

# Modelling Police Officers' Judgements of the Veracity of Suicide Notes<sup>1</sup>

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*Nous avons examiné jusqu'à quel point le jumelage heuristique peut représenter le processus décisionnel des agents de police lors de l'évaluation de la véracité d'une note de suicide. Pour ce faire, on a demandé à trente-six agents de police de lire chacun 30 notes de suicide sélectionnées au hasard et de distinguer les vrais des fausses. Les résultats ont indiqué que le modèle rapide et facile du jumelage heuristique donne une approximation précise du processus décisionnel des agents. Toutefois, le rendement des agents équivalait au niveau du hasard pour ce qui est de la précision absolue de leurs décisions. On explique ensuite les conséquences de ces résultats sur la représentation des décisions professionnelles et la création potentielle de programmes de formation policière.*

*Mots clés : respect de la loi, suicide, prise de décision, rationalité limitée, modèles psychologiques, analyses des morts suspectes*

*We examined the extent to which the decision-making process employed by police officers when making judgements regarding the veracity of suicide notes could be modelled accurately by the Matching Heuristic (MH). Thirty-six officers each read 30 randomly selected suicide notes and were asked to decide whether each was genuine or fake. Results indicate that the fast and frugal MH model is an accurate approximation of the officers' decision making. However, the officers performed at chance levels with respect to the absolute accuracy of their decisions. The implications of these findings for modelling professionals' decisions and potential police training programs are discussed.*

*Keywords: law enforcement, suicide, decision making, bounded rationality, psychological models, equivocal death analysis*

Within the realm of judgement and decision-making (JDM) studies, there is an ongoing debate, known as the rationality debate, on the subject of human decision-making complexity and level of information processing (see Gigerenzer, Todd, and the ABC Research Group 1999; Gilovich, Griffin, and Kahneman 2002; Kahneman, Slovic, and

Tversky 1982). Along this dimension of complexity, there is a gradient that ranges from extremely simple and uncomplicated decision-making strategies, known as heuristics, to complex and computationally expensive strategies, referred to as fully rational (Payne, Bettman, and Johnson 1993). Much recent bounded-rationality research has established that people use simple heuristics to make a range of decisions that lead to adaptive and successful outcomes (see Gigerenzer 2008). Interestingly, this simple heuristic research has begun to shift away from modelling somewhat benign tasks (e.g., predicting the largest of two cities; see Gigerenzer and Goldstein 1996) toward consequential, real-world decisions in domains ranging from medicine to law (e.g., Dhimi 2003; Dhimi and Ayton 2001; Dhimi and Harries 2001; Smith and Gilhooly 2006). The purpose of the current study is to continue this progression by examining the possibility of modelling judgements made by police officers regarding the veracity of suicide notes.

According to Goldstein and Hogarth (1997), debate regarding rationality initially favoured fully rational strategies as the ideal standard of human judgement and this provided the ground against which bounded-rationality research emerged. More recently, Gigerenzer et al. (1999) developed a number of fast and frugal strategies that could be empirically tested and compared to more complex strategies in real-world environments. These simple heuristics are each composed of, and differentiated by, three main components: (1) guide for information search, (2) rules for stopping search, and (3) rules for decision making based on results from the first two steps. By differentially combining these components, heuristics such as Take the Best were conceptualized (see Gigerenzer and Goldstein 1996). In a number of studies comparing the predictive accuracy of these heuristics against that associated with more complex models, it was found that the simple heuristics performed as well or better on a variety of decision tasks. For example, Czerlinski, Gigerenzer, and Goldstein (1999) found that the Take the Best heuristic performed as well as more complex statistical formulae on 20 different prediction tasks (e.g., predicting the number of car accidents along a stretch of highway and predicting high school drop-out rates).

