Using a supportive second interviewer to elicit cues to deceit

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“I interrogated a colonel during Desert Storm, an Iraqi colonel, and based on my understanding of his background he knew a lot about order of battle of his infantry division. And so I won his cooperation, we spent a lot of time talking about life in Iraq. There was a great deal of rapport that we developed. And at the end of asking all of the questions that I had, like a good interrogator you’re disciplined to ask at the very end, "Is there anything else that you know about that I haven't asked you?"

And at that point we were very interested in the location of the Scud missiles, which, you know, were a concern especially as they were launched on Israel at the time, which could have broken up the coalition. And so -- but I didn't ask that because based on his background we had no -- we couldn't even speculate that he would know anything about it. But because of the relationship, because I'd actually won his cooperation as I stood up putting my papers together, has asked, "Don't you want to know about the Scud missiles?"

-Colonel Steven Kleinman
General Abstract

Two interviewers are often used by police and intelligence agencies, yet very little is known about the benefits of this approach or the best way to employ it. This thesis tested a two interviewer protocol to determine how the second interviewer should behave in order to elicit cues to deceit. Over four experiments, a second interviewer was employed (in various ways) in mock forensic interviews before examining the amount of detail and/or repetition in interviewees’ responses. The results offered four key findings: First, that a supportive second interviewer can elicit cues to deceit, notably by encouraging truth tellers to say more. Second, the impact of a second interviewer can be influenced by other factors, such as unexpected questions and the behaviour of both interviewers. Third, the results supported previous research by highlighting that consistency between two accounts is an unreliable cue to deceit. Finally, this thesis also suggests that deliberately mimicking interviewees may encourage truth tellers to provide more detailed and accurate responses. One explanation for the observed findings is that a supportive second interviewer provides a source of positive feedback, reinforcing and encouraging interviewees’ default response strategy. The results enabled a recommendation that forensic interviewers adopt a supportive demeanour. More research is needed before a supportive second interviewer should be introduced in real life interviews. Future research should seek to replicate the findings presented here and test a speaking second interviewer. While it was not clear that a supportive second interviewer generated rapport, overall, this thesis provides support for a rapport based approach to investigative interviewing.
Contents

List of Tables..................................................................................................................1
List of Figures................................................................................................................2
Declaration......................................................................................................................3
Acknowledgements........................................................................................................4
Dissemination..................................................................................................................6

Chapter 1: Introduction to thesis..................................................................................8
  1.1 Introduction..............................................................................................................8
  1.2 Thesis Outline.........................................................................................................15

Chapter 2: Experiment 1
  Repetition in reverse order recollections: Using two interviewers to evoke cues to deceit .........................................................................................................................20
    2.1 Introduction............................................................................................................21
    2.2 Method..................................................................................................................24
    2.3 Results..................................................................................................................30
    2.4 Discussion.............................................................................................................32

Chapter 3: Experiment 2
  Expect the unexpected? Variations in question type elicit cues to deception in joint interviewer contexts ...........................................................................................................37
    3.1 Introduction............................................................................................................39
    3.2 Method..................................................................................................................43
    3.3 Results..................................................................................................................51
    3.4 Discussion.............................................................................................................58
Chapter 4: Experiment 3a

‘We’ll take it from here’: The effect of changing interviewers in information gathering interviews……………………………………………………………………63

4.1 Introduction………………………………………………………………..64
4.2 Method……………………………………………………………………68
4.3 Results……………………………………………………………………78
4.4 Discussion………………………………………………………………..85

Chapter 5: Experiment 3b

Mimicry and investigative interviewing: Using deliberate mimicry to elicit information and cues to deceit……………………………………………………91

5.1 Introduction……………………………………………………………….92
5.2 Method…………………………………………………………………….97
5.3 Results……………………………………………………………………106
5.4 Discussion………………………………………………………………109

Chapter 6: Experiment 4

Examining repetition as a cue to deceit in reverse order accounts: A deception detection study………………………………………………………….113

6.1 Introduction………………………………………………………………114
6.2 Method……………………………………………………………………121
6.3 Results……………………………………………………………………124
6.4 Discussion………………………………………………………………132

Chapter 7: General Discussion………………………………………………138

7.1 Overview of main findings and theoretical implications…………138
7.2 Practical implications………………………………………………….150
7.3 Future research…………………………………………………………153
7.4 Limitations…………………………………………………………….156
7.5 Conclusions…………………………………………………………....160
List of Tables

6.1. Correct classifications overall in the ‘changed interviewers’ and ‘instruction’ conditions. ..........................................................................................................................127

6.2 Correct classifications of truth tellers and liars across the ‘changed interviewers’ and ‘instruction’ conditions.................................................................127

6.3 Distribution of judgment cues cited by participants in the ‘instruction’ group that judged transcripts to be truthful \( (N = 30) \) ..................................................................................129

6.4 Distribution of judgment cues cited by participants in the ‘no instruction’ group that judged transcripts to be truthful \( (N = 34) \) .........................................................129

6.5 Distribution of judgment cues cited by participants in the ‘instruction’ group that judged transcripts to be deceitful \( (N = 34) \) .........................................................130

6.6 Distribution of judgment cues cited by participants in the ‘no instruction’ group that judged transcripts to be deceitful \( (N = 46) \) .........................................................130
List of Figures

4.1 Subjective detail at Stage Two as a Function of Veracity and Interviewer.................................................................82

4.2 Subjective repetition between Stages One and Two as a Function of Veracity and Interviewer..............................................84
Declaration

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

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Dissemination

Conference Presentations


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Journal Publications


Chapter 1:

Introduction to Thesis

1.1 Introduction

One current focus of deception literature is eliciting cues to deceit through specific interventions (Vrij & Granhag, 2012). Imposing cognitive load on interviewees (Evans, Meissner, Michael, & Brandon, 2013), asking unexpected questions (Vrij et al., 2009) and introducing evidence in interviews in a strategic manner (Granhag, Strömwall, Willén, & Hartwig, 2012; Hartwig, Granhag, Strömwall, & Kronkvist, 2006) are all examples of strategies that have proved effective in eliciting cues to deceive. The present thesis is concerned with using a second interviewer to elicit two cues to deceit; detail and repetition. This particular intervention is part of a new strategy for eliciting cues to deceit by ‘encouraging truth tellers to say more’. The current chapter explores the role of a second interviewer, as well as the impact of demeanour and rapport in investigative interviews. In addition, this chapter also discusses cognitive load and deception, and reverse order recall as a tool for eliciting cues to deceive. Finally, detail and consistency as cues to deceit are introduced with reference to the relevant literature.

The second interviewer in investigative interviews. In the United Kingdom, the use of two interviewers in forensic interviews is common. Interviews with high profile suspects and juveniles are frequently conducted with more than one investigator (Sim & Lamb, 2012). Based on correspondence with the UK Police, a
second interviewer is instructed to take notes while the first interviewer focuses on asking the questions. It should be noted that the use of a second interviewer varies considerably from country to country. For example, in Belgium the second interviewer types what is being said.

While a second interviewer is currently used in real life forensic interviews, to the author’s knowledge, no previous research has looked at how to use this extra interviewer effectively. Further, the use of a second interviewer is likely to vary considerably. This is important, as the second interviewer may impact on interviewees in ways that are currently not understood. There is a genuine need to establish a tried and tested two interviewer protocol that impacts on interviewees positively.

The use of a second interviewer has been examined in employment interviews (Huber & Power, 1985; Kinkaid & Bright, 1957). Research testing a two interviewer protocol has noted three potential benefits. First, it enables one interviewer to focus on posing questions. Second, an extra interviewer can keep the interview on track and highlight areas that have been missed if the first interviewer strays from the line of questioning. Third, a second interviewer can act as a buffer to the first interviewer’s memory, filling in the gaps where appropriate.

