expressive backgrounds. These are characterised by a history of fire-related behaviour, as well as other personality problems. This intrinsic fascination for fire is also reflected in their criminal histories which contains primarily arson convictions. These arsonists also travelled very short distances from home to set fires; typically less than half a mile. This is also indicative of the expressive nature of these offences and the limited lifestyles of the individuals involved.



The individuals who commit Adaptive arsons are usually involved in a variety of other criminal behaviours and their backgrounds reflect this adaptation to a deviant lifestyle. Although they often have no official criminal record, this is usually due to their age. Being juveniles they are more likely to have received police cautions, and will also tend to have had behavioural problems both at school and at home. Those older offenders who do have a criminal record tend to have convictions for primarily property related offences, such as theft and criminal damage. In terms of their spatial behaviour, the adaptive mode can be seen as fundamentally opportunistic and so the distances travelled relates to the location at which the environmental opportunity for firesetting is found. Generally, the individuals who commit this form of arson have limited resources and so will not travel very far from home. In some cases, however, particularly where a stolen car is fired, this use of a car will mean that greater distances are travelled by this group of offenders.

Finally, the Conservative arsons which are predominantly directed at partners tend to be committed by people whose problems centre on their relationships. In many ways, these can be seen as the grown up versions of the Delinquents described above. Their lack of academic success has led to chronic unemployment, or temporary and erratic employment in primarily manual occupations. Because they are older than the Delinquents, their lifestyle problems centre on relationships with partners rather than with authority figures like parents and school. Their criminal experiences also parallel the Delinquents, but are more developed in terms of both range and frequency of offences. Many of these offenders have convictions for person-related offences such as assault and use of a weapon. Although they may be living with a partner and have a child, they often have severe drinking problems which lead to a breakdown in these relationships and in some cases separation or divorce. At the time of setting a fire these individuals were usually living alone in temporary accommodation.

Within these general patterns it was also possible to identify certain sub-groups. By examining these separately it was found that particular modes of functioning were given different emphases depending on the purpose that firesetting serves. Serial arsonists were found to commit primarily object-oriented forms of arson (Damage and

Display), whereas for female arsonists firesetting mainly serves a demonstrative function (Despair and Display).

In terms of the design of the study, this is one of very few studies of arson to use police records as the source of data. The advantages of this over other sampling methods, such as drawing on psychiatric populations or interviews with incarcerated arsonists, are primarily in relation to representativeness and objectivity of information. This method ensures that cases not considered serious enough to warrant institutionalisation or a prison sentence are also included in the study. Conversely there may be an under-representation of the sorts of cases that are particularly difficult to solve, such as insurance fraud. In terms of the actual information which is obtained using this method it can be reasonably certain that this is objectively accurate given the onus of proof required on the part of the police. Alternative methods which rely on information obtained by interviewing arsonists, however, probably do not meet the same standards of objectivity. On the other hand, clinical studies of firesetters are able to include sources of information, such as personality inventories and detailed personal histories that the present study did not have access to. However, although this type of information could have been used to fill out the action systems model, the results of the study show that it was not necessary to develop the model itself. Nor is it the type of information which is readily available to fire investigators and is therefore of limited practical value.

The Facet methodology used in this study is unique in terms of previous arson research, and indeed has only recently begun to be applied to research on other crime types (e.g. Canter and Heritage, 1990). It would have been very difficult to obtain many of the findings using other methods. For example, the separate SSA on Destroy arson revealed that there are essentially two forms of this arson. Additionally the POSA's of each of the four arson themes also differentiated many of these in terms of process and target. It is possible therefore that a cluster or factor analysis of arson behaviour would have forced each of these distinctions into different clusters or factors, thus obfuscating the four primary themes corresponding to the action systems



modes of functioning. It would also have been difficult to represent the MSA of serial arson in terms of conventional statistics.

## **13.2 Practical Implications**

### **13.2.1 Clinical treatment**

This study has a number of direct implications for the treatment of arsonists. The identification of four main processes underlying firesetting behaviour suggests that different treatment programmes would be appropriate for each of these distinct sub-groups. This would rely firstly on the correct diagnosis of the arsonist around the action systems framework, in relation to the function that the firesetting behaviour serves for the individual. Treatment would then be aimed at changing the arsonist's view either of themselves and their skills, or of their targets. In other words, if firesetting is used primarily as a means of communicating emotions, whether this be directed externally (in Display) or internally (in Despair) the primary objective of treatment would be to learn more functional and less destructive ways of communicating these emotions.

A similar approach is required in relation to Destroy arson as this is also essentially a form of expressing strong feelings such as anger or jealousy. The crucial difference, however, is in the source of the emotion. In this case the event which triggers the firesetting comes from outside the arsonist, usually from a person with whom there is or has recently been a close personal relationship. Therefore, with Destroy arson what needs to be addressed is the inappropriate and extreme reaction to these external sources of frustration.

Finally, the form of arson which is least emotional, being primarily concerned with changing aspects of the environment, is Damage. Here what is needed in relation to treatment is a holistic approach aimed at changing the arsonists inherent criminality and lack of respect for societal rules and conventions. Firesetting represents just one of a range of criminal tools and it is this tendency towards seeking out a variety of opportunities to commit crime which must be addressed in treatment.

### 13.2.2 Police Investigations

The implications of this study also extend to the actual investigation of fires. For example, the finding that object-oriented arsons are associated with repetition, coupled with the fact that the offenders tend not to travel far from home, suggests the value of implementing surveillance in areas recently subjected to arson attacks. It is also likely that offenders responsible for arsons to public properties, including institutions, will be known to police for previous firesetting. Another implication is that where an arson shows evidence of planning and the use of accelerants, it is likely that it represents a targeted attack and that the victim will know the perpetrator.

In terms of following particular lines of enquiry, this study has shown that for certain forms of arson, for example Destroy, events leading up to the firesetting can be just as important as the events that occur during the firesetting itself. Therefore in terms of police investigations of arsons it may be useful to conduct more extensive interviews with witnesses and neighbours in relation to salient antecedent events such as arguments and threats.

Additionally, it may be of value to look into the personal histories of arson suspects, particularly females, as certain forms of psychiatric and emotional disturbances have been shown to be linked to arson for this sub-group.

For other suspects it may be of value to examine criminal histories, as this study has shown that particular offences types have an association with certain forms of arson. For example, as previously stated, crimes which have a personal focus such as assault, public disorder and weapon offences are most commonly found in the backgrounds of Destroy arsonists. Conversely property and instrumental crimes such as theft and burglary are more often found in the backgrounds of Damage firesetters.

One of the particularly important practical implications of the study is in relation to linking several offences to one offender. Chapter 7 of the present thesis focused on serial arsonists and found firstly that these individuals are very consistent in the way



they commit offences across a series, and secondly that by employing Multidimensional scaling procedures (MSA) it is possible to distinguish the offences of one individual from those of another.

Of course the most directly applicable aspects of the results of the study are those that relate features of the offence to the features of the offender. These A to C links, summarised above, have been discussed at length in Chapter 10 and illustrated through case studies at the end of that chapter. Related to this, another important finding was that arsonists from each of the four themes tended to travel different distances to commit their offence.

Finally in this section, there are also a number of implications of this study for the interviewing of suspects. In relation to Despair arson, it should prove fruitful to pursue lines of questioning centred on the emotional problems of the suspected arsonist. If these problems have proved overwhelming enough to prompt the individual to set fire to themselves, then it would be expected that they would show a willingness to talk to police officers on this subject. It is often this willingness to talk which represents the primary hurdle in investigative interviews, but by focusing on the central emotional issues this may well draw the individual into a discussion about the - to them - peripheral issue of firesetting.

With Display arson the desire for the arsonist is often to draw attention to themselves, possibly as heroic figures. Any deflection of this attention, therefore, may cause the arsonist to wish to emphasise his role in the firesetting. A skilled interviewer may be able to obtain a confession by minimising the suspect's involvement in the 'discovery' of the fire, for example.

Some forms of Damage arson are committed in connection with other offences. It may therefore be harder to get an individual to admit his role in these fires as they will also be implicating themselves in those other crimes. On the other hand it may be possible to minimise the seriousness of the firesetting, or to have it taken into consideration (TIC) if the suspect confesses to the other offences.

Finally, the Destroy arsons are often the result of an argument between the firesetter and an ex-partner. Although, they represent an unreasonable reaction to provocation, interviewing officers may be able to indicate that they sympathise with the situation that led up to the arson, thus 'normalising' the reaction and allowing the offender to admit responsibility.

These interview suggestions can also, of course, be seen as hypotheses for future study.

### **13.3 Future Directions**

The identification of these four themes in arson behaviour has a number of other implications for further study. It would certainly be useful to attempt to replicate the results using arsons drawn from different sources, for example, unsolved cases or insurance records. Because this sample was drawn only from solved police cases, there was probably an over-representation of certain types of offences, for example, ones where the offender was known to the victim. Conversely, as previously stated, some kinds of arsons were very under-represented, for example insurance fraud or politically motivated fires. Although, as previously mentioned, some of these might be expected to fall under the category of Damage arsons, it is also likely that they would contain some of the features associated with the Destroy fires, such as planning, use of accelerants and multiple seats. Indeed, the systems model does allow for various hybrids derived from adjacent themes and a larger more varied data base would help to test whether such hybrid themes did exist.

The present study is rather different from previous work in that it has not involved interviewing arsonists. Such interviews may be unreliable for at least two reasons. One, that it is not always possible for individuals to explain their own actions, or they may try to rationalise what is essentially an irrational or unreasonable response to provocation. A second is that people who have committed acts of great destruction and show a lack of concern for human life should perhaps not always be relied on to



tell the truth about their behaviour. For these reasons it is important to complement studies based on interviews with the records of the event utilised in this study.

Certainly the current results open up some interesting lines of questioning with arsonists, particularly in relation to their feelings about the firesetting and its targets. Some of these will overlap with the investigative suggestions in the previous section, but other psychological questions include why fire was chosen as the dominant means of expression and whether other behaviour fitting the particular mode of functioning is also exhibited.

The systems model proposed here does provide a framework within which a diversity of perspectives in the literature can be shown to complement one another, rather than being in conflict. It also shows that hypotheses about the relationships between the details of the offence and the characteristics of the offender can be elaborated and tested. It is therefore plausible that the model will also be relevant to other forms of criminal activity. For example, parallels can be seen in relation to particular targets and styles of homicide. Mothers who kill their children may be regarded as 'expressive' in the action system sense of communicating overwhelming emotions on a meaningful external target. Women who kill abusive husbands can be seen as 'adaptive' in that they are killing to survive. On the other hand husbands who kill their wives, or other intra-familial homicide is 'conservative' in the sense of removing an external source of frustration because of emotions that that individual have engendered in the murderer. The 'integrative' mode of functioning within the homicide framework would be people who kill themselves, i.e. suicide.

