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The effect of confession evidence on conviction, and considering alternative scenarios as remedy in a sample of police officers

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Abstract

In order to prevent tunnel vision and ultimately miscarriages of justice, police, prosecutors and judges must remain open to alternative scenarios in which the suspect is in fact innocent. However, it is not evident from the literature that people are sufficiently aware of how alternative scenarios should be employed in the decision making process. In the present research, 230 Dutch police officers read one of three versions of a case description. In the first version, there was strong evidence against the primary suspect. In the second version, the suspect additionally confessed, increasing the body of incriminating evidence. In the third version, the suspect confessed, but before deciding on their conviction, participants were instructed to consider how well each piece of evidence fitted in the primary but also in the alternative scenario (in which the crime was committed by an alternative suspect). Contrary to expectations, the confession did not increase conviction and the alternative-scenario consideration did not suppress conviction. Implications of these null findings are discussed.

KEYWORDS
confirmation bias, considering alternatives, conviction, evidence evaluation, tunnel vision

1 | INTRODUCTION

In the psychological literature, tunnel vision or confirmation bias (or myside bias, Stanovich, 2021) has received a lot of attention. For example, Nickerson says: 'if one were to attempt to identify a single problematic aspect of human reasoning that deserves attention above all others, the confirmation bias would have to be among the candidates for consideration' (1998, p. 175). Or, in the words of Kassin: 'A warehouse of psychology research suggests that once people form an impression, they unwittingly seek, interpret and create behavioural data that verify it (2005, p. 219)'. Indeed, it seems that confirmation bias manifests in various guises ranging from ignoring disconfirming information to biased interpretation of ambiguous information (see Nickerson, 1998).

This concept has been associated with miscarriages of justice (Findley & Scott, 2006). Kassin et al. (2013) defined forensic confirmation bias as 'the class of effects through which an individual's pre-existing beliefs, expectations, motives and situational context influence the collection, perception and interpretation of evidence during the course of a criminal case' (p. 45). For example, Dror et al. (2005) found that their participants tended to detect matches between fingerprints more readily if the crime of which the suspect was accused was more severe. Hence, knowledge of crime severity may lead to matching over diagnoses. As another example, Meissner and Kassin (2002) found that police officers, who are convinced that a suspect is lying, cannot easily be brought to change their mind. Similarly, Carlson and Russo (2001) found that jury members tend to interpret information in the light of their previously held convictions, rather than completely objectively. Ask et al. (2008) found that their participants had more faith in DNA, video and identification evidence if it produced incriminating information, compared to when the outcome of the same procedure was exonerating or even inconclusive.

In conclusion, Findley and Scott (2006) argue that the whole criminal procedure promotes tunnel vision against the suspect. For example, the mere suspicion of having committed a crime makes the suspect's ambiguous behaviours appear suspicious (but see Snook & Cullen, 2008).

Including alternative scenarios in the decision making process has been put forward as defence against tunnel vision. In theory, merely thinking about the primary scenario increases the belief in the scenario (Koehler, 1991). Considering an alternative scenario reduces this inflated belief in the primary scenario (Lord et al., 1984). In the context of intelligence analyses, Heuer (1999) introduced a tool to systematically evaluate evidence from within multiple competing scenarios and called this approach an analysis of competing hypotheses (ACH). Applied to the context of criminal investigation, decision makers should try to keep in mind as long as possible that the suspect may be innocent after all and that the incident took place in an alternative manner. By keeping an open mind in this way, decision makers (and suspects) are somewhat better protected against falsely concluding that the evidence against the suspect is strong enough for a conviction.

Despite the theoretical value of considering alternative scenarios, it remains to be seen whether this approach is fruitful in practice. For one thing, it oftentimes seems to be hard to generate serious alternative scenarios. Imagine that the police find a murder victim and the confessing suspect is found standing next to the body with a bloody knife in his hands. What alternative scenario can then be employed to remain open minded? Kerstholt and Eikelboom (2007) found that even professional crime analysts sometimes experience difficulties in producing alternative scenarios. More recently, Fahsing et al. (2023) found that the generation of sensible alternative scenarios can be facilitated by giving decision makers very explicit instruction to do so, including that the consideration of alternatives (even non-criminal ones) is necessary for a fair trial. But even if an alternative scenario is present, it is unclear how the alternative should be used (Mynatt et al., 1993). It cannot be ruled out that after being made aware of an alternative scenario, the decision maker simply goes on with gathering evidence for the primary hypothesis, particularly if the alternative scenario is easily discarded content-wise (cf.