With regards to the second interviewer’s role in forensic interviews, this thesis is interested in testing variations of a two interviewer protocol, and to establish methods that are effective at magnifying the differences between truth tellers and liars. With a greater understanding of how the second interviewer can benefit forensic interviews, there may be some scope to offer practitioners
recommendations about how to use an extra interviewer. Current interview
techniques could be informed by the research conducted in this thesis.

**Demeanour and rapport in investigative interviews.** Manipulating the
demeanour of the second interviewer may cause truth tellers and liars to behave
differently. There are a few studies that have looked at the impact of interviewer
the effect of three interviewer-attitude conditions, ‘rapport’, ‘abrupt’ and ‘neutral’ on
eyewitness recall. Participants watched a 66-second videotape of a real life stimulus
event. After viewing the tape, participants were interviewed about what they saw.
The interview required writing a free-written narrative of the incident in question,
and completing a structured questionnaire. During the interviews, each of the
different interviewer-attitude conditions was implemented according to a pre-
determined script. The conditions varied according to voice modulation, dialogue,
body language, personalisation and name usage, as well the arrangement of furniture
and props. In the ‘rapport’ condition, the interviewer spoke with a gentle tone,
referred to the participant by name, adopted a more relaxed body posture, and was
generally friendly. In the ‘abrupt’ condition, the interviewer spoke with a harsher
tone, did not refer to the participant by name, maintained a stiff body posture, and
appeared highly focussed on conducting the interview. In the ‘neutral’ condition, the
interviewer adopted a neutral tone, posture, and approach. After the interview,
participants were asked to comment on the interviewer’s behaviour. The results
showed that participants reported having greater rapport with the interviewer in the
‘rapport’ condition. In addition, participants recalled more correct information in the
‘rapport’ condition than participants in the ‘abrupt’ and ‘neutral’ conditions.
Liden, Martin, and Parsons (1993) examined the effect of an interviewer’s nonverbal behaviour on applicants in mock employment interviews. Participants adopted the role of job applicants, each being interviewed by a confederate interviewer who displayed either ‘warm’ or ‘cold’ nonverbal behaviour. In the ‘warm’ condition, the interviewer made eye contact (approximately 90% of the time), smiled occasionally, and faced the participant. In the ‘cold’ condition, the interviewer tried to avoid making eye contact, leaned back, did not smile, and did not face the participant. After the interviews, independent judges rated the participants’ verbal and nonverbal behaviour. The results revealed that participants who were interviewed by the ‘warm’ interviewers were rated as being more positive in their verbal and nonverbal behaviour. These findings support the contention that an interviewer can directly influence an interviewee’s behaviour (Buller & Burgoon, 1996).

Bain and Baxter (2000) looked at the effect of interviewer demeanour on interrogative suggestibility. Participants answered a series of questions as part of the Gudjonsson Suggestibility Scale 1 (Gudjonsson, 1997), which measures an individual’s susceptibility to leading questions and interrogative pressure, both of which can compromise the accuracy and reliability of testimony. The questions were posed by a confederate interviewer, who either appeared ‘friendly’ or ‘abrupt’. In the ‘friendly’ condition, the interviewer smiled when participants entered the room, and reciprocated smiles from the participants during the interview. Any attempt at conversation made by the participants was met with a friendly response. Nonverbally, the interviewer leaned away from the participants, and maintained eye contact.
In the ‘abrupt’ condition, no attempt was made to be friendly from the moment the participant entered the room. Attempts at conversation by the participant were met with a limited response, and the interviewer’s main interaction revolved around issuing instructions in an abrupt manner. The interviewer did not smile or reciprocate the participants’ smiles. The interviewer’s expressions were intended to convey mild annoyance. Nonverbally, the interviewer leant forward towards the participant, but maintained eye contact as in the ‘friendly’ condition. The results showed that participants interviewed by the ‘abrupt’ interviewer scored significantly higher on measures of shift and suggestibility.

All of the above experiments used participants that played a role comparable to truth telling witnesses. In all cases, a friendly interviewer had a positive impact on interviewees’ responses, or at least did not have a negative impact. The present thesis explores the impact of second interviewer demeanour (being positive, neutral, or negative) on interviewees’ responses, specifically in terms of detail and repetition. With this in mind, one aim of this thesis is to determine how a second interviewer should behave in forensic interviews in order to differentiate truth tellers and liars.

Cognitive load and reverse order recall. Lying is thought to demand a lot of our finite mental resources, as it involves completing several complex tasks simultaneously (DePaulo et al., 2003; Mann & Vrij, 2006; Vrij, 2008; Zuckerman et al., 1981). Indeed, research suggests that lying can be more cognitively demanding than telling the truth (Vrij et al., 2012). One instruction that is believed to increase cognitive load is reverse order recall (ROR), which involves repeating a previous account in reverse chronological order. This instruction originates from the cognitive interview (Fisher & Geiselman, 1992), where it is used as a memory enhancing
technique in interviews with witnesses. If lying does impact heavily on working memory and speed of processing (Bond, 2012), then ROR may be very difficult for liars, as it involves retrieving real and imagined data from long term memory into working memory (Baddeley & Hitch, 1974). In addition, ROR conflicts with our real world knowledge of temporal sequence (Gilbert & Fisher, 2006; Munte, Schiltz, & Kutas, 1998; Kahana, 1996), and makes it more difficult to reconstruct the event from a schema (Geiselman & Callot, 1990). ROR has been tested successfully in deception research (Vrij et al., 2008; Vrij, Leal, Mann, & Fisher, 2012) and in the field (Evans, Houston, & Meissner, 2012; Zimmerman, Veinott, Meissner, Fallon, & Mueller, 2010). In addition to increasing cognitive load, ROR may also be effective because it is likely not anticipated. The benefits of asking unanticipated questions have been noted (DePaulo et al., 2003; Mann et al., 2013; Vrij et al., 2008), particularly with regard to detail as a cue to deceit.

The presence of a second interviewer, combined with ROR, may result in more deceptive leakage by further increasing cognitive load. Liars are known to monitor their target for any sign that they are being believed (Buller & Burgoon, 1996), and therefore having to monitor two targets may make the task more difficult. Going one step further, the second interviewer’s demeanour could accentuate any verbal differences (or give rise to differences that otherwise would not have emerged) in truth tellers and liars.

To summarise, this thesis uses ROR in the hope that it will further magnify the differences between truth tellers and liars in terms of the detail of their accounts. A more typical approach could be to simply compare two normal order responses. However, ROR is a tried and tested method for eliciting detail as a cue to deceit, and
this thesis will aim to build on previous research by providing more evidence that this instruction can be used effectively in suspect interviews.

**Detail as a cue to deceit.** With regards to verbal cues to deceit, research suggests that truth tellers are more detailed than liars in mock forensic interviews (DePaulo et al., 2003; Vrij, 2005). One way in which a second interviewer may be useful in forensic interviews is by encouraging truth tellers to say more. Indeed, the core goal of investigative interviewing is to elicit detailed information from interviewees (Fisher, 2010). It is beneficial for truth tellers to say more because the more interviewees say, the more likely it is that they will be believed (Bell & Loftus, 1989; Johnson, 2006; Johnson, Foley, Suengas, & Raye, 1988). Encouraging liars to say more is likely to be a much harder task. Liars can sometimes lack the imagination to conjure up new information (Köhnken, 1996, 2004). In addition, liars know that investigators verify their responses, and so may be discouraged from providing new information (Hartwig, Granhag, & Strömwall, 2007; Masip & Ces, 2011; Nahari, Vrij, & Fisher, 2012a, 2012b). Therefore, methods that encourage interviewees to say more may result in truth tellers (but not liars) providing additional detail. With this in mind, the second aim of this thesis is to define ways in which a second interviewer encourages truth tellers to say more.