Thus it can be seen that the action systems model has the potential to be applied to a variety of crimes, even those as complex as homicide. Future research is needed to determine whether empirical categories of these crimes exist that correspond to this theoretical framework.

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**Appendix A: Example of Police report  
of arson**



ROYAL NEWFOUNDLAND CONSTABULARY

JUSTICE REPORT

11 May 1994

RNC File# 94-07179

FULL NAME	David Maurice [REDACTED]	D.O.B.	50-08-31
ADDRESS	[REDACTED] Hillhurst Street, Mount Pearl	F.P.S.	
OFFENCE	Br. Section 434.1 c.c.c.	DATE	94-04-01
OTHERS	Br. Section 266(b) c.c.c.		

SIR:

On 94-04-11 at 1717 hrs., the St. John's Fire Department and the Royal Newfoundland Constabulary responded to the scene of a fire at Hillhurst Street. Cst. H. Collett, Street Patrol attended to the scene. Cst. Collett was directed to the owner of the residence by firemen. The accused, at this time, was behind his backyard fence and appeared to be extremely upset. The accused identified himself to Cst. Collett and advised that he was the owner and stated that he had set the fire.

Cst. Collett immediately placed David [REDACTED] in Unit #23 and advised him of Police Caution and Rights. David [REDACTED] stated that he understood.

Cst. B. Butler, Identification Section arrived on the scene and commenced to take photographs.

At 1726 hrs., Cst. Collett spoke to Patricia [REDACTED], wife of David [REDACTED]. She stated that her husband had poured gas over the carpet and set it on fire.

At 1745 hrs., the undersigned arrived on the scene. I spoke to Cst. Collett who advised me of what had happened. I placed the accused in Unit 70 and transported him to Royal Newfoundland Constabulary Headquarters for questioning. I interviewed David [REDACTED] for approximately 45 minutes. During this interview, David [REDACTED] stated that he didn't know what had happened.

At 1855 hrs., while transporting David [REDACTED] to the Lock-up, he informed me that he did indeed start the fire.

At 1900 hrs., the undersigned obtained a caution statement from David [REDACTED]. He stated that earlier in the evening when his wife arrived home from work they got into an argument over his drinking. Shortly after he went to a gas bar and purchased \$5.00 in gas and came home with it. He poured the gas over the living room floor and told his wife to take their daughter and get out as he was going to burn the house down. David [REDACTED] stated that he tried to burn the house down because then he would have no more mortgage payments, insurance payments or any other general maintenance costs.

David [REDACTED] was detained at the Lock-up and it was requested that he be seen by a doctor.





ROYAL NEWFOUNDLAND CONSTABULARY

JUSTICE REPORT (Cont.)

RE:	PAGE
RNC File# 94-07179	2

At 2025 hrs., the undersigned obtained a statement from Patricia [REDACTED]. She stated that she was arguing with her husband when she arrived home from work. Also, she states that her husband slapped her across the face. A short time later he came home with a can of gas and lit the home on fire.

On 94-05-09 at 11:00 a.m. the undersigned obtained a statement from Deborah Ann [REDACTED] neighbour of the [REDACTED] family. Ms. [REDACTED] advised that when she spoke to David [REDACTED] on the evening of the fire, he told her he was responsible for setting the fire.

At 11:40 a.m., the undersigned obtained a statement from Firefighter John [REDACTED] Mr. Blackwood advises that [REDACTED] stated to him that he set the fire.

Damage to residence is estimated to be approximately \$18,358.00.

Court date for this matter is set for 94-06-01 at 2:00 p.m.

**Attached to report:**

1. Statement from David [REDACTED]
2. Statement from Patricia [REDACTED]
3. Statement from Deborah [REDACTED]
4. Statement from John [REDACTED]
5. Copy of Fire Commissioner's Incident Report
6. Copy of St. John's Fire Department Incident Report
7. Copy of Property Room Exhibit Report
8. Copy of Fire Commissioner's Report
9. Copy of Cst. H. Collett's notes
10. Copy of Criminal Record Check - David [REDACTED]

**Witnesses required:**


1. John [REDACTED] St. John's Fire Department
2. Cst. A.J. Walshe, Fire/Auto Section
3. Cst. H. Collett, Street Patrol
4. Cst. B. Butler, Identification Section
5. Patricia [REDACTED] Park Avenue, Mount Pearl
6. Deborah A. [REDACTED] Hillhurst Street

Respectfully submitted,



A.C. Oliver  
Superintendent

  
E.J. Coady, S.B., ST.J  
Chief of Police

  
A.J. Walshe, Cst.  
Reg.# 487

ROYAL NEWFOUNDLAND CONSTABULARY  
STATEMENT FORM

RNC FILE# 94-07179

POLICE CAUTION - "YOU NEED NOT SAY ANYTHING. YOU HAVE NOTHING TO HOPE FROM ANY PROMISE OR FAVOUR AND NOTHING TO FEAR FROM ANY THREAT WHETHER OR NOT YOU SAY ANYTHING. ANYTHING YOU DO SAY MAY BE USED AS EVIDENCE."

DO YOU UNDERSTAND THIS CAUTION Yes

SIGNED: David [REDACTED]

RIGHTS UNDER CHARTER - "YOU HAVE THE RIGHT TO RETAIN AND INSTRUCT COUNSEL WITHOUT DELAY. YOU HAVE THE RIGHT TO IMMEDIATE ACCESS TO ADVISE FROM DUTY COUNSEL (LAWYER) FREE OF CHARGE".

"YOU ALSO HAVE THE RIGHT TO SUBSEQUENTLY BE REPRESENTED BY A LAWYER FREE OF CHARGE IF YOU MEET THE CRITERIA SET UP BY THE NEWFOUNDLAND LEGAL AID COMMISSION". ST. JOHN'S 753-7860, CORNER BROOK 639-9226, AFTER 5 P.M. 1-800-563-9911, LABRADOR 1-800-563-9911.

DO YOU WANT TO CONTACT COUNSEL NOW Yes

SIGNED: David [REDACTED]

The following is the statement of David [REDACTED] who lives at [REDACTED] Hillhurst Street, Mount Pearl and was born on the 31st day of August 1950.

Statement taken at Police Unit 70, Outside City Lock-up on the 11th day of April 1994 at 7:00 p.m.

Today sometime around 5:00 p.m. or so my wife arrived home from work. Our marriage has been under alot of strain lately due to money difficulties, medical problems & unstable job conditions. We began to argue about several of these topics when I became fed up with the whole situation and decided to burn down the house. I felt if I had no home it would include no payments on the home, no insurance payments, no taxes and probably rent an apt. and it would be cheaper to live.

I drove down to the Ultramar on the corner of Blackmarsh Rd. and Topsail Rd. where I purchased approximately \$5.00 worth of gas and put in a red gas can. I drove back home and went inside and began to pour the gas over the floor of the living room. I told my wife to get out of the house & to take our daughter Holly because I was going to burn the house down. She was yelling at me several times not to do it but eventually ran outside to get held. As



soon as my wife Patricia got outside I lit the gas on the floor with my lighter. I then grabbed Holly and went outside. I told my wife who was outside to take Holly in the car and get it out of the driveway; she drove the car out and went up the street.

No long after the police and fire dept. arrived and I was placed in the rear of a police car.

Q. Did you give this statement freely of your own will without any promise or favour?

A. Yes.

Q. What colour was the lighter you used?

A. Pink, the one I have here in my pocket.

Witness: A.J. Walshe, Cst.

Sgd: D. [REDACTED]

Reg.# 487

ROYAL NEWFOUNDLAND CONSTABULARY

RNC FILE# 94-07179

The following is the statement of Debra Ann who lives at Hillhurst Street,  
Mount Pearl (Ph. and was born on the 11th day of June 1965.

Statement taken at A/A on the 9th day of April 1994 at 11:00 a.m.

Approximately one month ago a fire occurred at a residence across the street from me. About 5:00 p.m. that evening I first noticed the fire when I saw David out at the end of his driveway and black smoke emitting from the house.

I ran over to him and asked if anyone else was in the house. He told me there was no one else inside. I could smell liquor from his breath at this time. He said to me, "I did this, God help me I did this". He repeated saying this numerous times as he paced back & forth in the driveway. I went back to my house when I heard the fire trucks. A short time later I saw the police take away Mr.

Witness: A.J. Walshe, Cst.

Sgd: Deborah

Reg.# 487



ROYAL NEWFOUNDLAND CONSTABULARY

RNC FILE# 94-07179

The following is the statement of John [REDACTED] who lives at [REDACTED] Manuels and was born on the 5th day of Jan 1961.

Statement taken at Mt. Pearl Fire Station on the 9th day of April 1994 at 11:40 a.m.

On April 11th at approximately 5:15 p.m. I attended a fire at [REDACTED] Hillhurst St. I was driving the Rescue Unit when I noticed a gentleman in the backyard of # [REDACTED] leaning on the fence. I assumed him to be the owner and checked with him to see if he was injured, a fellow firefighter advised me he was inside.

The gentleman was obviously upset and I advised him to take it easy as no one was hurt and insurance would look after the damage. He stated then "no insurance would look after this because I did it". He repeated several times I did it, I did.

Shortly after I advised the RNC Officer on the scene that I spoke to the owner who told me he set the fire.

Witness: A.J. Walshe, Cst.