Similarly, Dhimi and Ayton (2001) developed the Matching Heuristic (MH), which has been the focus of a significant amount of empirical testing (Dhimi 2003; Dhimi and Harries 2001; Kee, Jenkins, McIlwaine, Patterson, Harper, and Shields 2003; Smith and Gilhooly 2006). The MH can presumably be used to model any

binary decision in which decision makers have multiple pieces of information (cues) available to them. The MH conforms to the three components of any simple heuristic discussed earlier. First, the MH searches through information according to the descending utilization validity of each cue, which represents the frequency with which a particular cue value coincides with the non-default of the two decision outcomes. Secondly, the search for information is stopped when a cue is found that allows a decision to be made. (Returning to the example, a police officer may be able to render a decision after using only two pieces of information, and therefore stops searching for more information). Thirdly, the MH offers a model of decision making that contains only the cue that led to a stop in the search for information, together with the cues, if any, that were searched before that cue was reached (see procedure for a more detailed description of the MH).

As mentioned, a number of studies have been conducted that compared the ability of the MH to model human decision making with that of more complex strategies. The consistent and robust finding from this body of research is that the MH, at a minimum, equals the performance levels of a variety of more complex strategies and does so by ignoring much of the available information. For example, Dhimi and Harries (2001) compared the ability of the MH and that of a regression model to capture how physicians made medical decisions. In this study, physicians were asked to decide whether to prescribe lipid-lowering drugs to a hypothetical cardiac patient, based on a description containing information on 12 symptoms. Although the MH models used fewer cues (symptoms) than the regression models, both types of models fit the physicians' judgements equally well. These authors concluded that the MH was, indeed, the more enticing model because it offers a simpler, and therefore more psychologically plausible, cognitive strategy (for similar findings, see Smith and Gilhooly 2006).

Another study by Dhimi (2003) sought to establish the validity of the MH in a legal context by comparing it to Franklin's Rule (FR) – a compensatory strategy. According to Dhimi (2003), FR requires cues to be differentially weighted according to their relative importance to the decision task. After each available cue is assigned a subjective relative weight, all are considered in a compensatory fashion, whereby combinations of cues for and against a particular decision option can cancel each other out according to their respective weights (see also Payne et al. 1993). This study focused on UK magistrates' decisions to either grant or deny bail to actual persons appearing

before them in court. Considering the judicial practice of due process that is supposed to ensure a comprehensive and fair judgement, one could assume that the rational strategy would model the judges' bail decisions more accurately than a simple heuristic. However, Dhimi (2003) found that the MH more accurately described the judges' decision making and was able to more accurately predict judges' future bail decisions (i.e., cross-validation).

This review of the relevant studies suggests that the MH is an accurate and psychologically plausible model of professional decision making. In the current study, the MH and FR were each used to model police officers' decision-making processes as they attempted to judge the veracity of suicide notes. The MH was used as the representative simple heuristic and FR was used as an example of a rational strategy. Of note, FR was chosen as a comparative benchmark for the MH, but this does not imply that police officers' decision making should (or can) adhere to this strategy.

Demonstrating the applicability of heuristics in police decision making, specifically suicide investigation, would bolster simple heuristic research by extending the range of domains in which heuristics have been investigated, while also confirming their psychological plausibility. Moreover, the results of such an investigation are valuable because judging the veracity of suicide notes is an important decision that often has serious consequences in equivocal death analysis (EDA). When presented with an equivocal death, accurately determining whether it is a homicide, suicide, or accidental death is essential to ensuring justice is done as well as to preventing police organizations from wasting valuable resources on unnecessary criminal investigations (Ault, Hazelwood, and Reboussin 1994). As far as we know, there is no protocol currently in place for judging the veracity of suicide notes and no training that informs officers how to undertake this decision-making task. The ability to discriminate between genuine and fake suicide notes is a potentially fruitful avenue of research because suicide notes have been shown to be significantly and noticeably distinct in content and structure (Jones and Bennell 2007).

Based on the research discussed earlier, it is anticipated that (1) the MH will be a better descriptor of officers' judgements regarding the veracity of suicide notes than will FR, (2) the MH will be more economical and efficient in its information usage, and (3) due to the lack of established protocols and training, predictive accuracy of the officers will be no better than chance.