O'Brien, 2009). Further, it must be acknowledged that in other domains, attempts at bias reduction have been found to backfire, resulting in more rather than less bias (Sanna et al., 2002). Ask and Granhag (2005) had participants read one of two versions of a case vignette in which a female psychiatrist is murdered. In one version, the suspect (Eva) has a clear motive (i.e. jealousy). In the other, there is the serious possibility of another perpetrator than the main suspect. Participants had to rate the incriminating power of various observations made by the police. Whereas the authors had expected that exonerating information (e.g. a witness saw a third person running from the crime scene) would be appreciated more by participants in the latter than by those in the former condition, surprisingly, both groups did not differ in their ratings. Hence, this finding suggests that it is indeed difficult to remain open to alternative scenarios, even if such alternatives are presented in a clear-cut manner. By and large, the findings by Ask and Granhag (2005) were replicated by Rassin (2010) in a mixed sample of police officers, prosecutors and professional judges. However, in a second study with undergraduate law students, knowledge of the alternative scenario did decrease ratings. Using a different experimental design, O'Brien (2009) found that generating alternative scenarios did not reduce the participants' bias, that is, their main interest in gathering additional incriminating evidence against the primary suspect (cf. confirmation bias or selective exposure). Notably, generating a list of arguments for why the primary scenario might be wrong, did suppress confirmatory selection. Maegherman et al. (2021) gave 191 undergraduates a short case description and participants were then instructed to select six or less additional lines of investigation from a pool of 24. Before making their selection, half of the participants were instructed to engage in Heuer's (1999) ACH. With this instruction, the researchers sought to test the effect of alternative hypothesis testing on confirmation bias (construed as a preference for incriminating evidence). However, participants in both the alternative hypothesis testing condition and the control condition selected on average only 2 incriminating (33%) and 4 (67%) exonerating investigations.

In sum, while the consideration of alternative scenarios is in theory a potent defence against tunnel vision, data on the actual efficacy in criminal practice are scarce and not promising. Rassin (2018) sought to explore whether it helps to literally type out the two competing scenarios and to score the fit of each piece of evidence within both scenarios. Undergraduates (N = 277) read a version of Ask and Granhag's (2005) murder story about Eva and the killed psychiatrist. One third of the participants read the motive version, one third read a version in which both Eva's motive and the alternative suspects were presented and one third read the latter version and were subsequently instructed to rate 20 pieces of information on their fit in the primary and in the alternative scenario, on a scale from 0 through 10. Finally, participants decided whether Eva should be convicted. In the motive condition, the conviction rate was 36%. In the mixed motive and alternative suspect condition, conviction rate was suppressed to 22%, but this decrease was not statistically significant. In the pen-and-paper tool condition, conviction rate was significantly suppressed to 5%. In a second study, findings were replicated employing a sample of 45 criminal justice professionals and a within-subject design. Participants read the mixed motive and alternative suspect version of the case description and subsequently indicated whether the primary suspect (Eva) should be convicted. Next, they completed the pen-and-paper task also used in Study 1. Finally, they decided again whether they would convict the suspect. In this instance, conviction rate at T1 was 22% and (after assigning a fit between 0 and 10 in both scenarios for each of 20 pieces of evidence) at T2, significantly suppressed to 7%. A main disadvantage of this second study is that it employed a within-subjects design without counterbalancing the order of decision processes.

The purpose of the present research was to replicate the findings by Rassin (2018) in a considerable sample of police officers. Participants read a case description in which substantial incriminating evidence against the primary suspect was present. In a second version of the description, the suspect additionally confessed. In a third version, the suspect confessed, but before making up their mind, participants underwent the pen-and-paper task described by Rassin (2018). We hypothesised that confession evidence increases conviction (Kassin et al., 2012) and that the pen-and-paper tool would undo this increase.

2 | METHOD

2.1 | Participants

Two hundred and thirty police officers (85 women; 37%) participated in this study. Participants indicated their age by selecting a 10-year range category. The following age distribution was observed: 37 participants selected 25–34 years, 66 selected 35–44 years, 67 selected 45–54 years, 59 selected 55–64 years and one selected >65 years. On average, participants had 12.4 years of experience as a police officer ($SD = 8.5$; range 1–35 years). Participants were recruited from the Dutch national police, in the city of Rotterdam. Participants were recruited by mouth-to-mouth advertisement and they volunteered to participate in absence of any compensation.