Reg.# 487

Sgd: John [REDACTED]

**FIRE COMMISSIONER'S REPORT**  
**Individual Fire Incident Report**  
**ST. JOHN'S FIRE DEPARTMENT**

ST. JOHN'S FIRE DEPARTMENT  
 100 WATER ST.  
 ST. JOHN, N.H. 03282

INCIDENT NO. 94-04-1110	TIME 17:01	DAY OF WEEK MONDAY	MONTH APRIL	DAY 11	YEAR 1994	
CORRECT ADDRESS HILLHURST ST. MT. PEARL		TELEPHONE NO.	ROOM OR APT. NO.	IN <input type="checkbox"/> OR <input checked="" type="checkbox"/> OUTSIDE ST. JOHN'S CITY LIMITS		
OCCUPANT DAVE			OWNER DAVE			
ADDRESS OF OWNER HILLHURST ST. MT. PEARL				TELEPHONE NO.		
METHOD OF ALARM FROM PUBLIC 911 PHONE <input checked="" type="checkbox"/> ADMIN. PHONE <input type="checkbox"/> F.A. BOX <input type="checkbox"/> OTHER <input type="checkbox"/> (explain)		BOX NO.	TYPE OF SITUATION FOUND ON ARRIVAL, i.e. FIRE, ACCIDENT, FALSE ALARM, ETC. FIRE	ANY DELAYS IN RESPONSE <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	TIME OF ALARM 17:01	
TYPE OF ACTION TAKEN OFFENSIVE			STATIONS RESPONDING: CENTRAL <input type="checkbox"/> EAST <input type="checkbox"/> WEST <input type="checkbox"/> BROOKFIELD <input type="checkbox"/> KENT'S POND <input type="checkbox"/> KENMOUNT, <input checked="" type="checkbox"/> PLEASANTVILLE <input type="checkbox"/> MT. PEARL			

NOTE: FOR FALSE ALARM, COMPLETE ABOVE SECTION ONLY.

FIXED PROPERTY USE - CLASSIFICATION, i.e., RESIDENCE, STORE, LOUNGE, HOTEL, ETC.		NO. OF STORIES ONE	TYPE OF CONSTRUCTION WOOD	WAS BUILDING OCCUPIED AT TIME OF FIRE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
MOBILE PROPERTY CLASSIFICATION i.e. CAR, TRUCK, BOAT, ETC.	IF MOBILE	YEAR	MODEL	LICENSE NO.	
AREA OF ORIGIN LIVING ROOM FLOOR	INTERIOR FINISH GYPSUM	DIMENSIONS (APPROX.) 26' X 34'	OCCUPANCY RESIDENTIAL	FLOOR LEVEL OR HEIGHT 8'	
NUMBER INJURED (SEE REVERSE FOR DETAILS)		NUMBER KILLED (SEE REVERSE FOR DETAILS)			
CIVILIANS	FIRE SERVICE	CIVILIANS	FIRE SERVICE		
NUMBER FIRE SERVICE PERSONNEL USED AT SCENE OFFICERS 3 MEN 3		NO. AERIALS USED	NO. OTHER VEHICLES USED 4	MUTUAL AID PUMPS USED	
WEATHER <input type="checkbox"/> CLEAR <input type="checkbox"/> RAINY <input type="checkbox"/> FOG <input type="checkbox"/> SNOWING WIND DIRECTION SW		APPROX VELOCITY: 30 KPA			
EQUIPMENT INVOLVED IN IGNITION (if any) POSSIBLE GASOLINE		FORM OF HEAT IGNITION DIRECT FLAME			
IF EQUIPMENT INVOLVED IN IGNITION		YEAR	MAKE	MODEL	SER. NO. Voltage (if any)

TYPE OF MATERIAL IGNITED LIVING ROOM CARPET + FURNITURE		FORM OF MATERIAL IGNITED CLASS "A"			
ACT OR OMISSION APPEARED DELIBERATE		EXTENT OF FLAME DAMAGE LIVING ROOM AREA			
EXTENT OF OTHER DAMAGE SMOKE + HEAT		FLAME SPREAD FACTOR (if any)			
SMOKE SPREAD FACTOR (if any) NORMAL SMOKE TRAVEL		ESTIMATED PROPERTY LOSS (if any)	INSURANCE CARRIED YES	NAME OF INSURANCE COMPANY REED STENHOUSE	
METHOD OF EXTINGUISHMENT WATER		NO. OF STREAMS 1/2"-1"	1 1/2"	2 1/2"	over 2 1/2" FEET OF LADDERS (excluding aeriels)
DID FOLLOWING EQUIPMENT PERFORM AS REQUIRED.		DID FIRE DEPT. EQUIPMENT PERFORM AS REQUIRED?			
FIRE HYDRANTS	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
BLDG. SPRINKLER	<input type="checkbox"/> YES <input type="checkbox"/> NO	EXPLAIN IF NO:			
BLDG. STAND PIPES	<input type="checkbox"/> YES <input type="checkbox"/> NO				
BLDG. AUTO. FIRE SYSTEMS	<input type="checkbox"/> YES <input type="checkbox"/> NO				
BLDG. FIRE ALARM	<input type="checkbox"/> YES <input type="checkbox"/> NO				
BLDG. FIRE EXTINGUISHERS	<input type="checkbox"/> YES <input type="checkbox"/> NO				
OTHER	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	WAS FIRE EQUIPMENT OBSTRUCTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
EXPLAIN IF YES:					

WHAT FACTORS HELPED REDUCE CASUALTIES OR FIRE SPREAD? ENCLOSURES, FIRE DOORS, GOOD HOUSEKEEPING, ETC.  
 GOOD FIRE FIGHTING TECHNIQS

FORCIBLE ENTRY DOOR  WINDOW  ROOF  OTHER   
 VENTILATION DOOR  WINDOW  ROOF  OTHER

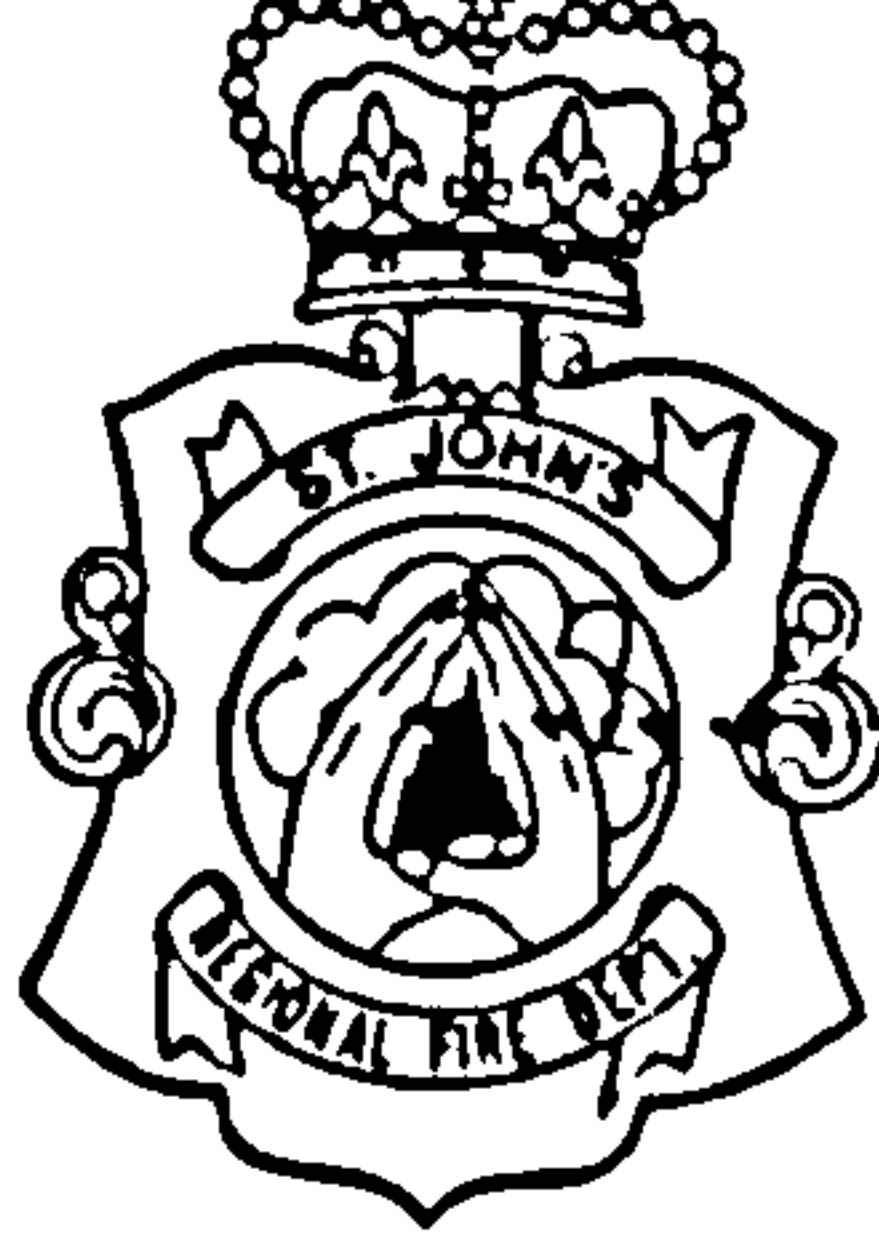
WHAT FACTORS EXTENDED CASUALTIES OR FIRE SPREAD: Poor Hydrant Spacing, Lack of Extinguishing System, High Piled Stock, etc.

IMPROPER FLAMMABLE LIQUID STORAGE, LACK OF CUTOFFS, SCANT WATER SUPPLY, NON-FIRE-STOPPED WALLS, OPEN STAIRS, OPEN SHAFT, INTERIOR FINISH MATERIALS, ETC.

FIRE INVESTIGATION	REMARKS.
<input type="checkbox"/> COMPLETED	
<input checked="" type="checkbox"/> REFERRED TO CID <input type="checkbox"/> RCMP	
<input type="checkbox"/> STILL UNDER INVESTIGATION	
DISTRIBUTION: 1 - WHITE COPY TO FIRE COMMISSIONER 2 - PINK COPY TO FIRE CHIEF 3 - BLUE COPY TO CID 4 - YELLOW COPY TO FIRE PREVENTION 5 - ORANGE COPY MAINTAINED BY RESPONDING STATION	OFFICER IN CHARGE: (Name, title, station location) FIC L. GRANDY MT. PEARL MEMBER MAKING REPORT: (if different from above) DATE OF REPORT 94-04-11

(SEE REVERSE SIDE)





## ST. JOHN'S REGIONAL FIRE DEPARTMENT

Date: 94-04-11

File # 94-04-1110

Location: HILLHURST ST.

Station: MT. PEARL + KENMOUNT

MT PEARL

Subject: HOUSE FIRE

### DETAILS

Time Received: 17:01 Arrival Time: 17:06 Time Returned: 18:00

Guards: PURRIN + RENOUE Method of Alarm: TONER

Message: HOUSE ON FIRE CORNER HILLHURST ST. +  
FLINCLIFF ST.

Agencies Notified: R.N.C.

Responded With: PUMPER + RESCUE FROM MT. PEARL.

PUMPER + PICK-UP FROM KENMOUNT.

Conditions on Arrival: SMOKE ISSUING FROM OPENED  
MAIN ENTRY OF DWELLING.