**Consistency as a cue to deceit.** As part of an investigation, a suspect may be required to provide two accounts of the same incident on two separate occasions. Repetition is one of four measures of consistency across accounts, and a high level of repetition between two accounts indicates few contradictions, commissions, and omissions (note that this thesis focuses solely repetition as a measure of consistency, though strictly speaking, the term ‘consistency’ refers to repetitions, contradictions,
commissions, and omissions combined. Therefore, for the purposes of this thesis, repetition as a cue to deceit is considered a reflection of consistency as a cue to deceit. Where appropriate, a distinction between ‘repetition’ and ‘consistency’ has been made). It is reasonable then to expect truthful accounts to be highly repetitive, however, this is not always the case (Fisher, Vrij, & Leins, 2013). Granhag and Strömwall (1999) suggested that truth tellers and liars use different retrieval strategies when recalling an event a second time. Strömwall (1999) argues that truth tellers reconstruct the incident in question from their memory, while liars tend to repeat what they said in their first statement. Note that reconstructing an event for a second time can result in new details emerging, and details being remembered differently. The end result of these two different strategies is that truth tellers may repeat themselves less than liars, and ultimately appear less credible.

It is clear that factors other than veracity can influence how an interviewee responds when repeating a story. The third aim of this thesis is to use a second interviewer to learn more about repetition as a cue to deceit, and potentially identify situations where truth tellers repeat themselves less than. Knowing when repetition between two accounts indicates deceit or not would be invaluable information, and may help investigators to make correct veracity judgements.

1.2 Thesis Outline

This thesis consists of the following four chapters:

Chapter 2: Experiment 1: Repetition in reverse order recollections: Using two interviewers to evoke cues to deceit
Chapter 2 starts by explaining how a second interviewer is used in forensic interviews, and the proposed benefits of a second interviewer, based on research in employment interviews. Next, the complex relationship between consistency and deception is dissected. The chapter then focuses on the experiment, which involved participants being interviewed by two interviewers about their journey to work. Of the two interviewers, the first interview did all the talking and remained neutral, while the second interviewer remained silent, and adopted a different demeanour in each interview (either supportive, neutral, or suspicious). The main findings were that when the second interviewer was supportive, truth tellers repeated themselves less than liars. The findings also indicated that the reverse order instruction was not anticipated by participants. From these findings, the author recommends forensic interviewers to display a supportive demeanour. The chapter concludes by stating that a second supportive interviewer can differentiate truth tellers and liars by eliciting repetition as a cue to deceit.

Chapter 3: Experiment 2: *Expect the unexpected? Variations in question type elicit cues to deception in joint interviewer contexts.*

Chapter 3 starts by introducing how a second interviewer is used in police and intelligence settings, as well as previous research examining the impact of a second interviewer. Next, the chapter discusses how a supportive second interviewer may affect truth tellers’ and liars’ responses to unexpected questions, and how reverse order recall may impact on the use of temporal connectives. The experiment is then introduced, detailing the different tasks that truth tellers and liars completed, and the subsequent interview, which required participants to describe how they prepared a room for a seminar. In the interview, the first interviewer asked all the
questions, and the second interviewer remained silent. However, both interviewers behaved either neutral or supportive in each interview. The main findings were that when the second interviewer was supportive, the difference in detail resulting from the expected and unexpected questions was significantly larger for liars than for truth tellers. In addition, truth tellers used the temporal connective ‘before that’ more than liars. The chapter concludes by stating that a second supportive interviewer magnifies the differences between truth tellers and liars in terms of their responses to expected and unexpected questions. The recommendation for forensic interviewers to adopt a supportive demeanour is repeated.

Chapter 4: Experiment 3a: ‘We’ll take it from here’: The effect of changing interviewers in information gathering interviews.

Chapter 4 commences by introducing the reverse order instruction in interviews, and how the changing of interviewers may impact on truth tellers’ and liars’ responses. Next, the author describes the experiment in which truth tellers and liars attended a meeting before being interviewed by two interviewers. The two interviewers that commenced the interview either remained throughout or were substituted half-way through by two new interviewers. In Experiment 3a (and Experiment 3b, which is derived from the same data set), interviewer demeanour was fixed; the first interviewer appeared neutral in all interviews and the second (and silent) interviewer behaved supportively in all interviews. The main findings were that when the interviewers changed, truth tellers were more detailed and repeated themselves more than liars. These findings indicated that a change in interviewers weakens liars’ tendency to repeat themselves, shedding new light on the deception/consistency debate. In addition, the chapter describes how the
experimental manipulation compliments a new approach in deception research: encouraging truth tellers to say more.

Chapter 5: Experiment 3b: *Mimicry and investigative interviewing: Using deliberate mimicry to elicit information and cues to deceit.*

Chapter 5 starts by introducing the various strategies for eliciting cues to deceit, and the relevant literature related to mimicry and social interaction. Next the chapter details how participants attended a meeting before being interviewed by two interviewers. During half the interviews, the second interviewer deliberately mimicked interviewees’ postural behaviour. While the effect of the mimicry manipulation was small, there were two main findings. First, when the interviewees were mimicked, truth tellers gave more detailed responses in the interview, and liars volunteered significantly less accurate information in their responses. The finding that truth tellers were more detailed was explained by the cooperation and compliance that can result from mimicry. No explanation was offered for the finding that liars gave less accurate information given the lack of a clear rationale. The chapter concludes by stating that deliberate mimicry may be a useful strategy in investigative interviews.

Chapter 6: Experiment 4: *Examining repetition as a cue to deceit in reverse order accounts: A deception detection study.*

Chapter 6 starts by examining the relevant literature related to deception detection efficiency, and the reasons why judges struggle to detect deceit. The introduction also discusses the impact of reverse order recall on cognitive load, and eliciting consistency as a cue to deceit. The experiment is then described, explaining
how half of the sample were instructed to look for repetition in the extracts they read, before making a veracity judgement. The instruction appeared to have no effect on judges’ accuracy. The results did show that the control group cited consistency as a cue to deceit, despite not being instructed to look for it. The focus then shifts to the insight gained into laypersons’ understanding of deception, before examining the study’s limitations. The chapter concludes by offering some recommendations for future studies of deception detection.

Chapter 7: General Discussion

First, the final chapter summarises the main findings with reference to relevant theory. Next, the chapter examines the practical implications of the findings, with respect to the following topics: the second interviewer in investigative interviews; supportive interviewing; and encouraging interviewers to say more. Finally, the chapter offers recommendations for future research and explores the limitations of the methodologies used.
Chapter 2: Experiment 1

Repetition in reverse order recollections: Using two interviewers to evoke cues to deceit

Foreword

The author of this thesis was the third author in Mann et al. (2013), which examined the effect of second interviewer demeanour on detail as cue to deceit. Experiment 1 shares some extracts from the Mann et al. paper, and the findings are derived from the same data set. However, much of the following chapter is novel, as are the findings.

Abstract

This study examined the effect of manipulating a second interviewer’s demeanour on repetition as a cue to deceit. It was predicted that a supportive interviewer would differentiate truth tellers and liars by encouraging liars’ strategy of repeating themselves. Participants \((N = 126)\) appeared before two interviewers: The first interviewer asked all the questions and the second remained silent. The second interviewer exhibited either a supportive, neutral or suspicious demeanour. Participants recalled their journey to work first in normal chronological order. Later in the interview, participants recalled the same journey but in reverse chronological order. In the reverse order responses, truth tellers repeated themselves less than liars, but only when the second interviewer was supportive. A supportive second
interviewer has a positive effect on interviewing. This finding is discussed with reference to the literature on consistency and investigative interviewing.

