are made if the alternative received is a deterrent this often causes termination of a case study. Figure 17 also shows that the same alternatives for two cues can have different effects depending on the order in which the information is received. Deterrent then attractive alternatives result in a lower rating than occasions when subjects received attractive then deterrent alternatives for the same cues.

Boxes 61 and 62 reveal an interesting occurrence. Even after the first three choices and alternatives are identical the effect of the alternative for the fourth cue choice can cause a great change in the mean rating (10.56 compared to 88.50). This shows how important even the third or fourth cue can be and how it can make the difference between a house being a highly likely break and enter opportunity or a highly unlikely break and enter opportunity. Boxes 61 and 62 are also a good illustration of the cumulative effect of cues. Before the fourth choice is made this target had two attractive alternatives and one deterrent alternative, so there was probably a certain amount of hesitation in the subjects’ minds. When the fourth choice revealed a deterrent alternative it was enough to cause a steep decline in the mean rating, but when the fourth choice resulted in an attractive alternative it shored up the subjects’ assessment of the target as a likely break and enter opportunity. This is where this thesis differs from previous research in that one can see the cumulative effect of a myriad of cues and various alternatives ranging from attractive, neutral through to deterrent. The results give an insight into the complicated interaction between the offender’s background, experience and skill level and various combinations of cues and alternatives. Boxes 61 and 62 demonstrate that leaving the lights and radio on inside the house can act as a deterrent, however the effect is relative and can be weakened or strengthened by other cues.

DECISION TREE FOR ALL OCCASIONS WHEN CUE 1 (DOG) WAS CHOSEN FIRST

Figure 18 displays the decision tree that starts with the third most common initial cue selection, which was cue 1 (dog, n=368). The left-hand side of Figure 18 shows that on 198 occasions the deterrent alternative was received (dog barking loudly), which
produced a mean rating of 48.91 (Box 2). On 170 occasions when cue 1 (dog) was chosen first the attractive alternative was received, resulting in a mean rating of 58.45. The left-hand side of Figure 18 will be described first (Boxes and Circles 2 to 25) and then the right-hand side of Figure 18 (Boxes and Circles 26 to 48) will be described.

Of the 198 instances where cue 1 (dog) was chosen and the deterrent alternative was received, on one occasion no more information was required (Circle 11). The remaining second selections were spread across eight cues – cue 3 (alarm, n=123, Box 3), cue 4 (occupancy - lights/tv/radio, n=11, Box 4), cue 5 (occupancy - car in driveway, n=13, Box 5), cue 8 (locks, n=1, Box 6), cue 12 (location, n=22, Box 7), cue 13 (people in the street, n=13, Box 8), cue 14 (neighbourhood watch, n=12, Box 9) and cue 16 (inside information, n=2, Box 10).

Figure 18 shows the effect of the two alternatives for the 123 occasions when cue 3 (alarm, Boxes 12 and 13) was chosen after the deterrent alternative was received for the first choice of cue 1 (dog). Box 12 shows that on 71 occasions cue 1 (dog) was chosen and the deterrent alternative was received resulting in a mean rating of 48.59. Then cue 3 (alarm) was chosen and the deterrent alternative was revealed causing the mean to fall to 28.45.

Box 13 shows that on 52 occasions cue 1 (dog) was chosen and the deterrent alternative was received producing a mean rating of 43.85. Then cue 3 (alarm) was chosen and the attractive alternative was received, resulting in a rise in the mean rating to 68.17. Boxes 12 and 13 show that even the deterrent effect of a good alarm can be weakened or strengthened by subsequent cues.