Action Taken: CHARGED 38MM HOSE LINE USED, BY  
MAN WEARING BREATHING APPARATUS, TO EXTINGUISH  
FIRE IN LIVING ROOM. LIVING ROOM WINDOW  
BROKEN + REMAINDER OF WINDOWS OPENED  
FOR VENTILATION PURPOSES

Damage: CONSIDERABLE FIRE, SMOKE + HEAT DAMAGE  
TO MAIN FLOOR. POSSIBLE SLIGHT SMOKE DAMAGE TO BASEMENT  
AREA

Cause: UNDER INVESTIGATION BY CONST. T. WALSH  
OF FIRE INVESTIGATION DIVISION R.N.C.

Building/Vehicle/Injury Details: DETACHED WOOD FRAME  
BUNGALOW OWNED + OCCUPIED BY MR. DAVE  
[REDACTED] + FAMILY.

Insurance: REED STEINHOUSE

Officer's Remarks: DWELLING LEFT IN SECURITY OF  
CONST. COLLETTE R.N.C.

*[Handwritten signature]*

On 94 11 at 17HRS. police called to scene of fire at Hillhurst Street, Mount Pearl. Cst. H. Collett attended call and spoke to David [REDACTED] who at this time was in a state of hysteria and told Cst. Collett that he started the fire.

I later arrived on scene and took [REDACTED] to RNC Headquarters where he gave a statement saying he poured a 2 gallon gas can full of gas over his carpet and set fire to it. [REDACTED] was later charged with arson and court case is pending.

The next day I examined fire scene and found the area of origin to be in the living room on the floor. A red gas can was also found in the area.

**A.J. WALSH, CST.**  
Reg. #487



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR  
DEPARTMENT OF JUSTICE

**FIRE COMMISSIONER'S REPORT**  
(To be completed in 5 copies)

94-07179  
\_\_\_\_\_  
(DET. FILE)  
\_\_\_\_\_  
(SUB. DIV. FILE)  
\_\_\_\_\_  
(DIV. FILE)

VEHICLE FIRES - COMPLETE ALL SECTIONS EXCEPT 2 & 3  
OTHER FIRES - COMPLETE ALL SECTIONS EXCEPT 5  
BOAT FIRES - COMPLETE ALL SECTIONS EXCEPT 2

St. John's  
\_\_\_\_\_  
(DETACHMENT)  
Criminal Investigation  
\_\_\_\_\_  
(SUB. DIVISION)  
94 05 03  
\_\_\_\_\_  
(DATE)  
94 04 11 (5:00 p.m.)  
\_\_\_\_\_  
TIME & DATE OF FIRE

<b>1. GENERAL</b>	OWNER: David & Patricia [REDACTED]	ADDRESS: [REDACTED] Hillhurst Street	DATE OF BIRTH: 50 08 31 (David [REDACTED])	
	PROPERTY LOCATION: [REDACTED] Hillhurst Street	PERSON DISCOVERING FIRE AND ADDRESS: Patricia [REDACTED] Hillhurst Street		
	(DECEASED PERSON) _____ DATE OF BIRTH _____ (USE REVERSE IF NECESSARY)	PROPERTY TYPES: RESIDENCE <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> BOAT <input type="checkbox"/> VEHICLE <input type="checkbox"/> PUBLIC BLDG <input type="checkbox"/> OTHER <input type="checkbox"/>		
<b>2. CONSTRUCTION</b>	NO OF STOREYS: Two	BASEMENT: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DIMENSIONS (OUTSIDE): 25 FT X FT 35	
	SMOKE ALARM YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> ELECTRIC <input type="checkbox"/> BATTERY <input checked="" type="checkbox"/>		WALLS (EXTERIOR): WOOD FRAME <input checked="" type="checkbox"/> OTHER <input type="checkbox"/> SPECIFY "OTHER" _____	
	FLOORS MATERIAL (TYPE): Carpet	CEILINGS MATERIAL (TYPE): Gyprock	WALLS (INTERIOR) MATERIAL (TYPE): _____ PAINTED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
	STAIRWAYS (LOCATE ON DIAGRAM): YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	TWO MEANS OF EGRESS (EA FLOOR): YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	EXTER. FIRE ESCAPE: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> SPRINKLER SYSTEM - OPERATIVE - VALVE OPEN: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
	FIRE EXTINGUISHERS PRESENT: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> - USED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	CHIMNEY/STOVE PIPE: CONSTRUCTED OF: _____ LINED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	CONDITION: GOOD <input type="checkbox"/> FAIR <input type="checkbox"/> POOR <input type="checkbox"/>	
<b>3. SERVICE</b>	HEATING: WOOD <input type="checkbox"/> COAL <input type="checkbox"/> OIL <input type="checkbox"/> GAS <input type="checkbox"/> HOT AIR <input type="checkbox"/> HOT WATER <input type="checkbox"/> STEAM <input type="checkbox"/> FUEL TANK (SUPPLY) LOCATION: SAFE YES <input type="checkbox"/> NO <input type="checkbox"/>			
	ELECTRICAL: NORMAL <input checked="" type="checkbox"/> FAULTY <input type="checkbox"/> (EXPLAIN FAULTY) _____ FUSES: NORMAL <input type="checkbox"/> OVERSIZE <input type="checkbox"/> BLOWN <input type="checkbox"/>			
	GAS EQUIP. INSTALLATION: YES <input type="checkbox"/> NO <input type="checkbox"/> SATISFACTORY <input type="checkbox"/> OTHER <input type="checkbox"/> EXPLAIN OTHER _____			
<b>4. FIRE INSURANCE</b>	TOTAL VALUE PRIOR TO FIRE: \$ 64,000.00			
	ESTIMATE OF DAMAGE (FIRE): \$ 18,358.00			
	INSURED FOR \$ (PROP) \$64,000.00 \$ (CONTENTS) \$44,800.00			
	INSURANCE COVERAGE FROM 93 07 27 TO 94 07 06 (DATES)			
	POLICY NO. [REDACTED] INS. CO. Canadian General			
	RECENT INCREASE IN COVERAGE: YES <input type="checkbox"/> NO <input type="checkbox"/> AMT \$ _____			
<b>5. BOAT/VEHICLE PARTICULARS</b>	BOAT/VEHICLE MAKE/STYLE/USE: _____ YEAR/AGE: _____			
	EXHAUST SYSTEM: GOOD <input type="checkbox"/> FAULTY <input type="checkbox"/> (EXP "FAULTY" IN REMARKS)			
	INDEPENDENT EST OF VALUE PRIOR TO FIRE: \$ _____			
	HOW LONG HAS PRESENT OWNER OWNED BOAT/VEH? _____			
	REGULARITY OF MAKING PAYMENTS: _____			
	BOAT ONLY: ENGINE TYPE/MAKE: _____ FUEL TYPE: _____			
<b>6. FINANCIAL STABILITY</b>	OWNER'S FINANCIAL STABILITY: GOOD <input type="checkbox"/> FAIR <input type="checkbox"/> POOR <input type="checkbox"/> (IF "POOR" EXPLAIN)			
	ANY PREVIOUS FIRES: YES <input type="checkbox"/> (ELABORATE IN REMARKS) NO <input type="checkbox"/>			
<b>7.</b>	CAUSE: (EXPL. CAUSE OR PROBABLE CAUSE AS SUPPORTED BY FACTS)			

DIAGRAM:

# Appendix B: Offence Variables

## 1. Residential

this refers to a property which at the time of the fire was being used for residential purposes. If the property was derelict or uninhabited (as opposed to simply unoccupied) at the time, then it would not be coded as residential. An exception to this would be an uninhabited flat contained within a block of flats some of which were inhabited. Also a property which was known to contain 'squatters' would be classified as residential.

## 2. Business

again, the property would have to currently be in use as business premises. A disused unit on an industrial estate would not be coded as business. Other exceptions include allotments and pigeon lofts which would be coded as uninhabited.

## 3. School

a fire which occurs in any area of an educational establishment would be coded as school. For example, if fire is set to waste bins outside the school, this would be coded as both miscellaneous and school.

## 4. Public building

this includes any type of building to which the public have access, e.g. library, church, town hall, law courts, police station, etc.

## 5. Hospital/Institution

again, if the fire is set on any part of the institution's grounds then it is coded as institution.

## 6. Car/vehicle

any type of vehicle which is used for transportation of goods or people, is coded as car/vehicle, including bicycles and boats.

## 7. Misc./Uninhabited/Derelict property

misc. applies to items fired which were not inside a property, for example a rubbish bin or park bench. However, anything which is fired inside a property will be coded as that property, e.g. a rubbish bin inside a school is coded as school. Uninhabited or derelict properties can be both commercial and residential properties which are currently not in use.

## 8. Self

if an individual starts a fire in their own home, and then makes no attempt to leave or alert anyone, then this is coded as self.

## 9. Own Home

this is coded in addition to residential and/or self

#### **10.Targeted property**

if there is any evidence to suggest that a specific property was fired for a particular reason, then this is coded as targeted. In other words it must be apparent, or readily inferred that the offender(s) would not have set fire to anything other than that object. For example, if the offender travelled any great distance to the target, by-passing other buildings with similar properties. Also, if the victim was known, and the fire followed a dispute, then it can be inferred that the victim was targeted.

#### **11.Planned**

for example, if materials were brought to the scene, like petrol or matches, then this would suggest planning. Also if the individual made an effort to avoid detection, e.g. wearing gloves when handling petrol containers.

#### **12.Victim known**

this would generally go along with targeting and includes institutions or governing bodies that the offender has been involved with, e.g. a school he/she has attended or council-owned property if he/she is a council tenant.

#### **13.Victim (ex-)partner**

this variable would also be coded as present if the offender fires property belonging to someone close to his/her (ex-)partner, e.g. a family member or new partner. The rationale for this is that that person would not have been targeted were it not for their association with the (ex-)partner.

#### **14.Prior violence/argument with victim**

this refers to any dispute, preferably heated, occurring within a reasonable time-frame (usually not more than a month) of the arson.

#### **15.Prior threats towards victim**

this includes verbal or physical threats of an overt or implicit nature.

#### **16.Prior threat of arson**

if the offender has made any threatening remarks with reference to fires, even in an abstract sense such as, "I once knew someone who's house burned down", or "be careful you don't leave matches lying around; someone might get hold of them", then these count as threats of arson.

#### **17.Prior arson**

this is coded if the offender has set any fires prior to the current offence. Although this variable is duplicated in the Offender Variable list, it is included here in order to identify which other actions are associated with prior arson.

#### **18.Multiple items fired**

this refers to the objects which have actually ended up on fire, rather than secondary objects used to start that fire. In other words, if multiple waste bins or skips are fired then this variable would be coded as present, but if multiple bits of newspaper are used to set fire to one waste bin, then this variable would not be coded.