2.1 Introduction

In many countries, police frequently conduct suspect interviews with two interviewers, particularly for more serious crimes. For example, research suggests that 68% of interviews with juvenile suspects in the UK are conducted with more than one investigator (Sim & Lamb, 2012). A UK Police Interview Trainer revealed that when two interviewers are used, one interviewer tends to do the talking while the second interviewer generally remains silent, sometimes taking notes. Suspect interviews in human intelligence settings are also frequently carried out with two interviewers (Soufan, 2011). Research on using pairs of interviewers, carried out in a non-police context, cite three advantages of a two interviewer protocol (Huber & Power, 1985; Kincaid & Bright, 1957). First, it is efficient as one interviewer can engage in conversation while the other can concentrate on recording answers accurately and completely. Second, when the interview becomes unstructured or when the first interviewer vigorously pursues one train of thought, a second interviewer can pick up on points missed by the first interviewer. Third, when analysing the interviews, the second interviewer can help the first interviewer recall what was said or what happened. The question addressed in the present experiment is which demeanour (being supportive, neutral or suspicious) should the second interviewer adopt to maximise verbal differences between truthful and deceptive suspects? The second interviewer’s demeanour was manipulated, as the second interviewer’s demeanour is probably easier to manipulate in real life than the first interviewer’s demeanour. Displaying a demeanour requires concentration and
cognitive effort, and the first interviewer may lack mental resources for this as he or she has to focus on the interview (Patterson, 1995).

The present study adopts the same methodology as Mann et al. (2013). Participants were asked to describe their journey to work on two occasions during an interview. In the first instance, participants described their journey to work in normal chronological order. In the second instance, participants described the same journey, but this time in reverse chronological order (therefore, participants were asked to provide the same information they had provided in the first instance, except in reverse order). Previous research shows that the reverse order recall (ROR) can elicit detail as a cue to deceit, perhaps by increasing cognitive load (Vrij et al., 2008; Vrij, Leal, Mann, & Fisher, 2012). ROR exists in the current study as an artefact of the Mann et al. (2013) publication, and therefore no examination of its impact on cognitive load or the amount of details provided is conducted.

After the interview, participants’ normal and reverse order accounts were compared to see how consistent they were. Consistency is measured by comparing two accounts of the same incident, and looking for evidence of repetition, contradictions, commissions, and omissions. Consistency is frequently cited by judges as a reason for discrediting another human being (Brewer, Potter, Fisher, Bond, & Luscze, 1999; Granhag & Strömwall, 2000; Strömwall, Granhag, & Jonsson, 2003). However, consistency is not a reliable indicator of deceit (see Vrij, Leins & Fisher, 2013). The relationship between consistency and deception is complex, and truth tellers can appear less consistent than liars. Truth tellers and liars adopt different approaches to recalling an event. When the same event is recalled for a second time, truth tellers ‘reconstruct’ what actually happened, which can result in
new details emerging and/or some details being remembered differently. When liars describe an event a second time, they tend to repeat their prepared story, which can result in them appearing more consistent than truth tellers (Gran Hag & Strömwall, 1999).

Having a supportive interviewer present may differentiate truth tellers and liars by the amount of repetition in their reverse order responses. A supportive interviewer may result in truth tellers repeating themselves less than liars for a few reasons. First, liars’ tendency to repeat themselves in a second recollection may be enhanced by a supportive interviewer. The positive nonverbal responses displayed by the supportive interviewer may cause liars to think that they are being believed. If liars adopt the ‘repeat’ strategy and believe they are convincing the interviewer, then this may encourage and strengthen the use of this strategy. Second, liars are less likely to add new information at a second recollection, as adding new details increases the risk of those details being falsified (Hartwig, Gran Hag, & Strömwall, 2007; Masip & Ces, 2011; Nahari, Vrij, & Fisher, 2012a, 2012b), and liars sometimes find it difficult to come up with new information that sounds plausible (Köhnken, 1996, 2004; Leal, Vrij, Warmelink, Vernham, & Fisher, 2015). Finally, truth tellers are more likely to add new information in a second account, as their recall strategy can give rise to new details. In light of these factors, it was predicted that when the second interviewer was supportive, truth tellers would repeat themselves less than liars in the reverse order responses (Hypothesis 1).

The current study also examines whether the reverse order instruction is unexpected (see Vrij, Leal, Mann & Fisher, 2012). One of the obvious benefits of asking unexpected questions is that liars cannot prepare for them, and spontaneous
lies are more likely to contain cues to deceit (DePaulo et al. 2003). While ROR originates from a widely used interview protocol aimed at eliciting new details from witnesses (the Cognitive Interview, Fisher & Geiselman, 1992) and has been applied in interviews with suspects in deception research (Vrij et al., 2008; Vrij, Leal, Mann, & Fisher, 2012) and in the field (Evans, Houston, & Meissner, 2012; Zimmerman, Veinott, Meissner, Fallon, & Mueller, 2010), it is unlikely that participants (undergraduates and members of staff, many of whom will not have been exposed to ROR in studies of deception) in this experiment will expect such an instruction. Participants in the present study were asked prior to the interview what questions they anticipated being asked. It was predicted that no participants would expect any questions demanding a response in reverse chronological order (Hypothesis 2). The most frequently expected questions relating to issues about work were also explored.

2.2 Method

Participants

The 126 participants (43 males and 83 females) were undergraduate students and university staff. Their average age was $M = 26.73$ years ($SD = 10.81$ years). The truth tellers ($N = 64$) had 34 different professions, with sales assistant ($N = 6$) and administrator ($N = 4$) the most frequently cited. Other occupations belonging to more than one truth telling participant included bar tender, cashier, teaching assistant, waiter, football referee, delivery driver and support worker. The jobs that liars pretended to have during the interview matched those of truth tellers.

Design
The experiment adopted a 2 (Veracity: truth (N = 64) vs lie (N = 62)) X 3 (Demeanour: neutral (N = 42) vs suspicious (N = 42) vs supportive (N = 42)) between-subjects design, with repetition in the reverse order responses as the dependent variable.

**Procedure**

Participants were recruited via advertising posters and an announcement on the university intranet. The advertisements asked for volunteers to take part in a study called ‘Lie for a living’. They were told that the study would take about 30-45 minutes, that they would be interviewed about their real or a pretend job, and that they could receive a £5 cash reward for taking part. The first 126 people that responded via email (consisting of university administrative staff, academic staff and students) acted as participants in the experiment. First they were asked (via email) which job they had. Then they were sent (again via email) a list of 21 different jobs and were asked to indicate how much they knew about each of them (on rating scales ranging from [1] ‘Very little’ to [7] ‘A lot’). The participants were allocated randomly via email to the truth telling (N = 64) and lying (N = 62) condition. It is a common procedure in deception research to allocate participants to a lie condition rather than give participants the choice to lie. In many ways this also reflects real life. In many situations people do not lie out of free choice, but out of necessity when asked about their actions (e.g., criminal acts, cheating on partners) they want to keep secret. The truth tellers were informed that they would be interviewed about their job. The liars were told that their task would be to pretend to have a job during the interview they did not actually have. Participants were emailed about the job
they should pretend to have, and this decision was based on the selection list they
had returned. Participants were always allocated a job that they claimed to have little
knowledge of (a score of 2 or 3 on the selection form). An appointment was then
made with the participant to attend the interview in the Psychology Department.
Each participant was given sufficient time to prepare themselves for the interview (at
least three days). In order to motivate them to be convincing, participants were
informed that they would receive a £5 cash reward if the interviewer actually
believed them.

On arrival in the Psychology Department the participants were greeted by the
experimenter, and asked to sign an informed consent form. The truth tellers were
reminded that they were to answer the questions truthfully and the liars were
reminded which occupation they should pretend to have during the interview. All
participants said that they understood the instructions, and all liars said that they
remembered which job they had been given to lie about a few days earlier (a check
of the transcripts revealed that all truth tellers discussed their actual job and that all
liars discussed their assigned pretend job). Before being interviewed, the participants
completed a pre-interview questionnaire which asked what questions they
anticipated being asked in the interview. Participants could write as many questions
as they liked.