On the 71 occasions when cue 3 (alarm) was chosen and the deterrent alternative was received after the deterrent alternative was received for the first selection of cue 1 (dog), there were four occasions when no more information was selected (Circle 17).
Across all case studies & all
1st choice

(1) Cue DOC N=36

(2) DOG YES n=198 mean=48.91

(3) Cue 3 Alarm n=123
(4) Cue 4 Occupancy-Lights/TV n=11
(5) Cue 5 Occupancy-Car in drive n=13
(6) Cue 8 Locks n=1
(7) Cue 12 Location n=22
(8) Cue 13 People in street n=13
(9) Cue 14 NW n=12
(10) Cue 16 Inside information n=2

(11) No second choice n=1

(12) Alarm YES n=71
(13) Alarm NO n=52
mean=28.45 mean=68.17
[1-48.59] [1-43.85]

(14) Cue 4 Occupancy-Lights/TV n=50
(15) Cue 5 Occupancy-Car in drive n=15
(16) Cue 13 People in street n=2

(17) No third choice n=4

(18) Cue 4 Occupancy-Lights/TV n=30
(19) Cue 8 Locks n=3
(20) Cue 13 People in street n=3

(21) No third choice n=16

(22) Lights/TV YES n=30
mean=6.33
[1-49.00] [2-30.67]
(23) Lights/TV NO n=20
mean=36.00
[1-51.00] [2-31.00]

(24) Lights/TV YES n=10
mean=33.00
[1-53.00] [2-51.00]
(25) Lights/TV NO n=20
mean=62.50
[1-50.00] [2-62.00]

LEGEND
[1-....] previous means for this sub-sample only, after first selection.
[2-....] previous means for this sub-sample only, after second selection.
General stopping rule- splitting stops, if a subsequent split leaves a sub-sample with an 'n' of less than 30.
Figure 18: Decision tree for all occasions when cue 1 (dog) was chosen first.
The remaining third choices were spread across three cues – cue 4 (occupancy - lights/tv/radio, n=50, Box 14), cue 5 (occupancy - car in driveway, n=15, Box 15) and cue 13 (people in the street, n=2, Box 16). Figure 18 shows the effect for the two alternatives for cue 4 (occupancy - lights/tv/radio, Boxes 22 and 23) when it was the third choice.

Box 22 shows that on 30 occasions cue 1 (dog) was chosen and the deterrent alternative was revealed resulting in a mean rating of 49.00. The second selection was cue 3 (alarm) and the deterrent alternative was uncovered causing the mean to fall to mean 30.67. Then cue 4 (occupancy - lights/tv/radio) was chosen and the deterrent alternative was exposed with the mean rating falling to 6.33.

It is worth noting at this stage the comparison between Box 22 (Figure 18), Box 51 (Figure 17, p. 192) and Box 48 (Figure 18). In Boxes 22, 51 and 48, the same three cues are selected: cue 1 (dog), cue 3 (alarm) and cue 4 (occupancy - lights/tv/radio). In Box 22 the alternatives revealed were – deterrent, deterrent, deterrent, while in Box 51 and 48 the alternatives were – attractor, attractor, attractor. The difference in the third mean rating is quite different. The mean rating was 6.33 for Box 22. On the other hand the mean rating was 85.25 for Box 48 and 97.50 for Box 51. This shows the strong effect of three frequently chosen cues if the deterrent alternative is present. From a prevention aspect, one could have the deterrent alternative for each of these three cues when one is not even at home. One could fit an alarm, have a dog, and make sure to turn on the lights, television, or radio when one goes out. This would have great deterrent influence, compared to the attractive alternative for each of these three cues.

Box 23 shows that on 20 occasions cue 1 (dog) was chosen and the deterrent alternative was revealed, which produced a mean rating of 51.00. The second choice was cue 3 (alarm) and the deterrent alternative was received, which reduced the mean rating to 31.00. The third choice was cue 4 (occupancy - lights/tv/radio) and the attractive alternative was uncovered making the mean rating rise to 36.00.
Of the 52 occasions cue 3 (alarm, Box 13) was chosen and the attractive alternative received after initially choosing cue 1 (dog) and receiving the deterrent alternative, there were 16 instances when no more information (Circle 21) was selected. The remaining third choices were distributed between three cues – cue 4 (occupancy-lights/tv/radio, n=30, Box 18), cue 8 (locks, n=3, Box 19) and cue 13 (people in the street, n=3, Box 20). Figure 18 displays the effect of the two alternatives for the 30 occasions when cue 4 (occupancy-lights/tv/radio, Boxes 24 and 25) was the third choice.