### **19. Multiple seats of fire**

this refers to initial ignition points of the item(s) fired. For example, if a house is fired by pouring petrol in one room and holding a match to a curtain in another room, then the fire would be coded as having multiple seats. The number of seats of a fire are usually stated in the investigating fire officer's report.

### **20. Set fire**

if the offender has actually placed a burning object (e.g. match or lighted piece of paper) to the property he wants to fire, then this is a set fire. If the burning object has been thrown, e.g. a petrol bomb, or burning pieces of paper have been dropped onto an object from above, then this is not coded as a set fire.

### **21. Accelerant used**

again, there is usually mention of an accelerant in the fire investigator's report.

### **22. Material brought**

anything which the offender brought for the specific purpose of starting or accelerating the fire, would be coded as this. It's important that the material is something which he would not normally be carrying, e.g. matches or a cigarette lighter is ambiguous particularly if the individual is a smoker.

### **23. Lives endangered deliberately**

if the offender knew that the property was occupied at the time of the fire and made no attempt to alert the occupants, then this is coded.

### **24. Lives endangered by location**

a fire in any residential property, or building attached to a residence which is not completely detached, has the potential to endanger lives.

### **25. Did not alert anyone**

if the offender left the scene of the fire without subsequently alerting either the fire brigade or any other person, then this variable is coded.

### **26. Remained at/returned to scene**

this is where the offender either remains at the scene, or returns while the fire is still burning, or returns to the same property to set another fire.

### **27. Suicide note**

this is coded not only in the presence of an actual suicide note, but if the offender has alerted anyone prior to the fire of their intention or wish to commit suicide.

### **28. Alcohol use**

the offender may not state that he has consumed alcohol, but if a police officer or witness mentions that the offender appeared to be drunk or smelled of alcohol then this is coded.

### **29. Drug use**

this refers to any recreational, i.e. non-prescription drug, including solvents.

### **30. Spree**

if the offender sets more than one fire with a gap of no more than 24 hours then this is coded as spree firesetting.

### **31. Serial**

if the offender sets more than one fire with a gap of more than 24 hours then this is coded as serial firesetting. However, if the gap is a matter of years rather than weeks or months then this would not be serial, but the offender would be coded as having prior arson in his history.

### **32. Weekday**

a weekday is classified as being between 00:01 on a Monday and 16:59 on a Friday.

### **33. Daytime**

if the offence occurs during daylight hours, this is classified as daytime. Note that this will depend on the time of year; e.g. 21:00 in July would be daytime whereas in November it would not.

### **34. Distance travelled less than 1 mile**

this is coded if the offence occurs less than a mile from where the offender either lives or was based immediately before the firesetting. In other words, if the offender was at school all day, and then set a fire on the way from school to home, then the important measurement would be from the school to the offence rather than from the offence to the home.

### **35. Forced/illegal entry**

if the offender was required to make some effort to obtain entry to the fired property, then this would be coded as forced/illegal entry. Also, if the offender could be said to be trespassing, e.g. in a hay barn which has open access, this variable would be coded as present.

### **36. Theft from premises**

this variable would be coded if any property is taken either before or after the firesetting.

### **37. Other crime**

if the firesetting occurs in conjunction with any other offence, e.g. vandalism, burglary, theft of a car.

### **38. More than one offender**

the other individual need not be instrumental in the actual setting of the fire, e.g. they could be acting as a look-out. If another person is present during the firesetting and they do not actually try to stop the offender then they are counted as a co-offender.

### 39.Outside

if the fired object is itself outside, or the individual sets fire to a house by throwing a fire bomb or inserting lighted material through the letter box then this is coded as being outside.

### 40.Witness

if the firesetting takes place in front of another person who is not a willing participant, i.e. explicitly or implicitly does not condone the act, then he/she is coded as a witness. It is important that the offender knows that the other person is present, therefore a passerby who happens to see the firesetting would not be coded as a witness.

### 41.Public View

if the firesetting occurs in a place and time where the offender could potentially be seen by passers-by, then this is coded as being in public view. If the firesetting occurs at a time where there are unlikely to be other people around, but in a place which usually has CCTV, e.g. a car park, then this would also be coded as public view.

### 42.Trigger Specific to Victim

if the firesetting occurs immediately following, or within a reasonable time period of an argument or other, usually emotional trigger, and is targeted at a specific person or property, then that is a victim-specific trigger.

### 43.Non-specific trigger

if the firesetting occurs immediately following, or within a reasonable time period of an argument or other, usually emotional trigger, and there is no obvious targeting of a specific person or property, then that is a non-specific trigger.

### 44.Crusade

this is coded if the firesetting appears to be attention or recognition seeking, e.g. if the offender him/herself 'discovers' the fire, or exaggerates injuries sustained.

### 45.Finance

this refers to the offender's belief that he/she will financially or otherwise benefit directly from the fire. The benefit need not be in terms of a monetary gain, e.g. persons in council housing who wish to be moved would be coded as 'financial'. This variable does not, however, refer to theft of property during the arson, as the financial gain has to come as a result of the arson, rather than being incidental to it.

### 46.Outburst

if the fire contains multiple seats and/or multiple items and takes place in a 'frenzied' attack, e.g. smashing up the targeted property.



# Appendix C: Offender Variables

## 1.No CRO

the offender has no previous convictions of any kind.

## 2.Previous arson

this is the same variable as in the Offence Variables list

## 3.False alarm calls

this may be known to the emergency services either because they have traced the offender's number, or because he/she has confessed to making false alarm calls.

## 4.Female

## 5.Partner

## 6.Child

## 7.Recently separated/divorced

under ordinary circumstances, this variable would be coded if the separation has occurred not more than 6 months prior to the arson attack. If, however, circumstances make it clear that the offender still feels acrimony towards the partner or his/her new partner, then this variable would be coded.

## 8. Institution

this is coded if the offender is living in any kind of institution, e.g. hospital or juvenile detention centre.

## 9. Living with parents

the offender is living in the care of his/her parents or legal guardians

## 10. School pupil

if the offender is still of school age (i.e. 16 or under) then this is coded even if he/she is not actually attending a school.

## 11.Unemployed

this is only coded if the offender is chronically unemployed. If the offender was employed until just before the arson, or has a history of employment interspersed with short periods of unemployment, then the nature of the main type of employment is coded.

## 12.Manual work

either skilled or unskilled manual work, e.g. plumber, labourer, factory worker

## 13.HiQuals

this is coded if the offender has obtained secondary or tertiary qualifications of any kind.

## 14.White

### **15. Depression**

this is coded if the offender has come to the attention of psychiatric services and been diagnosed as suffering from depression, or if he/she has attempted or threatened self-harm behaviour. This may also be coded if the offender states that he/she feels depressed or if any person known to the offender has remarked that they seem to be depressed.

### **16. Psychosis**

again this is coded if the offender has received a psychiatric diagnosis of psychosis. This is also coded if he/she acts in an extremely bizarre way before, during or after the firesetting offence.

### **17. Personality disorder**

this is coded if the offender appears to be slightly 'abnormal' in any way, for example, has set a large number of fires previously. Juvenile firesetters who have a conduct disorder are also given the generic classification of personality disorder.

### **18. Psychiatric treatment**

if the offender has ever been in the care of psychiatric services, either as a voluntary or day-care patient, then this is coded.

### **19. Alcoholism**

this is coded if the offender appears to have a significant alcohol problem, for example if he/she has (had) relationship difficulties because of alcohol, or if he/she has a number of alcohol-related convictions.

### **20. Suicide**

this is coded if the offender has any history of threatened or actual self-harm.

### **21. Caution only**

if the offender has come to the attention of police, but not been formally charged with any offence, then this is coded as Caution Only.

### **22. School trouble**

this is coded if there is any history of behavioural or academic problems at school.

### **23. School before 16**

if the offender left school before the age of 16

### **24. Social Services**

if the offender, usually a juvenile, has come to attention of social services, e.g. if they have been taken away from their parents to a juvenile home.

### **25. AWOL**

at the time of setting the fire, the offender was supposed to be somewhere else, e.g. at school or at work.

## **Criminal History Variables**

### **1.Theft**

this includes all categories of theft (e.g. theft from a person, shoplifting and during the course of a burglary) except for theft from a car which was coded separately

### **2.Burglary**

residential and non-residential

### **3.TWOC**

this includes attempted and actual theft of a car

### **4.Theft from car**

this was coded if an offender broke or attempted to break into a car, whether or not any property was actually stolen

### **5.Drugs**

this includes convictions for both possession and supply of all categories of illegal drugs

### **6.Criminal damage**

this includes all forms of damage to property, except arson which was coded separately

### **7.Assault**

any form of assault including common assault, actual bodily harm and grievous bodily harm, as well as assaulting a police officer.

### **8.Public disorder**

offences involving an element of violence were combined (e.g. breach of the peace, threatening behaviour)

### **9.Arson**

### **10.Traffic**

this includes several traffic violations, e.g. driving while disqualified, no insurance and failing to display tax disc.