## Method

### Participants

Participants were police officers ( $N=36$ ) from the Royal Newfoundland Constabulary (RNC) in St. John's, Newfoundland. Of the participants who provided demographic information, 27 were men and 7 were women. The participants varied in age from 22 to 50 ( $M=35.58$ ,  $SD=7.39$ ). There were 28 officers with a rank of constable and 5 with a rank of sergeant. The police officers also varied in terms of their longevity of employment with the RNC, from as few as 8 months to as many as 26 years ( $M=9.62$ ,  $SD=9.00$ ). A total of 29 officers had previously investigated suicide, whereas 5 had never been involved in a suicide investigation. Of those who had investigated suicide, 8 reported having had to judge directly the veracity of a suicide note.

### Materials

The experimental package that was issued to the participants consisted of, in order, on separate pages: (1) an informed consent form, (2) a title page, (3) an instructions page outlining the task's requirements, (4) 30 suicide notes with a space below each to indicate a judgement, and (5) a demographic information page.

The suicide notes were obtained from a book by Shneidman and Faberow (1957) where there were 66 such notes, 33 genuine and 33 fake. The notes were initially coded by Jones and Bennell (2007) according to a set of nine variables set forth in a suicide-note-coding dictionary by Gregory (1999). The reliability of the coding of the suicide notes by Jones and Bennell (2007) was high at .91 (Cronbach 1951). The original cue values, the simplified values for analysis, and their distributions are shown in Table 1. As can be seen, there are nine cues, eight of which are binary and one tertiary. In addition, the cue values are evenly distributed across the cases. The mean inter-cue correlation was  $r=.14$  ( $SD=0.15$ ). Below is an example note:

Honey I got you into this thing and it was no fault of yours – so I am taking the only way out and I leave everything which has all been acquired since we were married to you my darling wife – Mary Smith – and God Bless You Darling. Forgive me – goodbye

dear. You trusted me and I thought I was doing everything for the best but I used poor judgement and poor management on my part and bit off more than I could chew but didn't know it at the time I did it. Sell everything before winter sets in – I leave everything of value of any kind or nature including real estate – home – and all to my darling wife. Tell my mother – sister I said God bless them all and forgive me – Goodbye darling and God bless you all.  
Your loving husband always, William J. Smith

The 30 notes used in each booklet were randomly selected from the corpus of 66 notes. This random selection was repeated independently for each booklet. With respect to the notes that were read by participants, 48.7% were written by persons who actually committed suicide and 51.3% were composed by those simulating the process of writing a suicide note; the slight deviations away from 50% of each type of note was due to true random selection.

**Table 1: Cues, original values, simplified values, and distributions for the corpus of 66 suicide notes**

Cue	Original Values	Simplified Values	Distributions for 66 notes
Number of Words	7 to 393	1. Low (7 to 54)	33
		2. High (55 to 393)	33
Expression of Positive Affect	0 to 21	1. Low (0 to 2)	40
		2. High (3 to 21)	26
Provided a Reason For Suicide	Yes	1. Yes	53
	No	2. No	13
Locus of Control	Internal	1. Internal	31
	External	2. External	28
	Unknown	3. Unknown	7
Left Instructions	0 to 7	1. Low (0 to 1)	41
		2. High (2 to 7)	25
Percentage of Nouns	0 to 38.46	1. Low (0 to 12.1)	33
		2. High (12.2 to 38.46)	33
Percentage of Verbs	10.34 to 42.86	1. Low (10.34 to 17.7)	34
		2. High (17.8 to 42.86)	32
Average Sentence Length	3.33 to 39.50	1. Low (3.33 to 13.9)	33
		2. High (14.0 to 39.50)	33
Percentage of Cognitive Verbs	0 to 66.67	1. Low (0 to 16.4)	33
		2. High (16.5 to 66.7)	33