Participants were randomly assigned to one of three conditions. The three groups of participants did not differ in age ($F[2] = 0.35$, $p = .704$, $\varepsilon^2 = 0.003$), gender ($\chi^2[2] = 0.19$, $p = .908$, Likelihood Ratio [LR] $= 0.19$) or experience ($F[2] = 0.82$, $p = .443$, $\varepsilon^2 = 0.007$).

2.2 | Materials and procedure

The stimulus materials were derived from Ask and Granhag (2005).

Participants were given one of two versions of a case vignette. The basic version in the control condition reads as follows. 'A woman is found dead in an apartment. A second woman, Eva, is encountered in the apartment and is hence a suspect in the case. The victim is a psychiatrist who was acquainted with Eva and who had her office in the apartment. Eva's partner was a client of the victim and hence (the partner and the victim) had regular contact. According to the victim's assistant, Eva had expressed suspicion about a sexual relationship between the victim and Eva's partner and was deeply jealous. Eva denies all guilt. The victim had recently received several phone calls from an anonymous man who each time threatened to kill her with a knife. These phone calls are known to the police from before. The victim had told the police that she thought the man must be a patient or a former patient. The following observations have been made thus far in the investigation.'

In the confession condition, one deviation was introduced, namely that 'Eva denies all guilt' was replaced by 'Eva denies all guilt at first. After extensive interrogation by the police, Eva confesses to the murder'.

Then, participants rated the 20 findings presented in Table 1 on their incriminating power regarding Eva, on an 11-point scale, ranging from 0 (*exonerating*) to 10 (*incriminating*). The 20 evaluations were computed into one mean variable ranging between 0 and 10. Obviously, this composite variable contained evidence against Eva (e.g. number 2), exonerating information (e.g. number 19) and non-diagnostic findings (e.g. number 1).

Participants in the pen-and-paper tool condition read the confession version. After rating the incriminating power of the 20 police findings, these participants were told to imagine for a short while that the psychiatrist was in fact not murdered by Eva but by the unknown male who had threatened the victim by phone. They were instructed to rate all 20 items once more on a scale from 0 to 10, but this time for the extent to which they fit in this alternative scenario. The better a finding fits in the alternative scenario, the higher the number that the participant filled out.

After completing this exercise, participants rated their conviction of the primary suspect's (Eva) guilt on a scale ranging from 0 (*definitely innocent*) to 100 (*definitely guilty*) with increments of 10 and indicated whether they would convict the suspect (*no/yes*).

Data were collected via an online survey.

TABLE 1 Findings by the police (adopted from Ask & Granhag, 2005).

1.	The crime was committed at lunch time
2.	When the victim's assistant returned from lunch she found the apartment door locked from the inside
3.	The assistant got worried and decided to call the police
4.	Two policemen arrived within a few minutes
5.	They also found the door locked from the inside
6.	After a few minutes of pounding on the door and ringing the doorbell the suspect opened the door
7.	The suspect had cuts in her hands and signs of beating in the face
8.	She also had bloodstains on her clothes
9.	She was in a state of shock
10.	The police found the victim's body in the apartment
11.	The police found a knife next to the body
12.	The suspect denies all guilt
13.	She claims that an unknown, male intruder attacked the victim with the knife
14.	She allegedly tried to stop the offence and took the knife from the perpetrator
15.	She also claims that she got hurt at that same moment
16.	She says that the intruder knocked her down and fled through the apartment door
17.	The suspect claims that the perpetrator wore gloves
18.	The only fingerprints found on the knife belonged to the suspect
19.	A neighbour told the police that he had seen a man running down the street outside the victim's house by the time of the offence
20.	The neighbour said that the man did not wear gloves

3 | RESULTS

Mean ratings of the police findings, estimated likelihood of guilt and percentages of convicting participants are displayed in Table 2. An analysis of variance (ANOVA) on the ratings of the police findings yielded no significant difference: $F(2) = 2.15$, $p = .119$, $\varepsilon^2 = 0.019$.

Comparison of the ratings in the pen-and-paper condition at T1 and at T2 (i.e. rating the fit in the alternative scenario), yielded a significant decrease: paired $t(77) = 3.43$, $p = .001$, Cohen's $d = 1.38$.

We found no significant difference for the estimated likelihood of guilt: $F(2) = 0.44$, $p = .642$, $\varepsilon^2 = 0.004$. Conviction rates did also not differ between groups: $\chi^2(2) = 1.52$, $p = .468$, $LR = 1.60$).