Box 24 shows that on ten occasions cue 1 (dog) was chosen first and the deterrent alternative was revealed, which resulted in a mean rating of 53.00. The second choice was cue 3 (alarm) and the attractive alternative was received, which resulted in a minimal change to the mean rating (51.00). The third choice was cue 4 (occupancy-lights/tv/radio) and the deterrent alternative was exposed, which caused the mean rating to decline to 33.00.

Box 25 shows that on 20 occasions cue 1 (dog) was the first choice. When the deterrent alternative was received it produced a mean rating of 50.00. The second choice was cue 3 (alarm) and when the attractive alternative was revealed, the mean rating rose to 62.00. The third choice was cue 4 (occupancy-lights/tv/radio) and the revealing of the attractive alternative resulted in a slight increase in the mean rating to 62.50.

This discussion of Figure 18 now continues with the right-hand side of the decision tree. On 170 occasions cue 1 (dog) was chosen first and the attractive alternative was received. Box 28 shows that the most popular second choice was cue 3 (alarm, 81.8%, n=139). The effect of the two alternatives for cue 3 (alarm) are displayed in Boxes 32 and 33. Both sub-samples produced similar mean ratings after the first choice – 73.70 (Box 32) and 75.86 (Box 33). One can see the effect of the deterrent and attractive alternatives for the second choice – cue 3 (alarm). The 81 times the deterrent alternative was received the mean fell from 73.70 to 46.91, whereas on the
58 occasions when the attractive alternative was received the mean increased slightly from 75.86 to 77.93.

Both sub-samples (Box 32, n=81 and Box 33, n=58) went on to make numerous third choices. However there were ten occasions when no more information was sought (Circle 34 and Circle 44). By far the most common choice for both sub-samples was cue 4 (occupancy - lights/tv/radio). This process demonstrates the probable decision making process of the subjects on the right-hand side of Figure 18. First, they check if the house has any permanent protection – cue 1 (dog) and cue 3 (alarm). Then regardless of what they find they proceed to inquire if anyone is home. One can deduce the effect of the different combinations of alternatives. On those occasions where the deterrent alternative for cue 3 (alarm) and cue 4 (occupancy - lights/tv/radio, Box 45) is received, the result is a mean rating of 19.31, which indicates a highly unlikely B&E. On the occasions where the attractive alternative for cue 3 (alarm) and cue 4 (occupancy - lights/tv/radio, Box 48) is revealed a mean rating of 85.25 is produced, which indicates a highly likely B&E. On the other hand, the instances where a deterrent alternative for cue 3 (alarm) is followed by the attractive alternative for cue 4 (occupancy - lights/tv/radio, Box 46), or an attractive alternative for cue 3 (alarm) is followed by a deterrent alternative for cue 4 (occupancy - lights/tv/radio, Box 47) the resulting mean ratings indicate indecision – 58.26 in Box 46 and 52.50 in Box 47. The right-hand side of Figure 18 shows that the subjects who made these choices are still willing to consider a house as a possible target after they have assessed the protectors of the house – cue 1 (dog) and cue 3 (alarm). However, when they proceed to check for signs of occupancy – cue 4 (lights/tv/radio), they are really swayed one way or the other.