### **Procedure**

Participants were recruited and undertook the experiment during a platoon training day at the RNC training division headquarters. The researchers addressed the platoon as a group and requested that those who wished to volunteer for the current study do so. Those who indicated their desire to participate were presented with the experimental package as described above. The data collection proceeded with a single group, and after reading the informed consent form, the officers were asked to demonstrate their understanding and acceptance with their signature. The informed consent forms were then detached from the experimental booklet and were collected immediately by the researchers. The officers read the experiment instructions, which were reiterated verbally by the researcher to ensure proper completion of the task. Then the officers began the task of judging the veracity of the 30 suicide notes. Although the officers were not given a time restriction, the task was completed within approximately 20 minutes. For each note, the officers were asked to make a forced-choice decision as to whether they believed the note was written by a genuine suicidal person or by a writer who simulated being suicidal. These binary judgements were the data analysed in the subsequent modelling procedures. After the demographic information sheet had been filled in, the completed experimental packages were collected and stored separately from the informed consent forms. We gave a short debriefing session verbally, which explained the purpose and goals of the study and reaffirmed that anonymity would be maintained. The officers were thanked for their time and assistance. The following two algorithm-based computer programs were then applied to the data.

### *The Matching Heuristic*

According to this model, when people make a judgement, they consider information (i.e., cues) in decreasing order of importance, stopping the search for information either when they find a characteristic that they associate with the judgement in question or when some maximum number of cues has been searched (Dhimi and Ayton 2001). A MH model with three major steps was created for each participant.

In step 1, the *critical value* for each of the cues used in the modelling data was determined. The critical value was simply the value of a given cue that was most often associated with a non-default decision.

In this case, the non-default decision was *fake*. Consider the binary cue instructions left (cue values: *present* = 1; *absent* = 2) and a decision regarding the truthfulness of a suicide note (decision: fake or genuine). Across 20 cases, if there were 8 instances where instructions left was associated with fake judgement (present) and there were 5 instances where instructions left was not associated with fake judgement (absent), the critical value would be 1; that is, instructions left. The critical value was chosen randomly when there was a tie in the frequency of values associated with the non-default decision.

In step 2, *cue utilization validities* were calculated. The utilization validity is the proportion of cases where the critical value is associated with a non-default decision. In the example just given of 13 cases where a non-default decision was rendered (i.e., *fake*), the critical cue value was present in 8 of them. Thus, the cue utilization validity was approximately 62% (i.e., 8/13). This computation was conducted for each of the critical cue values. A rank of 1 was assigned to the cue with the largest utilization validity. Cues with tied ranks were placed in random order. The term *utilization validity* should not be confused with cue usage because all available cues had a utilization validity but not all were necessarily searched by all individuals. As is evident in the next step, a decision could be made after searching only one cue.

In step 3, the maximum number of cues searched (i.e.,  $K$ ) was determined by testing the ability of the heuristic to predict decisions correctly in the training set. The model where  $K$  yielded the highest percentage of correct predictions among the different decisions made by a given participant was selected as the model of that participant's decision-making process. In cases of tied hit rates (where different models predicted a participant's decisions an equal number of times) the simplest model was selected (see Dhami and Harries forthcoming). Consider the case of a police officer who believed that fake suicide notes were associated with, in decreasing order, a high number of words, leaving instructions, and so on. In modelling such an officer's decision making, the presence of the cue *high number of words* might result in, say, 80% of the participant's decisions being predicted correctly, and the presence of the cue *leaving instructions* might result in, say, 75% of the participant's decisions being predicted correctly. In such a case, the search would stop after the first cue (i.e., high number of words) was searched and a one-cue model would emerge because the search for the second cue would result in a decrease (or tie) (from 80% accuracy to 75% accuracy) in the ability of the model to predict the decisions of the officer correctly.