4 | DISCUSSION

The present study was set out to replicate findings by Rassin (2018), in that using a pen-and-paper tool to literally estimate the fit of information in competing scenarios was found by that author to reduce conviction and hence to potentially protect against tunnel vision. Our findings were somewhat disappointing. First, whereas we hypothesised that the addition of confession evidence would increase conviction (cf. Kassin & Sukel, 1997), we failed to

TABLE 2 Mean evaluations of the evidence, guilt estimates, and conviction rates as a function of condition.

	Control	Confession	Pen-and-paper tool	
			T1	T2
Mean evaluation of the 20 findings	5.97[a] (1.11)	5.69[a] (0.88)	5.65[a] (1.04)	5.12[b] (0.97)
Estimated probability of guilt	61.6 (12.2)	59.8 (15.7)	–	59.4 (17.2)
Convicting participants (%)	15.2%	24.6%	-	23.2%

Note: T1 refers to the ratings immediately after reading the case description; T2 refers to ratings of the police findings as to their fit in the alternative scenario. Means in the evaluation of the 20 findings not sharing superscript, differed at $p < .001$. a versus b indicates a significant group difference.

find such an effect. Second, compared to the confession condition, employing the pen-and-paper tool did not suppress conviction. Given that the estimated probability of guilt was 62% and the conviction rate 15% in the control condition, there was ample opportunity for confession to increase conviction. In this respect, the findings are akin to those by Maegherman et al. (2021) who also observed that participants in their control condition did not display the hypothesised confirmation bias or tunnel vision. While knowledge of the suspect's confession did not increase conviction, considering an alternative scenario by means of the pen-and-paper tool did not suppress conviction, contrary to expectation.

One potential reason for the null findings is that participants were at guard and employed conservative or even alternative-scenario thinking spontaneously. The null findings may also tap on an inherent limitation of analogue studies, namely that they may elicit different behaviours compared to real-life situations. An aspect in which the current study differed from that by Rassin (2018) is that it relied on a large sample of police personnel, whereas Rassin's sample was mixed and consisted of police, prosecutors, judges and students. Possibly, individuals belonging to the latter populations are more impressed by confession evidence. Perhaps, these differences in the design can explain our failure to replicate findings by Rassin (2018). To find out whether our null results might be due to lack of power, we conducted a post hoc power analysis (effect size set at 0.25) which yielded a power of 93% (Faul et al., 2007). Admittedly, given that participants in the pen-and-paper tool condition found that the police findings on average fitted better in the primary than in the alternative scenario, the current stimulus material may simply not represent cases in which considering alternatives should suppress conviction. A final limitation that deserves mentioning is that we did not include manipulation or attention checks. Although not necessarily a limitation, it should be mentioned that we employed three conditions: (1) The control condition, (2) one in which the confession was added and (3) one with confession and the instruction to consider an alternative scenario. Symmetrically, we should also have employed a fourth condition without confession, but with instruction to consider an alternative.

Needless to say, it is generally a good cause to suppress conviction, in that this may ultimately prevent miscarriages of justice. Meanwhile, it cannot be ignored that miscarriages of justice do occur (see Saks & Koehler, 2005). Hence, it remains an important mission to seek solutions and as far as miscarriages of justice are caused by tunnel vision (but see Snook & Cullen, 2008), considering alternative scenarios appears to be the most practical solution. Unfortunately, the present findings do not add to the evidence for the fruitfulness of this remedy (e.g. Arbiyah et al., 2023; Ask & Granhag, 2005; Maegherman et al., 2021; O'Brien, 2009; Rassin, 2010).

Meanwhile, competing remedies are emerging. For example, disruption of the smooth incriminating appearance of the evidence (e.g. by altering the order of evidence by interchanging incriminating and exonerating information) may reduce tunnel vision (Hernandez & Preston, 2013). Likewise, rather than considering alternative scenarios, directly conjuring up reasons for why the primary suspect is innocent may be a stronger remedy against tunnel vision (O'Brien, 2009). Decision makers might further be alerted to their responsibilities and to the grave consequences of (false positive) error (Schmittat & Englich, 2016; Schmittat et al., 2021). Finally, Shaw et al. (2018) propose training and practicing by means of playing tailor-made computer games in which confirmatory decisions

lead to losses and disconfirmation results in wins. Obviously, searching for interventions that suppress biases such as tunnel vision remains an important goal for future research. In conclusion, the present findings do not provide support for the effectiveness of considering alternatives as a means to suppress conviction, albeit that they also do not suggest that confession evidence increases conviction.

CONFLICT OF INTEREST STATEMENT
The authors have no conflict of interests.

DATA AVAILABILITY STATEMENT
Data can be obtained from the first author.

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