**SUMMARY**

Figure 18 allows the comparison of the cumulative effect of three deterrent alternatives compared to three attractive alternatives for the same three cues. When cue 1 (dog), cue 3 (alarm) and cue 4 (occupancy - lights/tv/radio) are selected and the alternatives received are all deterrents the mean rating is extremely low. When the
alternatives for these three cues are all attractive the mean rating is very high. The important point from a B&E prevention aspect is that an occupier of a dwelling can have the deterrent alternative for these three cues present even when they are not at home. Figure 18 also shows that on occasions subjects may not make up their minds until they have selected numerous cues. If subjects receive attractive and deterrent information they often rely on third or fourth choices to decide on the vulnerability of a target. From a prevention perspective this means deterrent alternatives for less commonly chosen cues can become important if initial cue selections lead to inconclusive or conflicting information.

DECISION TREE FOR ALL OCCASIONS WHEN CUE 13 (PEOPLE IN THE STREET) WAS CHOSEN FIRST

Figure 19 depicts the decision tree for the occasions when cue 13 (people in the street) was the first choice. On 241 occasions cue 13 (people in the street) was chosen first (Box 1). On 103 occasions the deterrent alternative was received and the mean rating was 29.22 (Box 2). In 138 instances the attractive alternative was received and the mean rating was 61.96 (Box 13). After the first choice of cue 13 (people in the street) where the deterrent alternative (many people out mowing lawns and washing cars etc) is received, the most common second choice (46.6%, n=48) was cue 14 (neighbourhood watch). This is the only time in the four figures (Figures 16, 17, 18 and 19) that cue 14 (neighbourhood watch) is the most common second choice. When conducting the tests with the subjects this was noticed and subjects were asked why they selected cue 14 (neighbourhood watch) after they got the deterrent alternative for cue 13 (people in the street) for their first choice. Subjects stated that people in the street did not make a potential target a total loss, as often people in a street do not even notice you are there. The reason they checked cue 14 (neighbourhood watch) was that they believed that neighbours in a Neighbourhood Watch area had the potential to be more curious. This shows that some cues have almost symbiotic relationships to other cues.
Across all case studies & all sub samples

(1) 1st choice
Cue 13
PEOPLE IN STREET
N=241

(2) PEOPLE IN STREET
YES
n=103
mean=29.22

(3) Cue 3
Alarm
n=23

(4) Cue 4
Occupancy-Lights/TV
n=9

(5) Cue 5
Occupancy-Car in drive
n=23

(6) Cue 14
NW
n=48

(7) Alarm
YES
n=11
mean=2.73
[1-31.82]

(8) Alarm
NO
n=12
mean=53.33
[1-32.50]

(9) Cue 5
Occupancy-Car in drive
YES
n=12
mean=25.83
[1-25.00]

(10) Cue 5
Occupancy-Car in drive
NO
n=11
mean=37.27
[1-31.82]

(11) NW
YES
n=48
mean=31.04
[1-32.92]

(12) NW
NO
n=0

LEGEND
[1-....]: previous means for this sub-sample only, after first selection.
[2-....]: previous means for this sub-sample only, after second selection.
General stopping rule- splitting stops, if a subsequent split leaves a sub-sample with an 'n' of less than 30.
Figure 19: Decision tree for all occasions when cue 13 (people in street) was chosen first.

(13) PEOPLE IN STREET
  NO
  n=138
  mean=61.96

(14) Cue 1
    Dog
    n=10

(15) Cue 3
    Alarm
    n=60

(16) Cue 4
    Occupancy
    Lights/TV
    n=1

(17) Cue 5
    Occupancy
    Car in drive
    n=44

(18) Cue 12
    Location
    n=9

(19) Cue 14
    NW
    n=12

(20) No second choice
    n=2

(21) Alarm
    YES
    n=35
    mean=9.29
    [1-50.57]

(22) Alarm
    NO
    n=25
    mean=65.80
    [1-54.40]

(23) Cue 5
    Occupancy
    Car in drive
    YES
    n=22
    mean=55.91
    [1-60.91]

(24) Cue 5
    Occupancy
    car in drive
    NO
    n=22
    mean=70.45
    [1-60.45]