### *Franklin's Rule*

FR involves the use and combination of all available information (for a more detailed description of the model, see Dhimi and Ayton 2001). Cues are weighted according to their strengths of association with the characteristic being judged. For example, for an officer who thought that 80% of notes with a high number of words and 70% of notes with instructions left were fake, the application of FR would involve the use of these percentages in the calculation of a weighted average cue value. The sum of cue values for each case (i.e., suicide note) would be compared to a criterion, an average of summed cue weights computed across cases. If the sum for an individual case was greater than or equal to the threshold value (i.e., the computed criterion), a decision was made that the note was fake. Conversely, if the sum was less than the threshold value, a decision was made that the note was genuine.

## **Results**

### ***Cue usage***

Across all participants, the decision-making model based on the MH searched through either one or two cues ( $M = 1.17$ ,  $SD = 0.38$ , 95%  $CI = 1.05$  to  $1.29$ ). According to the MH, a greater number of participants searched one cue (83.3%) than two cues (16.7%). The percentage of participants' MH models that searched each of the nine available cues, along with the associated utilization validities for each cue, is shown in Table 2. As can be seen, the MH models for 80.6% of the participants searched the *percentage of cognitive-process verbs* contained in a given suicide note as a cue for making veracity judgements. In addition, the percentage of cognitive-process verbs was used to stop search in 75% of the participant's models. In other words, the MH predicted that police officers would often search for the presence of words that implied some underlying mental actions on the part of the note writer as a basis for discriminating between genuine and fake notes.

The second most widely searched cue in the MH models was whether or not there was a reason provided for the alleged suicide. In this case, failure to provide a reason typically led participants to classify the note as fake. However, this information was searched far less often, being present in only 13.9% of the participants' models. In addition, failure to provide a reason was used to stop search in 8.3% of the participant's models.

**Table 2: The percentage of cue search and use for the matching heuristic, cue weights for Franklin's Rule, and ecological validities**

Cue	Percentage of Participants For Whom Cue was Searched (and Used)	Mean Cue Rank in Matching Heuristic	Weight Assigned to Cue in Franklin's Rule	Ecological Validities ( $r_p$ ) <sup>a</sup>
Number of Words	5.6% (2.8%)	5.7	0.57	-0.21
Expressions of Positive Affect	0.0% (0%)	5.2	0.55	-0.31
Reason Provided	13.9% (8.3%)	5.5	0.60	-0.04
Locus of Control	0.0% (0%)	6.6	0.54	-0.03
Instructions Left	8.3% (8.3%)	5.1	0.55	-0.22
Percentage of Nouns	0.0% (0%)	6.4	0.54	-0.03
Percentage of Verbs	0.0% (0%)	5.1	0.54	-0.09
Mean Sentence Length	8.3% (5.6%)	3.8	0.58	0.21
Percentage of Cognitive-Process Verbs	80.6% (75%)	1.6	0.70	-0.03

<sup>a</sup> Ecological validities represent the relationship between each variable and the actual authenticity of the notes (genuine notes were coded as 1 and simulated as 2).

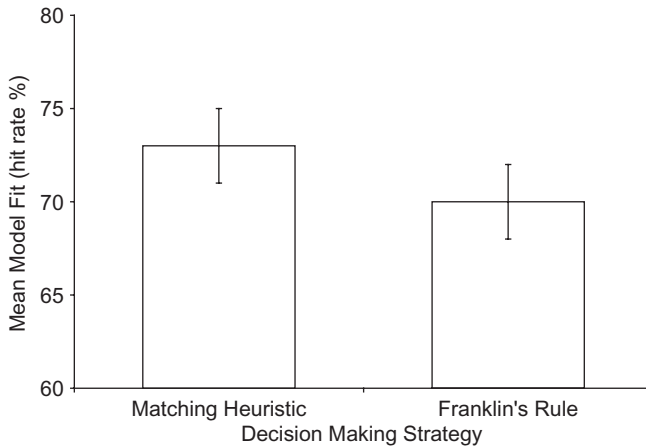
Table 2 also shows the weight that was assigned to each of the available cues by FR. The two cues that were assigned the greatest weight were the percentage of cognitive-process verbs (0.70) and whether a reason was provided (0.60). Therefore, the two cues that were searched the most by the MH were the same as those that were weighted most strongly by FR. However, as can be seen in Table 2, the MH models rarely searched or used (i.e., stopped search) any of the other available cues (search ranging from 0% to 8.3%; usage ranging from 0 to 8.3%), whereas the FR models assigned fairly high weightings to all cues (ranging from 0.54 to 0.70).