### **11.Robbery**

### **12.Weapon**

this includes possession and use of an offensive weapon

### **13.Drunk**

this category combines a number of offences, such as found drunk, drunk and disorderly and urinating in a public place



#### **14.Deception**

various forms of deception (e.g. obtaining pecuniary advantage by deception and forgery) were combined

#### **15.Police/courts**

a number of offences relating to the judicial process, such as failure to appear and non-payment of fine were subsumed under this category

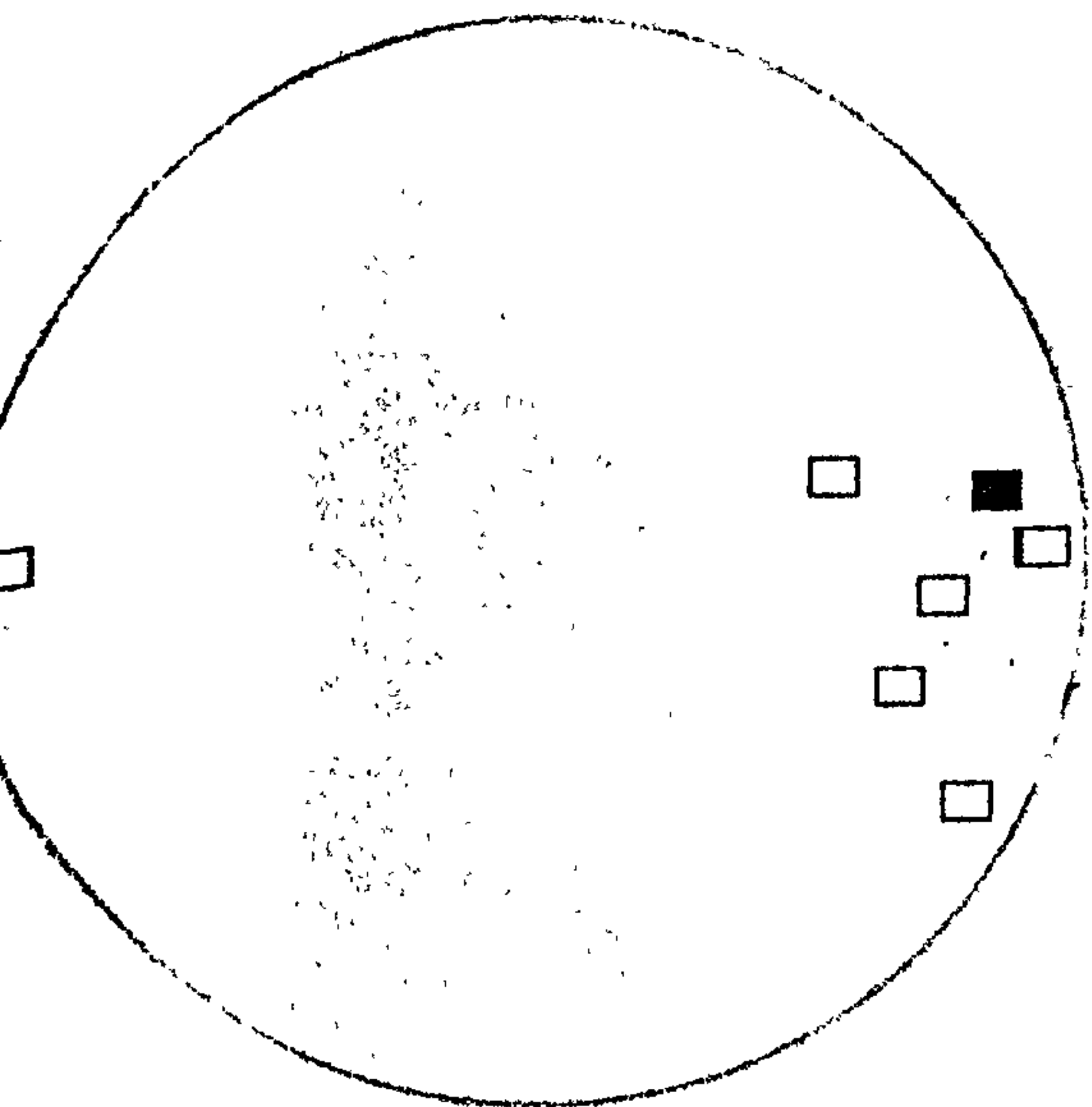
**Appendix D: Maps of serial arson**

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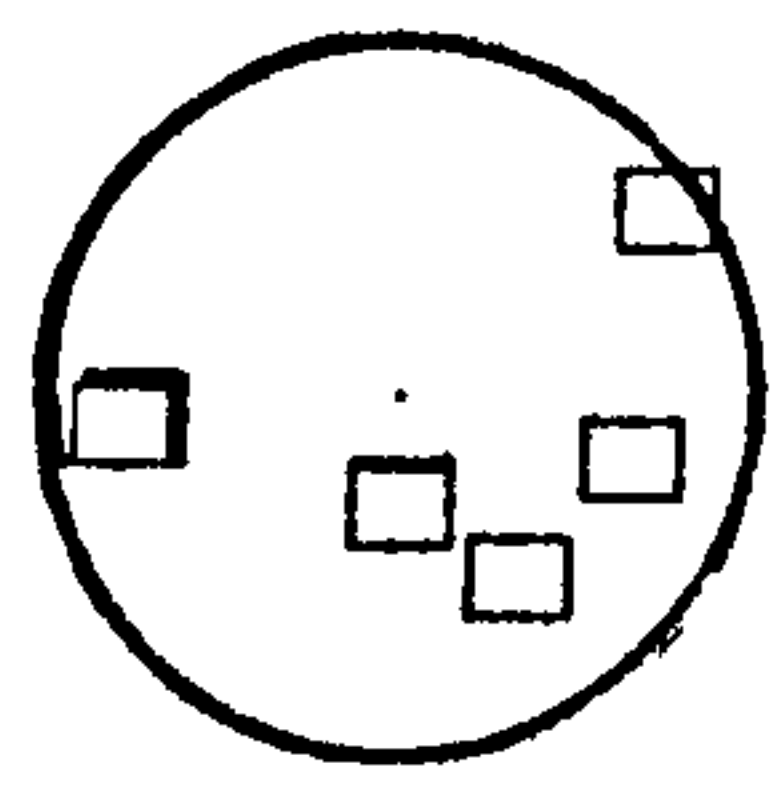