The participants were then brought to the interview room where two
interviewers were present. After introducing themselves the interview commenced.
The first (female) interviewer asked all the questions and the second (male)
interviewer remained silent throughout the interview. The interviewees were not told
beforehand about this task division between the two interviewers, neither were they
given an explanation about it during or after the interview. The interview consisted of 16 questions relating to the participant’s occupation. For the purposes of this thesis, only questions 5 and 15 are included (the complete interview schedule has been included in Appendix 1). Question 5 required participants to describe their journey from home to work in normal chronological order: ‘Can you describe in detail how you get from home to work?’ Question 15 required participants to describe their journey from home to work in reverse chronological order: ‘Can you describe in detail how you get from your work to home? To clarify, I’d now like you to recall your journey from home to work in reverse chronological order. Therefore, starting from your work, I’d like you to work backwards and explain the journey in reverse order.’

In the supportive condition \((N = 42)\) the second interviewer nodded his head throughout the interview, smiled and sat with an open posture. In the suspicious condition \((N = 42)\) he frowned, shook his head slightly, raised his eyebrows and showed a more closed posture. In the neutral condition \((N = 42)\) he kept an open posture but tried to not react in any way to the participant’s responses.

The first interviewer was instructed to remain neutral in all interviews. To check whether she was successful in doing this, an independent coder judged the first interviewer’s demeanour in all interviews by watching the videotapes. The coder could only see the first interviewer and was blind to the experimental conditions and research hypothesis. The coder rated how suspicious the first interviewer was (on a seven-point Likert scale ranging from [1] ‘Very suspicious’ to [7] ‘Very trusting’) and how supportive (on a seven-point scale ranging from [1] ‘Very unsupportive’ and [7] ‘Very supportive’). The two variables correlated with
each other ($r = .45$) and were clustered into one ‘appearance’ index. A 2 (Veracity) X 3 (Demeanour) ANOVA with appearance as the dependent variable revealed no significant effects for Veracity, $F(1, 120) < .01, p = .956$, for Demeanour, $F(1, 120) = 2.12, p = .125$ or for Veracity X Demeanour, $F(1, 120) = .48, p = .617$. This indicates that the first interviewer’s appearance was constant throughout the experimental conditions. The grand mean score was $M = 4.54$ ($SD = .51$) on a seven-point Likert scale indicating that the first interviewer indeed succeeded in displaying a neutral appearance. A manipulation check of the second interviewer is included in the Results section.

The truthful ($M = 678.67$ seconds, $SD = 215.94$) and deceptive ($M = 653.69, SD = 214.63$) interviews were of similar length, $F(1, 119) = .44, p = .510$. Second interviewer demeanour had no effect on the length of the interviews (Demeanour, $F(2, 119) = .42, p = .655$, Veracity X Demeanour, $F(2, 119) = .01, p = .986$). The interviews were video and audiotaped and the audiotapes were subsequently transcribed.

After the interview, the participants completed a post-interview questionnaire measuring motivation, impression of the second interviewer (manipulation check) and cognitive load. To measure motivation, the participants were asked to what extent they were motivated to perform well (on a five-point scale ranging from [1] ‘Not at all’ to [5] ‘Very much’). The participants’ impression of the interviewer was measured with three questions. The participants were asked to indicate whether the second interviewer was [1] ‘Suspicious’ – [7] ‘Trusting’; [1] ‘Unsupportive’ – [7] ‘Supportive’; and [1] ‘Negative’ – [7] ‘Positive’. The questions were clustered into one ‘supportive’ index (Cronbach’s alpha = .84, inter-item correlations $r > .675$).
Cognitive load was measured with three questions: (1) ‘I felt that the interview required a lot of thinking’, (2) ‘I felt that the interview was mentally difficult’ and (3) ‘I had to concentrate a lot during the interview’. Again, answers were given on seven-point Likert scales ranging from [1] ‘Disagree’ to [7] ‘Agree’, and the questions were clustered into one ‘cognitive load’ index (Cronbach’s alpha = .82, inter-item correlations \( r > .595 \)).

After the participants completed the questionnaire they were thanked and debriefed. For ethical reasons, all participants were told that the interviewers had believed them and received a £5 cash reward.

**Coding**

A coder blind to the hypothesis and experimental conditions read the transcripts and subjectively rated the amount of repetition between the normal and reverse order responses. Repetition was rated on a seven-point Likert scale rating from [1] ‘No repetition’ to [7] ‘Complete repetition’. A second coder, also blind to the hypothesis and experimental condition also rated the amount of repetition between the normal and reverse order responses. The inter-rater reliability between the two coders for overlap (\( r = .61 \)) was satisfactory.

**2.3 Results**

**Manipulation Checks.**

**Motivation and Impression of Second Interviewer.** The participants were motivated to do well in the interview (\( M = 4.18, SD = .70 \)). In fact, 48% of the
participants reported to be motivated (score of 4) and 34% to be very motivated (score of 5) to do well in the interview, whereas the remaining 18% were ‘neutral’ (score of 3). A 2 (Veracity) X 3 (Demeanour) ANOVA revealed that truth tellers were more motivated ($M = 4.35, SD = .65$) than liars ($M = 4.00, SD = .70$), $F(1, 119) = 8.11, p = .005, \eta^2 = .06$, but even among the liars, 76% indicated that they were (very) motivated to do well. Neither the Demeanour main effect, $F(2, 119) = 1.24, p = .292$, nor the Veracity X Demeanour interaction effect, $F(2, 120) = .44, p = .644$ was significant for motivation.

A 2 (Veracity) X 3 (Demeanour) ANOVA with the impression the second interviewer made on the participants as dependent variable revealed a significant Demeanour effect, $F(2, 120) = 59.00, p < .001, \eta^2 = .50$. Post-hoc tests revealed that the second interviewer was perceived as most supportive in the supportive condition ($M = 5.32, SD = 1.0$), followed by the neutral ($M = 3.56, SD = 1.0$) and suspicious ($M = 3.06, SD = .94$) conditions. Tukey post-hoc tests revealed that the supportive condition differed significantly from the neutral and supportive conditions ($p < .001$) and that the neutral and suspicious conditions also differed significantly from each other, $p = .032$ (one-tailed), all $d's > .52$. The Veracity main effect, $F(1, 120) = <.01, p = .999$, and the Veracity X Demeanour interaction effect, $F(2, 120) = .17, p = .842$, were not significant.

**Hypothesis Testing.**
Repetition. A 2 (Veracity) X 3 (Demeanour) ANCOVA\(^1\) was conducted with ratings of repetition in the reverse order responses as the dependent variable. The Veracity main effect, Demeanour mean effect, and Veracity X Demeanour interaction effect were all non-significant (all \(F_s < 3.31\), all \(ps > .071\), with .071 being the \(p\) value for the Veracity main effect). However, the pattern of results appeared to support Hypothesis 1, as truth tellers (\(M = 3.92, SD = 1.34\)) repeated themselves less than liars (\(M = 4.75, SD = .91\)) when the second interviewer was supportive, and the greatest differences emerged in this condition compared to the neutral and suspicious conditions (truth tellers (\(M = 4.48, SD = 1.36\)) repeated themselves more than liars (\(M = 4.27, SD = 1.30\)) with a neutral second interviewer, while truth tellers (\(M = 3.88, SD = 1.16\)) repeated themselves less than liars (\(M = 4.42, SD = 1.16\)) with a suspicious second interviewer). Despite the lack of a significant interaction effect, Hypothesis 1 predicted a specific type of interaction based on theory and previous research and the pattern of results matched the pattern of results predicted in Hypothesis 1. In line with Nahari and Ben-Shakhar (2011), this justifies further examination of the data, specifically examining the difference between truth tellers and liars in the three Demeanour conditions separately, as this addresses Hypothesis 1. Three one-way (Veracity) ANCOVAs with ratings of repetition in the reverse order responses as the dependent variable revealed that truth tellers (\(M = 3.92, SD = 1.34\)) repeated themselves less than liars (\(M = 4.75, SD = .91\)) when the second interviewer was supportive, \(F(1, 39) = 5.78, p = .021, \eta^2 = .13\), supporting

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\(^1\) As the amount of repetition in the reverse order responses is linked with the amount of detail in the normal order responses, subjective ratings of the amount of detail in the normal order responses was introduced as a covariate for the hypothesis testing.
Hypothesis 1. The neutral, $F(1, 39) = .26, p = .612$, and suspicious, $F(1, 39) = 2.12, p = .152$, conditions did not have an effect on repetition.