(25) No third choice
    n=35

(26) Cue 4
    Occupancy
    Lights/TV
    n=1

(27) Cue 5
    Occupancy
    Car in drive
    n=20

(28) Cue 5
    Occupancy
    Car in drive
    YES
    n=11
    mean=60.00
    [1-50.00]
    [2-60.00]

(29) Cue 5
    Occupancy
    Car in drive
    NO
    n=9
    mean=81.11
    [1-58.89]
    [2-69.44]
Three other symbiotic relationships were discovered during the testing with the subjects. They all involve cue 13 (people in the street) with the following cues:

1. cue 17 (street type);
2. cue 3 (alarm); and
3. cue 1 (dog).

These symbiotic relationships are examined in a section after the discussion of Figure 19. Unfortunately, we do not get to see the contrasting alternative for cue 14 (neighbourhood watch) in Figure 19, because there were no instances when subjects received the attractive alternative for their second selection of cue 14 (neighbourhood watch, Box 12). Box 11 shows that for the 48 occasions where cue 13 (people in the street) was chosen first and cue 14 (neighbourhood watch) was selected second that the deterrent alternative was always received, which caused the mean rating to fall slightly from 32.92 to 31.04.

Box 7 shows the strong prevention effect when the deterrent alternative is received in succession for cue 13 (people in the street) and cue 3 (alarm). The mean rating is 2.73. This is the second lowest mean after the second choice in the four figures (Figures 16, 17, 18 and 19). The lowest mean rating is 0.0 (Box 15 in Figure 17), which is given after the same two cues – cue 3 (alarm) and cue 13 (people in the street) – but in reverse order to Box 7 in Figure 19. When conducting the testing with the subjects this was noticed. Subjects were asked why the combined deterrent alternatives for cue 3 (alarm) and cue 13 (people in the street) caused such low mean ratings. The subjects responded similarly, stating that a good alarm, or a barking dog are good deterrents, but they are not as effective if a street is totally deserted and no neighbours appear after the alarm and/or dog have been making lots of noise. The subjects stated that about the worst combination (strongest deterrent) from their point of view is an alarm ringing and/or a dog barking and neighbours out taking notice. Many subjects gave examples stating that there are many streets where dogs bark all day and the neighbours take little notice.
Boxes 9 and 10 show that either alternative for cue 5 (occupancy - car in driveway) had a marginal effect on the mean rating. When the deterrent alternative was revealed the mean rating changed only slightly from 25.00 to 25.83 (Box 9). When the attractive alternative was received it caused slight change in the mean rating from 31.82 to 37.27 (Box 10).

The discussion of Figure 19 continues with a description of the right-hand side of the decision tree. This is when cue 13 (people in the street) was selected first and the attractive alternative (the street is very quiet and no one is around) was received. Circle 20 shows that on two occasions no more information was required. The remaining 136 second choices were spread across six cues – cue 1 (dog, n=10, Box 14), cue 3 (alarm, n=60, Box 15), cue 4 (occupancy - lights/tv/radio on inside house, n=1, Box 16), cue 5 (occupancy - car in drive, n=44, Box 17), cue 12 (location, n=9, Box 18) and cue 14 (neighbourhood watch, n=12, Box 19). The effects of the two alternatives for the two most popular second choices – cue 3 (alarm, Boxes 21 and 22) and cue 5 (occupancy - car in driveway, Boxes 23 and 24) – are presented in Figure 19. The effect of the deterrent alternative for cue 3 (alarm) caused the mean rating to fall from 50.57 to 9.29 (Box 21), while the attractive alternative raised the mean rating from 54.40 to 65.80 (Box 22). Boxes 23 and 24 show that the two alternatives for cue 5 (occupancy - car in driveway) had a marginal effect on the mean rating. The effect of the deterrent alternative caused the mean rating to lower from 60.91 to 55.91, while the attractive alternative caused the mean rating to rise from 60.45 to 70.45.