The relationship between each cue and the actual authenticity of the notes (i.e., *ecological validities*) is also shown in Table 2. As can be seen, the cues that were most reliable signs of note veracity were expressions of positive affects and instructions left. By contrast, the cues that were the least reliable signs of note were reason provided, locus of control, percentage of nouns, and percentage of cognitive-process verbs.

### **Predictive accuracy of models**

The accuracy with which each of the two models was able to predict each participant's decisions was assessed by calculating the percentage of the 30 notes where the models' predictions were congruent with the participant's judgements. A *hit* was classified as a match between

**Figure 1: The model fit (i.e., mean hit rate percentage across officers), and associated 95% confidence intervals, for the Matching Heuristic and Franklin's Rule.**



the model's prediction and the decision rendered by the participant. As can be seen in Figure 1, the mean hit rates across all participants for the MH and FR models were 72.84% ( $SD = 5.97\%$ , 95%  $CI = 70.89\%$  to 74.79%) and 69.87% ( $SD = 6.35\%$ , 95%  $CI = 67.8\%$  to 71.94%), respectively. Results of one-sample  $t$  tests (test value = 0.5) showed that the mean hit rate for the MH models was significantly greater than chance levels ( $t(35) = 22.97$ ,  $p = 0.00$ ), as was the mean hit rate for the FR models ( $t(35) = 18.76$ ,  $p = 0.00$ ). A paired-samples  $t$  test showed that the mean hit rate for the MH models was significantly greater than the mean hit rate for the FR models,  $t(70) = 2.19$ ,  $p = .04$ . This difference in mean hit rate between the two models translates into an effect size of  $d = .48$ , which indicates a moderately large difference between the two.

### **Accuracy of judgements**

The accuracy of the officers' judgements was assessed by comparing their judgements to the true origins of the suicide notes. As mentioned, 48.7% were written by persons who actually committed suicide, whereas 51.3% were composed by those simulating the process of writing a suicide note. The police officers demonstrated a slight tendency to state that the notes were genuine (58.4%) rather than fake (41.6%). The officers performed at chance levels with respect to their correct (49.9%) and incorrect (50.1%) judgements of the veracity of suicide notes. None of the demographic variables were associated with the accuracy of the officers' veracity judgements.

## Discussion

We examined the possibility that police officers use simple heuristics when making job-relevant decisions. Specifically, two different psychological models of decision making were compared with respect to how well each captured the processes by which police officers judged the veracity of suicide notes. We found that the simple heuristic model known as the MH was more accurate than the full integration model referred to as FR. In fact, the results showed that the MH approximated the participants' decisions with significantly greater accuracy than did FR.

A number of previous bounded-rationality studies found that simple and complex decision-making strategies were essentially equal in their ability to accurately model professionals' decisions (e.g., Dhami and Harries 2001; Smith and Gilhooly 2006). In addition, research has shown that the MH fit is particularly high when examining decision-making tasks within the criminal justice domain (Dhami 2003, Dhami and Ayton 2001). Therefore, the superiority of the simple MH in the current study represents another piece of evidence that indicates that human decision making is often based on simple heuristics. Furthermore, we found that the MH is a faster and more cognitively frugal model because it searched only one or two pieces of information for each decision, whereas FR searched all nine pieces of available information. MH models that searched only one cue were far more common than those that searched two, which further demonstrates the parsimoniousness of the MH.