**Anticipated questions.** Examination of the pre-interview questionnaire data revealed that no participants anticipated any questions requiring ROR, supporting Hypothesis 2. Looking at the questions participants did anticipate (related to where they work), 33 participants (26%) expected to be asked about where they worked and 6 participants (5%) anticipated a question asking them to describe where they work. Two participants (2%) anticipated being asked how they travel to work (question 5 of the interview schedule and that which was used in the analysis of this study).

### 2.4 Discussion

In the present experiment, participants discussed their journey to work in normal and reverse order. Lying about occupation is not a common type of lie in deception research, but it can have important consequences. For example, in security and intelligence settings it relates to spies and informants: Is the person really who s/he claims to be? Another example is fraud investigations. Fake payslips and other documents can be purchased on the web and they can be used to commit mortgage fraud (*The Observer*, 15 November 2009).

As predicted, a supportive demeanour displayed by the second interviewer was found to be effective in terms of eliciting cues to deceit, as truth tellers repeated themselves less than liars, a finding that did not emerge when the second interviewer was suspicious or neutral. In addition, examination of the pre-interview questionnaires revealed that no participants expected any questions requiring ROR.
The fact that liars repeated themselves more than truth tellers provides support for Granhag and Strömwall’s (1999) suggestion that liars use a ‘repeat’ strategy when recalling their story a second time. In addition, the findings offer new insight into the relationship between consistency and deception. While consistency is often used as a cue to deceit, the notion that a lack of consistency indicates deception is too simplistic (see Fisher, Vrij, and Leins, 2013). Indeed, this study found that in the presence of a second supportive interviewer, truth tellers appeared less consistent than liars. Before using consistency as a cue to deceit, judges must consider the context through which the cue has emerged. For example, having a supportive second interviewer present may strengthen liars’ tendency to repeat themselves. However, knowing that liars respond in this way under certain circumstances is useful, and researchers should continue to be critical of consistency as a cue to deceit.

The impact of the interview setting is a factor that should be considered in future examinations of consistency and deception. The findings presented here lend more support for the recommendation that forensic interviewers should display a supportive demeanour. Such a recommendation is already widely made in the literature about good practice in interviewing children and cooperative witnesses and, increasingly, in interviewing suspects (see Bull, 2010, Fisher, 2010, Kassin, Appleby, & Torkildson-Perillo, 2010; Meissner, Redlich, Batt, & Brandon, 2012; Vrij, 2011, for recent reviews). In addition to eliciting cues to deceit, using a supportive second interviewer has three additional advantages. First, it is very easy to apply as no interview skill is required. The only activity required from the second interviewer is to be supportive. Second, using a supportive second interviewer is not related to any specific interview protocol, and it could therefore be applied to every
interview setting. Third, using a supportive second interviewer leads to extra information from truth tellers (see Mann et al. 2013), which gets to the core of interviewing: To obtain as much information from an interviewee as possible (Fisher, 2010).

To the author’s knowledge, this is the first study to manipulate a second interviewer in order to elicit repetition as a cue to deceit. Future studies should use the findings presented here to explore the role of a second interviewer in more depth. Our results suggest that a second supportive interviewer can be used to elicit cues to deceit. However, more research is needed to determine the most effective use of a two interviewer protocol. The first step for researchers would be to replicate our findings. There is very little research on a two interviewer protocol, and yet two interviewers are currently used in forensic interviewers. Any recommendations relating to a two interviewer protocol must be thoroughly tested, given the stakes of real life forensic interviews.

In line with the prediction, the results suggested that the reverse order instruction was not expected by participants. While ROR has been used in various studies of deception and in real life forensic interviews, this study supports prior research suggesting that participants do not anticipate a question of this nature (Vrij, Leal, Mann & Fisher, 2012). The benefit of asking unanticipated questions is that liars cannot prepare for them, and there is a growing body of literature that has adopted the unexpected-questions technique to elicit verbal differences between truth tellers and liars (see Vrij & Fisher, 2013).

The limitations of this experiment warrant some discussion. First, it was not possible to establish the ground truth. It is possible that participants lied about their
actual occupation and experience, and no measures were taken to check these
details. Second, the experiment could have benefited from a more rigorous approach
to coding the responses. A more comprehensive approach would have been to
objectively identify each and every detail in the first (normal order) description of
the journey to work, and look for evidence of all noted details in the second (reverse
order) account. Such an approach would have been superior to a simple subjective
comparison. Third, the Veracity X Mimicry interaction effect was not significant,
which suggests that the second interviewer’s demeanour had no effect. While the
author accepts that there is good cause to conduct no further analyses in these
circumstances, the pattern of results in the present experiment indicated support for
the hypothesis and as such warranted further examination (see Nahari & Ben-
Shakhar, 2011). Replication of the findings accompanied with a significant
interaction effect would provide greater confidence about the impact of a second
supportive interviewer. Finally, the measure of whether questions were expected
could have been improved. A better approach would be to present the questions
asked at interview in a post interviewer questionnaire, and ask participants to state
whether they were expected or not. Comparing those ratings would provide a greater
insight into whether the reverse order instruction were unanticipated.

These results suggest that a second supportive interviewer can elicit repetition
as a cue to deceit. Future research should try to identify factors that affect repetition
in suspect testimony. Second interviewer demeanour is one factor that shows
promise of highlighting deceptive response patterns in interviewees, but there may
be many factors that affect whether an interviewee appears consistent or not. In
addition, it is unknown whether manipulating the behaviour of the first interviewer
can also magnify the differences between truth tellers and liars.
To conclude, a supportive second interviewer can elicit cues to deceit in the form of repetition. In light of these findings, future research should continue to explore the potential benefits of a supportive second interviewer.
Chapter 3: Experiment 2

Expect the unexpected? Variations in question type elicit cues to deception in joint interviewer contexts

Foreword

The following chapter is based on the 2013 article with the same name published in Applied Cognitive Psychology. In all subsequent chapters that similarly originate from a publication, minor amendments have been made to (i) reduce repetition, (ii) improve the clarity of the language, and (iii) to ensure the literature is up to date.

Abstract

This experiment examined the effect of (i) first and second interviewer demeanour and (ii) asking expected and unexpected questions on cues to deception. It was predicted that liars compared to truth tellers would provide more detail to expected questions and less detail to unexpected questions, particularly when the second interviewer is supportive. Liars prepare answers for expected questions and a supportive interviewer will encourage them to provide more detail. Liars cannot prepare for unexpected questions and therefore their answers to such questions will be less detailed. Participants (N = 168) appeared before two interviewers: The first interviewer asked all the questions, and the second interviewer remained silent. Both interviewers exhibited either a supportive or a neutral demeanour. As predicted, liars provided more detail to expected questions and less detail to unexpected questions,
particularly when the second interviewer was supportive. A supportive second interviewer elicits cues to deceit, and therefore investigative interviewers may benefit from adopting a supportive demeanour.