Circle 25 shows that on the 35 occasions no more information was required after cue 13 (people in the street) was chosen first and the attractive alternative was received and then cue 3 (alarm) was chosen and the deterrent alternative was revealed. The 25 choices in Box 22 continue to a further selection. The third choices were spread across three cues – cue 1 (dog, n=4, Box 26), cue 4 (occupancy - lights/tv/radio, n=1, Box 27) and cue 5 (occupancy - car in driveway, n=20, Box 28). The most common (83.3%) third choice was cue 5 (occupancy - car in driveway, Box 28).
Box 29 shows that the third choice of cue 5 (occupancy - car in driveway) did not affect the mean rating when the deterrent alternative was revealed. The mean rating remained on 60.00. Box 30 is a good example of the cumulative effect of three attractive alternatives. First cue 13 (people in the street) was selected and the attractive alternative was received, which produced a mean rating of 50.00. The second choice was cue 3 (alarm) and the attractive alternative was revealed, which raised the mean rating to 69.44. Finally, the third choice was cue 5 (occupancy - car in driveway) and the exposure of the attractive alternative increased the mean rating to 81.11.

SUMMARY

The decision tree in Figure 19 showed that alternatives to some cues could trigger the selection of other cues. For example, when cue 13 (people in the street) was selected and the deterrent alternative (many people out washing cars and mowing lawns etc) was revealed nearly half (46.6%) of the next selections were for cue 14 (neighbourhood watch). When cue 13 (people in the street) was selected and the attractive alternative (the street is quiet no one is around) was present only 8.7% of subsequent selections were for cue 14 (neighbourhood watch).

Cue 13 (people in the street) could have a relationship with four cues – cue 1 (dog), cue 3 (alarm), cue 14 (neighbourhood watch) and cue 17 (street type). These are discussed in the final section of this chapter. This interdependence between some cues and their alternatives show how one cannot examine cues in isolation. Cues must be considered in the context of other cues and their alternatives.

REMAINING FIRST SELECTIONS

The discussion of Figures 16 to 19, covered 1762 of all 1920 first selections. The other 158 first selections were spread across eleven other cues, while two cues were never chosen first – cue 9 (garage), and cue 11 (garden). Table 19 shows the effect
of the two alternatives, where possible, for the 15 cues that were chosen first. For example, cue 1 (dog) was chosen first on 369 occasions. In 170 instances the attractive alternative was received. The mean rating given after this first choice was 58.45. On 198 occasions the deterrent alternative was received, which resulted in a mean rating of 48.91. Cue 4 (occupancy - lights/tv/radio) was chosen first on 13 occasions. The attractive alternative was always received, which resulted in a mean rating of 63.08. Table 19 shows that when cue 4 (occupancy - lights/tv/radio) was chosen first the deterrent alternative was never received.

As noted earlier, Figure 19 illustrated that some cues may have almost symbiotic relationships. A good alarm or a barking dog are less of a deterrent in a quiet street and more of a deterrent in a street where neighbours are present. The next section discusses cues with symbiotic relationships.

SYMBIOTIC RELATIONSHIPS BETWEEN CUES

Earlier, mention was made of some symbiotic relationships that may exist between cue 13 (people in the street) and:

1. cue 14 (neighbourhood watch);
2. cue 17 (street type);
3. cue 3 (alarm); and
4. cue 1 (dog).

While conducting the testing for Study Two these four combinations were often chosen together. For example, a subject would choose cue 13 (people in the street) and if they received the deterrent alternative (many people out washing cars and mowing lawns etc) they would then choose cue 14 (neighbourhood watch) or cue 17 (street type). For combinations 3 and 4, the order was reversed. By way of example, a subject would choose cue 1 (dog) or cue 3 (alarm) and if they received the deterrent alternative for either cue they would then choose cue 13 (people in the street).