Across the MH models created for all participants, the most widely searched piece of information was the percentage of cognitive-process verbs present in the suicide notes. This variable represents the proportion of verbs out of the total number of verbs in a note that refer to a cognitive or mental process. This cue highlights a distinction between words that refer to a mental action (e.g., think, feel, etc.) and those that indicate a physical action (e.g., shoot, kill, etc.). The results show that the police officers discriminated between suicide notes that contained high and low numbers of cognitive-process verbs. It is important to note, however, that this result does not indicate that the police officers consciously calculated the proportion of cognitive-process verbs in each note and then used this information to make a decision regarding the note's veracity. While it is possible that they performed such calculations, it is more likely that they unconsciously recognized

the number of statements of the note writers that related to thought processes and made an implicit association between this number and fake notes.

The need to be tentative in drawing conclusions from this study's results also reveals the major limitation associated with this research. Namely, the generalizability of this study is limited by the paramorphic nature of applying the MH, or for that matter any particular model of decision making, to the participants' judgements (see Hoffman 1960). There is no empirical evidence to suggest that police officers actually consider information in the way that is inherent in either the MH or FR. However, the results of this study are certainly valuable and noteworthy if interpreted appropriately. Essentially, the current study reveals that one can model police decision making more accurately with a simple, fast, and frugal heuristic strategy than with a more complex, rational strategy. Therefore, the most important finding from this research is that, whether in light of the MH or of some other heuristic, it appears as though police officers make decisions in an applied domain using simple decision-making strategies.

The claim that police officers do not consider all available information in making decisions may seem somewhat counter-intuitive. Further, the alleged use of simple heuristic strategies may be viewed as contrary to the criminal justice system's emphasis on due process and could therefore lead readers to question the appropriateness of police officers' reliance on such strategies. However, it is also essential to consider the constraints often imposed on the environments in which the police investigate crimes and make decisions, as well as the potential limits of human cognitive abilities (Kahneman 1973; Miller 1956; Neath 1998). For example, it is often necessary for police officers to make decisions with access to only a limited amount of information (as was the case with suicide notes; see cue distributions in Table 1) (de Poot and van Koppen unpublished; Sanders 1977; Innes 2002; Snook and Cullen 2008). Therefore, as has been found in other areas of the legal system (e.g., Dhimi 2003), the use of simple decision-making strategies by police in the case of suicide note analysis may represent an adaptive way of making high-quality decisions within a bounded environment.

As mentioned, each of the MH models was composed of either one or two cues, thus revealing a tendency for police officers to utilize heuristic strategies in this task. In particular, an overwhelming majority of officers used the percentage of cognitive-process verbs in the notes as

a cue for discriminating between genuine and fake, a cue that was followed by reason provided as the second most commonly used cue. However, these cues were very weak indicators of the actual authenticity of the notes (i.e., low ecological validities). Therefore, the use of these cues resulted in the police officers' achieving only chance level accuracy in their judgements. This finding, in conjunction with the lack of training in this area mentioned previously, highlights the need to augment current police training to include guidance for this sort of decision-making task. The failure to make accurate decisions regarding the veracity of suicide notes could result in miscarriages of justice and the waste of valuable resources on unnecessary criminal investigations.

In a related study, Jones, Bennell, and Forrest (2007) found that offering students a training program based on the two cues with the highest ecological validity (i.e., expression of positive affect and instructions left) resulted in a 19% increase (from 45% to 64%) in accuracy over the performance of an untrained group of students. While it appears that ignoring information (i.e., using heuristics) led the officers in the present study to make poor judgements, the findings of Jones et al. (2007) suggest that the poor accuracy of their judgements may have been attributable to the type of cues used rather than to the number of cues per se.

Thus, a heuristic strategy could, indeed, be useful in this decision task; however, it is essential that such a decision-making strategy be based on relevant pieces of information. For example, participants in our study might have benefited from being trained to use expressions of positive affect and instructions left as cues rather than rely on their instincts. Based on Jones et al.'s (2007) findings, we suspect that future studies will demonstrate the ability to train officers to adjust the content of their innate heuristic strategies and thereby achieve increased accuracy in this, and perhaps other, consequential, real-world decision-making tasks.

## Note

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