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■ Home / Base  
□ Offences

Case 20

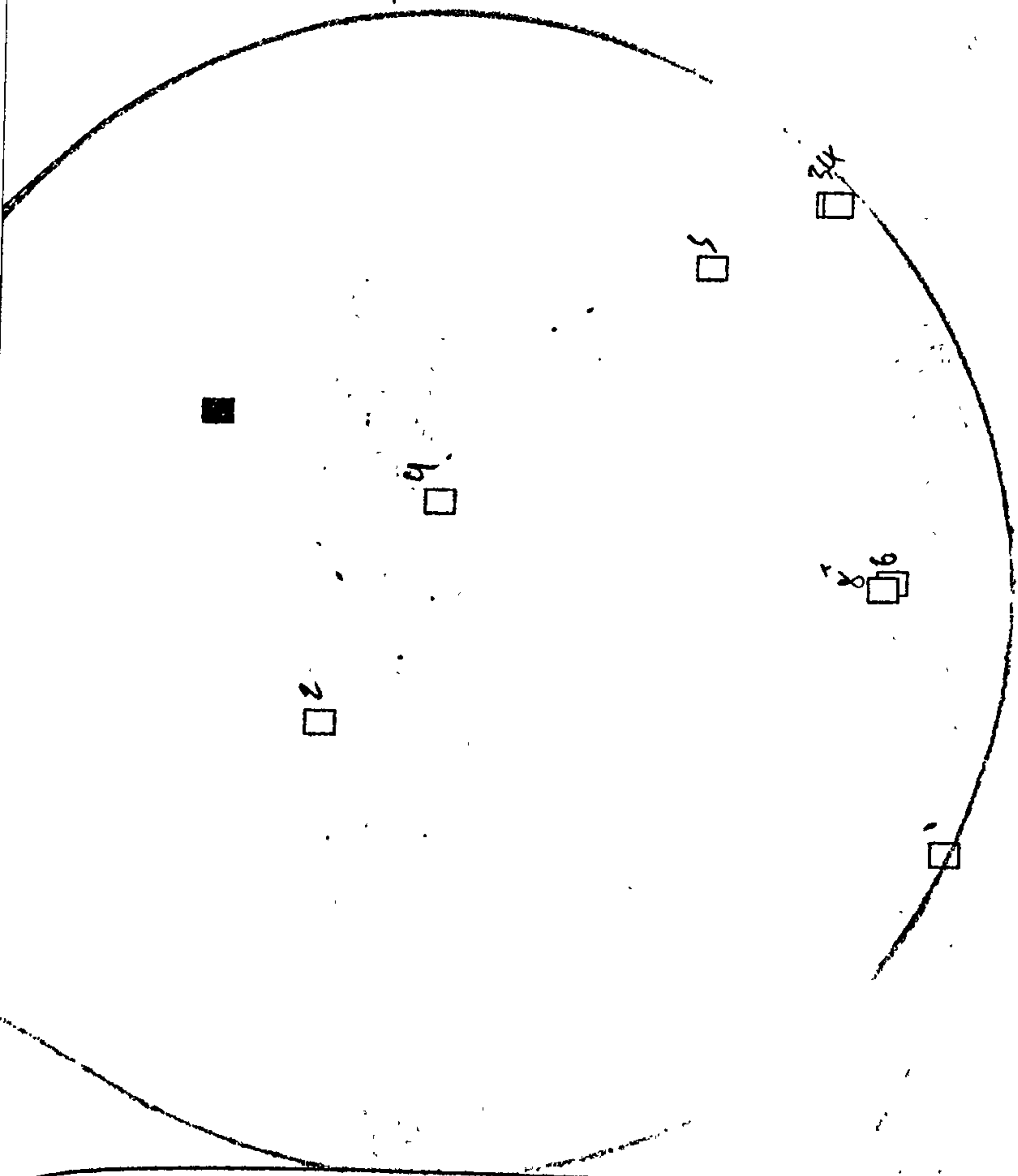


■ Home / Base  
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Care 26



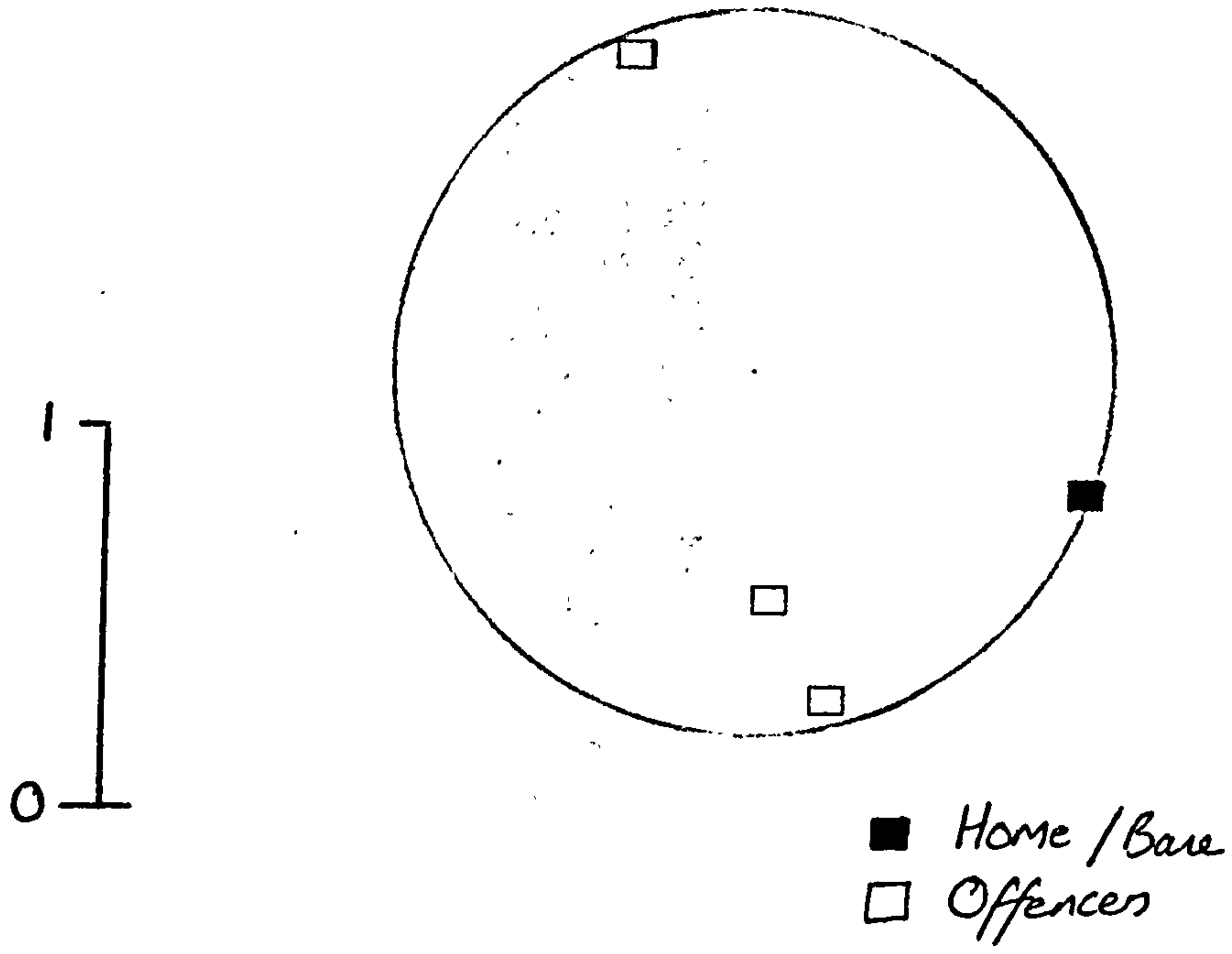
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■ Home / Base  
□ Offences

Case 93

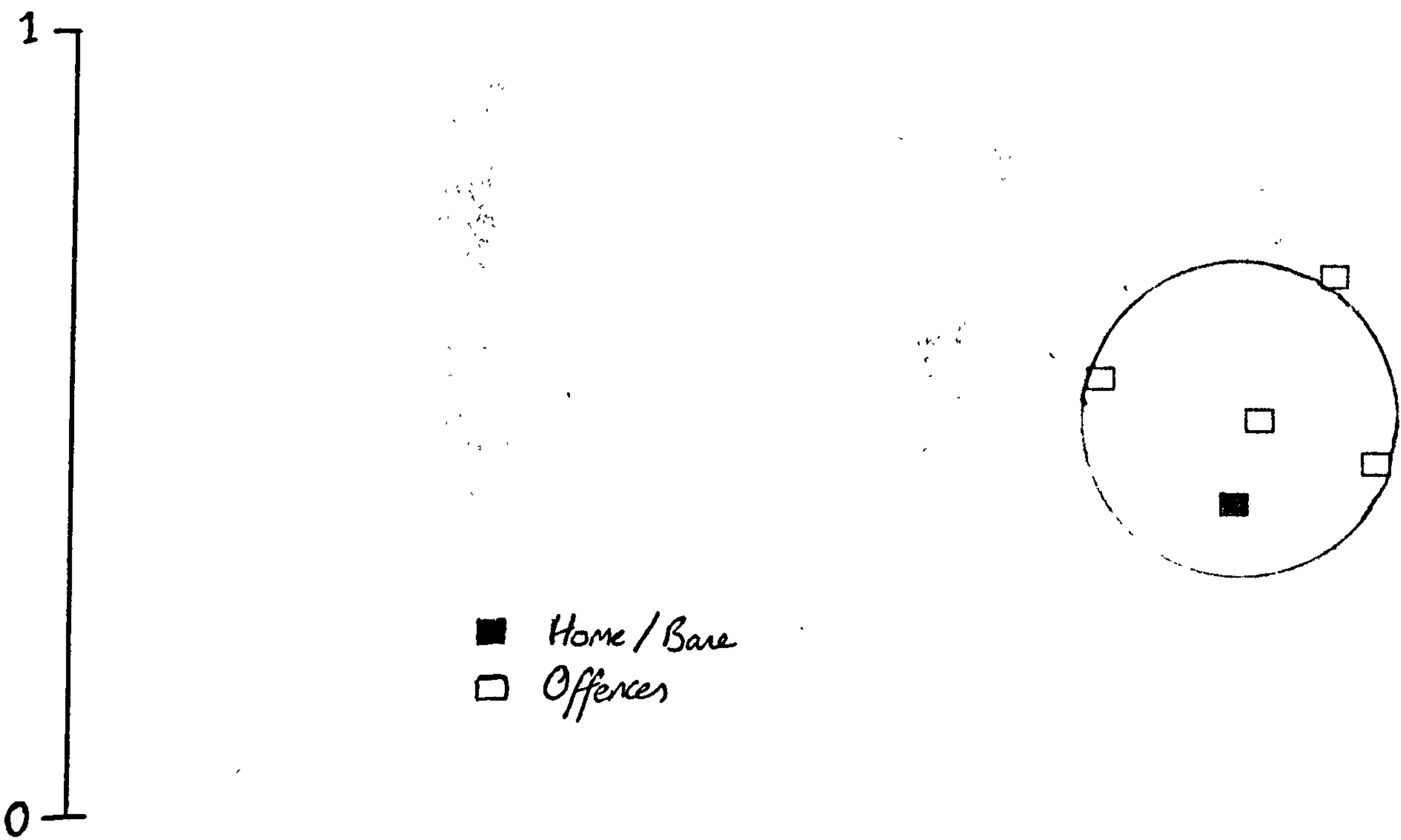
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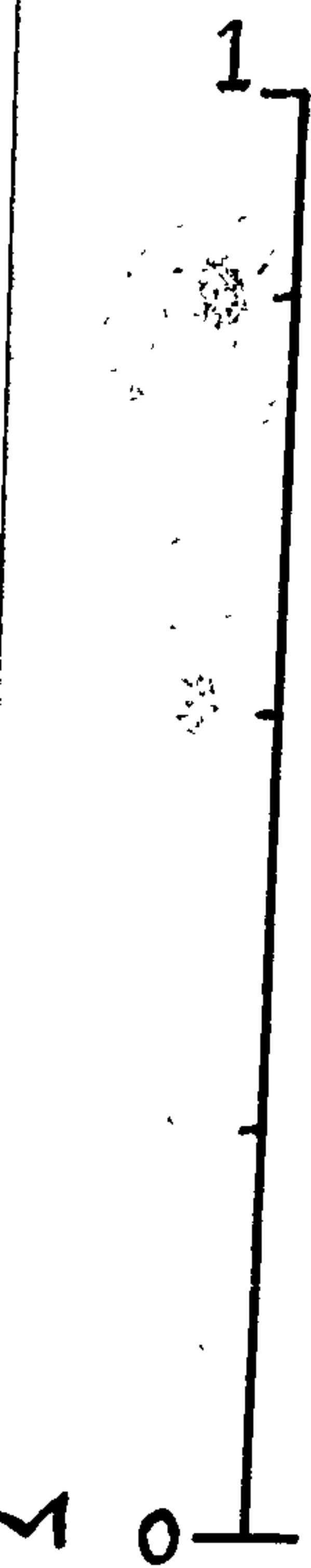
Case 109

What? ...