3.1 Introduction

Suspects are frequently interviewed with two interviewers present in the room, (see Sim & Lamb, 2012; Soufan, 2011), and research on using pairs of interviewers outside of the intelligence (or police) context, has noted clear advantages of this technique (Huber & Power, 1985; Kincaid & Bright, 1957). Despite the frequent use of two interviewers there is not much forensic research examining the how a second interviewer impacts on suspects’ testimony. The present experiment examined what demeanour (being supportive or neutral) first and second interviewers should adopt to maximise verbal differences between truthful and deceptive interviewees. The effect of interviewer demeanour on answers to (i) questions which were in all likelihood anticipated and (ii) questions which were in all likelihood not anticipated was explored.

The Effect of the Second Interviewer. Mann et al. (2013) examined the effect of a second interviewer on the verbal recall of truth tellers and liars. They found that truth tellers were more detailed than liars, particularly when the second interviewer displayed a supportive demeanour (head nodding, smiling and an open posture). A supportive interviewer facilitates talking and encourages cooperative witnesses (e.g., truth tellers) to talk (Bull, 2010; Fisher, 2010; Memon, Meissner, & Fraser, 2010; Milne & Bull, 1999). For example, Collins, Lincoln, and Frank (2002) showed that a rapport building approach impacts positively on the amount of correct information recalled by interviewees. A supportive interviewer may encourage truth
tellers to provide more detailed responses, but liars will not always be able or willing to do this. Liars may be unable to because they lack the fantasy to fabricate additional detail (Köhnken, 1996; 2004), or they may be unwilling because they fear that the additional detail sounds implausible or that it increases the opportunity for interviewers to attempt to verify these details and discover they are lying (Hartwig, Granhag, & Strömwall, 2007; Masip & Ces, 2011; Nahari, Vrij, & Fisher, 2012a, 2012b). In sum, a supportive second interviewer makes truth tellers, but not liars, more willing to talk, resulting in enhanced differences in the amount of detail truth tellers and liars provide.

In response to unanticipated questions, liars must provide unprepared, spontaneous answers. Spontaneous lies contain fewer details than spontaneous truthful stories (DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper, 2003; Masip, Sporer, Garrido, & Herrero, 2005; Sporer, 2004; Vrij, 2005, 2008), and, as Mann et al. (2013) found, a supportive second interviewer enhances this difference between truth tellers and liars. The opposite effect, that liars provide more detail than truth tellers which is further enhanced by a supportive second interviewer, may occur when liars expect the questions and prepare answers to them. Observers pay attention to detail and the richer an account is perceived to be, the more likely it will be believed (Bell & Loftus, 1989; Johnson, 2006; Johnson, Foley, Suengas, & Raye, 1988). Liars are aware that interviewers pay attention to detail when making veracity judgements and are therefore keen to provide details in order to make an honest impression (Nahari, Vrij, & Fisher, 2012a). As a result, liars may prepare a detailed alibi and will report it when the opportunity arises. This opportunity does arise when an expected question is asked, and a supportive second interviewer may encourage liars to recall all the information they have prepared. The
result of this differential pattern of responses to expected and unexpected questions is that liars will give more detail than truth tellers when answering expected questions, but less detail than truth tellers when answering unexpected questions. This pattern will be exaggerated by the presence of a supportive second interviewer. In other words, the difference in detail between expected and unexpected questions will be larger in liars than in truth tellers, particularly in the supportive second interviewer condition (Hypothesis 1).

Questions can be unexpected for two different reasons. First, the content of the question can be unexpected. For example, Warmelink, Vrij, Mann, Jundi, and Granhag, (2012) instructed participants to tell the truth or lie about their forthcoming flight, and asked questions about the purpose of the trip, the planning of the trip, transportation from the airport after arrival, and about the core event of the trip. Participants reported that they had expected the questions about the purpose of the trip, whereas all the other questions were unanticipated. Second, the format of the question can be unexpected. For example, a request to sketch the layout of a restaurant or office is more unexpected than the request to verbally recall the layout of a restaurant or office (Vrij et al., 2009; Vrij, Mann, Leal, & Fisher, 2012); and being asked to recall an event in reverse chronological order is more unexpected than being asked to recall an event in normal order (Vrij, Leal, Mann, & Fisher, 2012). Experiment 1 of this thesis also indicates that participants do not anticipate the reverse order instruction when asked what questions they expect at interview. The present experiment, the latter definition of unexpected questions was used and participants were asked to describe the event in normal order (expected question) and in reverse order (unexpected question). Recalling an event in reverse order is not only unexpected, it is also particularly difficult for liars. Deceptive behaviour is
likely to impact on two basic mechanisms in cognition: working memory and speed of processing (Bond, 2012). Answering in reverse order may be particularly taxing on these resources, as liars must retrieve real and imagined data from long term memory into working memory (Baddeley & Hitch, 1974). This task also conflicts with our real world knowledge of temporal sequence (Gilbert & Fisher, 2006; Munte, Schiltz, & Kutas, 1998; Kahana, 1996), and makes it more difficult to reconstruct the event from a schema (Geiselman & Callot, 1990). The reverse order instruction was originally used as a memory enhancing technique as part of the Cognitive Interview (Fisher & Geiselman, 1992). It has since been effectively applied in deception research both in the laboratory (Vrij et al., 2008; Vrij, Leal, Mann, & Fisher, 2012) and in the field (Evans, Houston, & Meissner, 2012; Zimmerman, Veinott, Meissner, Fallon, & Mueller, 2010).

In the present experiment, the second interviewer remained silent throughout the interview. This measure was taken as an experienced UK police interviewer informed us that this is how two interviewers are normally used. Mann et al. (2013), who also introduced a silent second interviewer, found that participants looked at the second interviewer for only 8% of the time. It seems reasonable to suggest that the impact of a second interviewer will become stronger if participants pay more attention to the second interviewer. With this in mind, the second interviewer was introduced as a ‘senior investigator and expert in lie detection’, a procedure also used in human intelligence interviews (Soufan, 2011). This introduction could well overshadow the effect that the speaking interviewer’s demeanour has on the interviewee’s responses. Therefore no prediction was made regarding the effect of the speaking interviewer’s demeanour on the interviewee’s verbal recall. However,
the speaking interviewer’s demeanour was manipulated nevertheless, as it offers a more complete picture of the effect of interviewers’ demeanour on verbal responses.

**Temporal Connectives.** Temporal connectives, words such as *before*, and *after*, are used to form a temporal sequence of events. Kintsch and Mannes (1987) found that they play an important role in script generation. In their study, participants were asked to generate a script by describing what typically happens in three common situations: Going to a restaurant; buying groceries; and going to the doctors. Temporal connectives frequently occurred in the participants’ accounts, and Kintsch and Mannes (1987) suggested that they act as retrieval cues, establishing the links between each new episode or event.

Kintsch and Mannes’ (1987) experiment related to scripted events. In our experiment, participants organised a room for a forthcoming seminar; a task that they are not likely to have carried out many times before. Therefore, the script that they use in the interview will not be of the same quality as a script created from a commonly performed event, such as buying groceries. However, this does not preclude any possible differences between truth tellers’ and liars’ recollections. Script generation from imagined events is likely to be different, because mental representations of false events are likely to be less coherent than those of truthful events (Duran, Hall, McCarthy & McNamara, 2010).

Genuine cues to deceit do exist, though such cues are often faint and unreliable (DePaulo et al., 2003), and deception researchers are tasked with eliciting new cues that magnify the difference between truth tellers and liars (see Hartwig & Bond, 2012). With this in mind, this paper examined the frequency of temporal
connectives present in responses to a reverse order question, as such an approach may yield a new and diagnostic indicator of deceptive leakage.