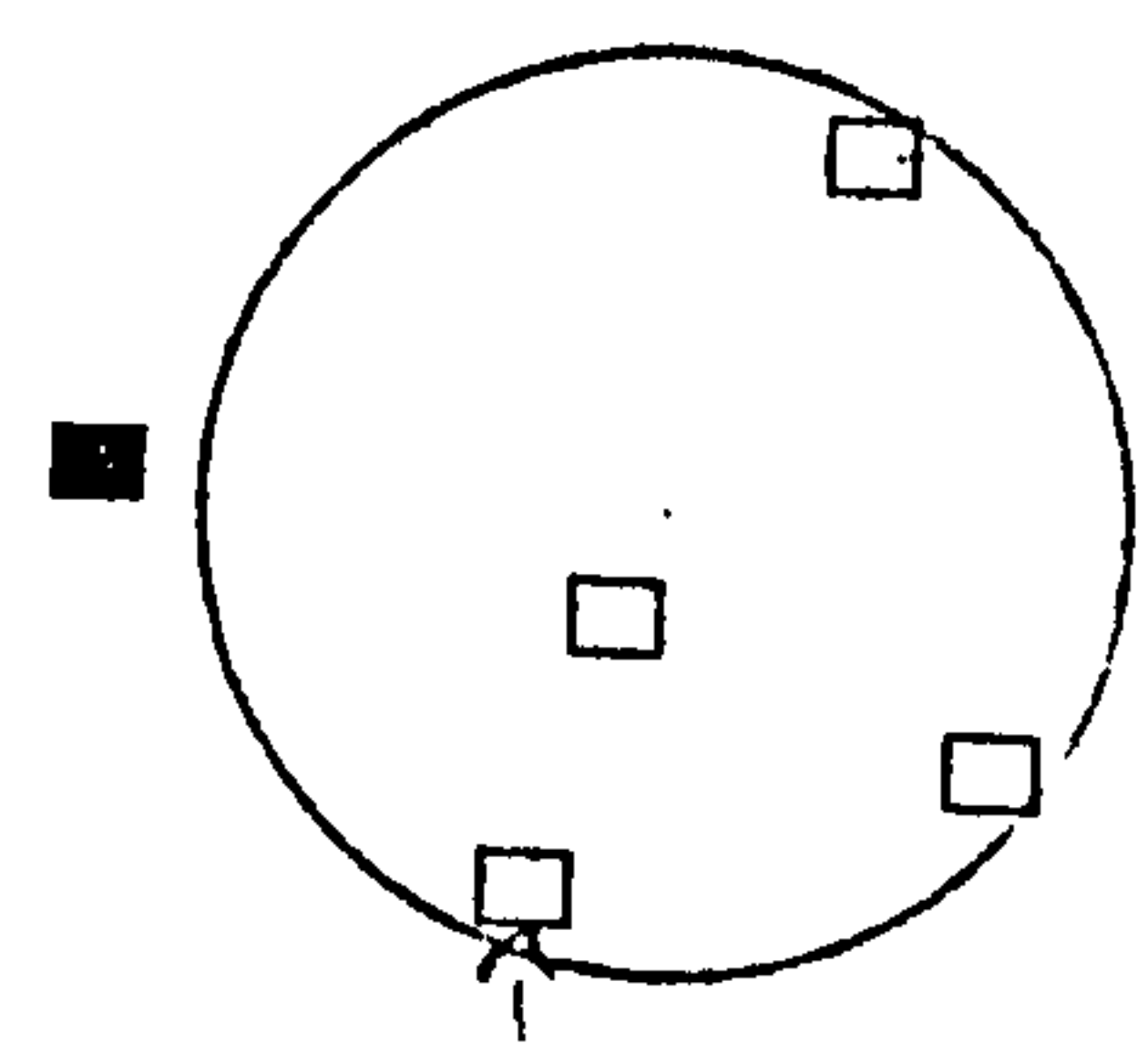


Case 171

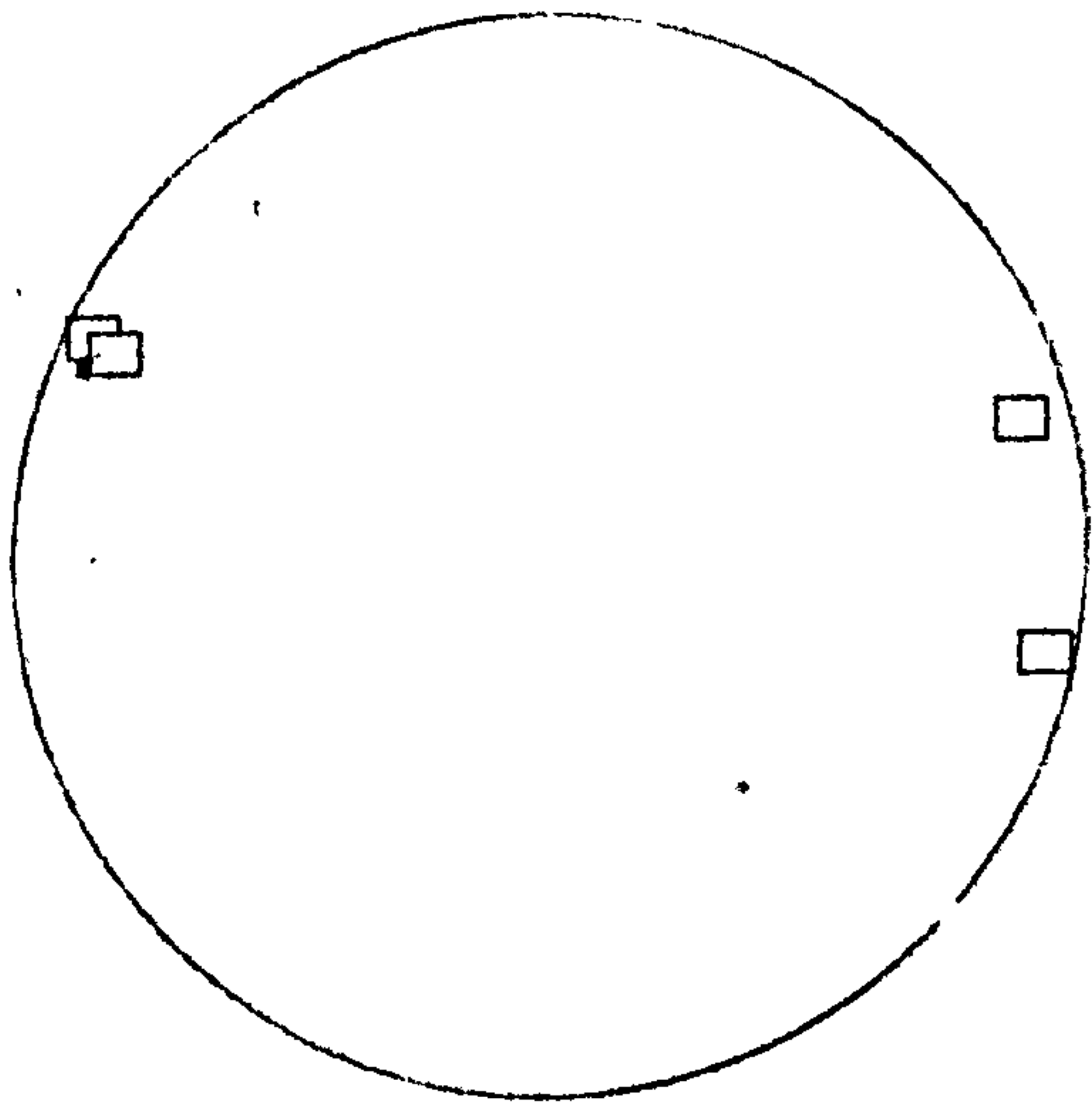




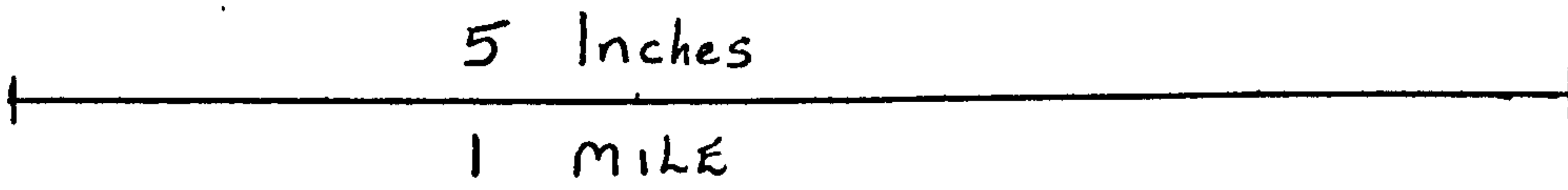
■ Home / Base  
□ Offences



Care 171



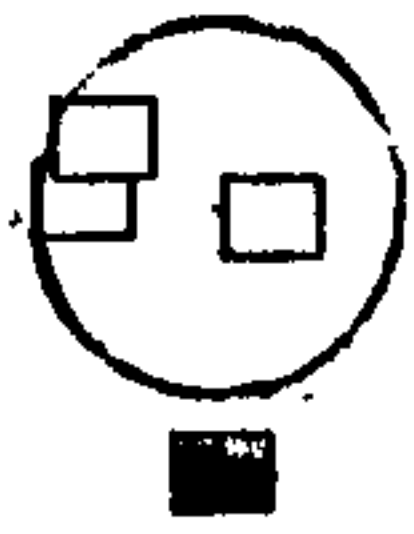
■ Homebase  
□ Offences



Case 220

St. Louis, Mo. Station.

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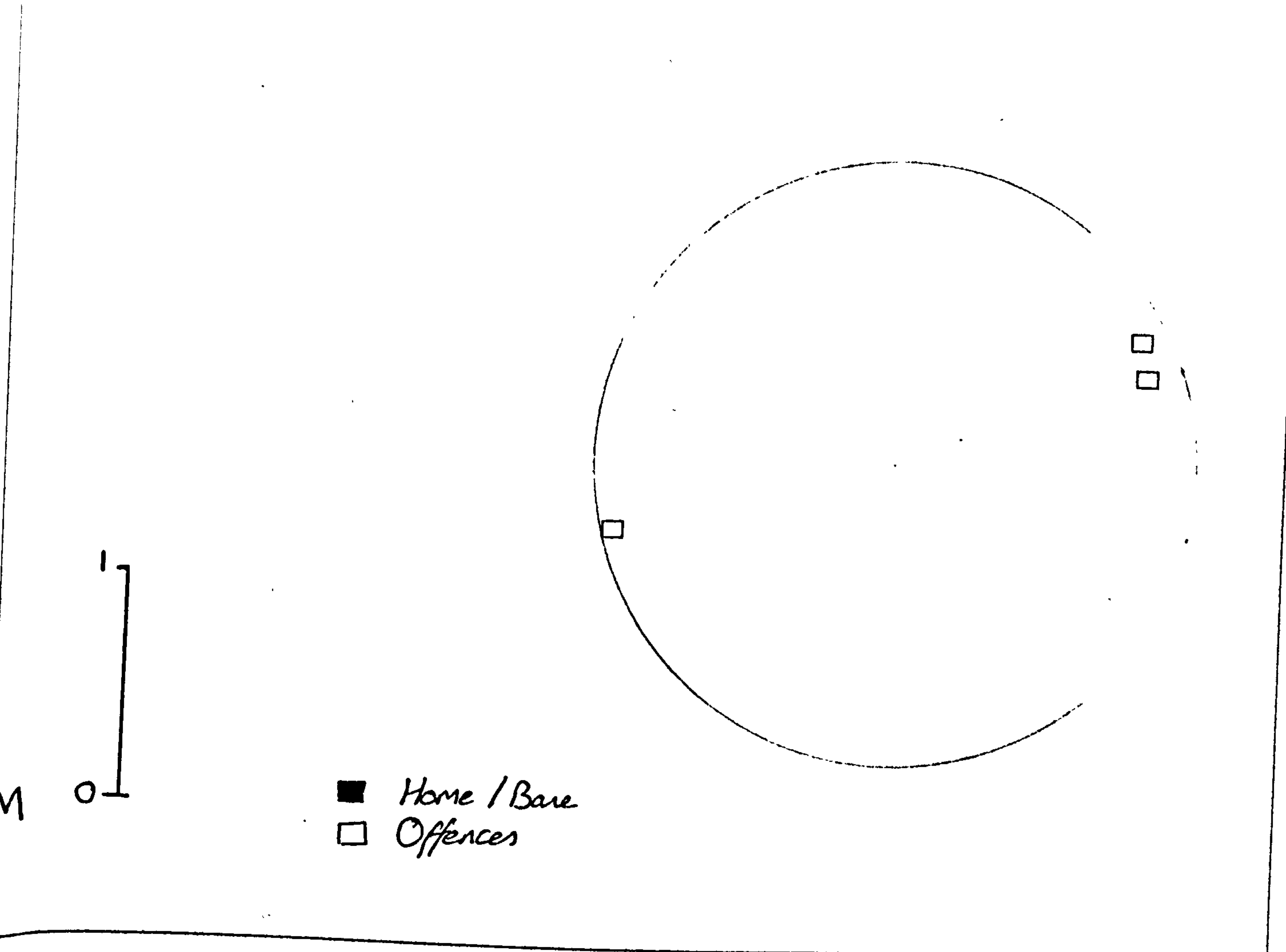


■ Home / Base  
□ Offences

Care 221

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Case 224

2013. 5. 15











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