A distinction was made between normal (‘and then’) and reverse order (‘before that’) connectives. From having a perceptually impoverished experience compared to truth tellers, liars may have a weaker, less detailed script. And given that temporal connectives act as retrieval cues, liars may well use them less, owing to this weaker, less detailed script. Furthermore, given the disorganised nature of their script, re-structuring this information in reverse order may be particularly difficult for liars. This should be reflected in their responses with the use of connectives that do not cohere with a reverse order sequence. Therefore, it was expected that liars would use fewer reverse order (‘before that’) connectives than truth tellers (Hypothesis 2)

3.2 Method

Participants

A total of 168 participants (57 males and 111 females) took part in the study. The sample comprised undergraduate students and university staff, with an average age of $M = 23.40$ years ($SD = 7.4$ years).

Design

To test the hypotheses, a 2 (Veracity: truth vs lie) X 2 (Silent Interviewer Demeanour: supportive vs neutral) X 2 (Speaking Interviewer Demeanour: supportive vs neutral) between-subjects design was used, with the following four dependent variables: (i) the frequency of visual and spatial details in the normal order recollections; (ii) the frequency of visual and spatial details in the reverse
order recollections; (iii) the frequency of normal order temporal connectives in normal order recollections; and (iv) the frequency of reverse order temporal connectives in reverse order recollections.

**Procedure**

Participants were recruited via posters and leaflets, and online via advertisements on the University’s staff and student portals. Participants were invited to try to ‘Fool an expert’ in lie detection and were promised a £5 reward for convincing the expert. While participants were informed that the reward was conditional on a good performance, all participants received £5 for taking part.

Upon arrival in the Psychology Department the participants were greeted by the experimenter and taken to a quiet room close by. Participants signed an informed consent form and completed a pre-interview questionnaire which measured how motivated they were to perform well in the interview on a five point scale ranging from [1] ‘Not at all motivated’ to [5] ‘Very motivated’. At this stage, participants were randomly allocated to either the truth (N = 82) or lying (N = 86) condition, and given instructions about their task.

*Truth tellers’* task was to prepare a room (Room A) for a (mock) seminar, which involved completing a few basic organisational tasks. The task was modified from Leins, Fisher, and Vrij (2012) and Leins, Fisher, Vrij, Leal and Mann (2011, Experiment 2). The experimenter explained that, owing to the absence of the individual who was supposed to prepare the room, the participant must now prepare the room instead.
Room A contained various objects relevant to a seminar, including: three tables; four chairs (all varying in style and colour); a flip chart; a clipboard and attendance sheet; and seminar materials for four people (articles, pens and pads of paper). Before participants began the task, all items were organised according to a pre-determined and standardised plan of the room. The room was deliberately made to look as if it had been left disorganised from a previous seminar to create a sense of realism. The seminar materials were located in an untidy pile at the far end of the tables, and the chairs remained in seemingly random locations around the room. All participants experienced the same disorganised layout of Room A before they completed their task.

On entering Room A, truth tellers were presented with a sheet of instructions detailing the order of the three organisational tasks to be completed. They were instructed that they had as much time as they needed to complete the tasks, and that they should notify the experimenter when they had finished by knocking on the door they entered through. The first of the three tasks was to complete the attendance sheet and place it on the low table in the corner of the room. Second, participants were instructed to place all of the chairs behind the two tables in the centre of the room, and ensure that they were facing the flipchart. The final task involved sorting through the seminar materials; a pen, a pad of paper, and one of each of the colour coded journals was to be placed in front of each of the chairs.

After completing the tasks, truth tellers were briefed before being taken to the interview room:

‘I have just been informed that someone has accessed and stolen some sensitive information from the University’s servers, and I need you to have an interview to
determine whether you know anything about this incident. It is the interviewer’s task
to determine whether you have done this. You will therefore be interviewed about
your activities during the last 30 minutes’.

Before being taken to the interview suite, participants were reminded that
they would receive £5 as a reward if they managed to successfully convince the
expert they were telling the truth. They were also told that they would have to write
a statement about their activities in Room A if the interviewer did not believe them.

Liars’ role in the study was broken down into two stages. Their main task
was to ‘illegally’ copy some encrypted information from another room, Room B.
The participant was first informed about this task: ‘In Room B is a computer, and on
the desktop of that computer is a file called ‘Delta’. We would like you to make a
copy of this file. Before you can do that you need to decrypt the file, and this
involves entering a code. To do that, double click on the file and a small window
will pop-up, prompting you for a password. That information is on this card [the
experimenter shows the participant the card in the sleeve with all the materials in].
There is also some basic information here about how to save a copy of the file, using
the USB stick provided. Room B will be locked, so you will need this key to enter
the room.’ The experimenter then explained that their alibi (in case anyone should
question them) is that they were preparing Room A for a seminar, and that someone
else complicit in the crime would prepare the room on their behalf. After receiving
this information liars viewed Room A, which enabled them to formulate an alibi.
They were provided with the same sheet of instructions provided to truth tellers, and
were asked to imagine completing the organisational tasks, and to memorise this
information.
Liars were then led to Room B (located a short distance from Room A) to complete their primary task. On completion of their task, the experimenter set the scene for the interview to take place:

‘I have just been informed that someone has accessed and stolen some sensitive information from the University’s servers, and I need you to have an interview to determine whether you know anything about this incident. Just to re-iterate, in this interview you are going to lie. You must deny that you (i) have been in Room B and (ii) that you have completed the task in Room B. Instead you are going to say that you prepared Room A. If you are asked anything about Room B, you have got to do your best to convince the interviewer that you know nothing about it.’ Again, before being escorted to the interview suite, participants were reminded that they would receive £5 for convincing the expert, and were further told that they would have to write a statement about their activities in Room A if the interviewer did not believe them.

The Interview. The interview schedule was broken down into two parts. One part focused on the alleged activities in Room A and the other part on the alleged activities in Room B. The current experiment focusses on questions that relate to Room A (see Appendix 2 for details of all interview questions relating to Room A).

The questions were aimed at eliciting detailed visual, spatial, and temporal information. The interview commenced with a question that participants were likely to expect: (1) ‘Giving as much detail as possible, please describe all the things you did whilst inside Room A in the exact order in which you did them’. After some filler questions the participants were then asked: (2) ‘Please now describe, in reverse chronological order, exactly what you did in Room A?’
After the interview, participants completed a post-interview questionnaire which included three manipulation checks. First, participants rated the expertise of the interviewers from [1] ‘Novice’ to [7] ‘Expert’. Second, the participants were asked to indicate on a seven point scale whether each interviewer was [1] ‘Suspicious’ to [7] ‘Trusting’, [1] ‘Unsupportive’ to [7] ‘Supportive’, and [1] ‘Negative’ to [7] ‘Positive’. The questions were clustered into one ‘supportive’ index (for the silent interviewer, Cronbach’s alpha = .88, inter-item correlations $r > .70$; for the speaking interviewer Cronbach’s alpha = .89, inter-item correlations $r > .67$). Third, participants were asked to mark which of the interview questions were unexpected by ticking a corresponding box. Therefore, using a dichotomous rating scale, each question was rated as expected (box not ticked) or unexpected (box ticked).

The questionnaire also included questions about the likelihood of receiving £5, and the likelihood of having to write a statement ([1] ‘Not at all likely’ to [7] ‘Very likely’).

**Interviewer Demeanour.** Each interview was conducted by two female interviewers of whom one was speaking and one was silent. Each interviewer was either supportive or neutral. In the supportive condition the interviewers tried to show the participants that they believed what they were saying. They achieved this by leaning forward, nodding, and smiling when the participants answered. The interviewers also maintained an open posture throughout the interview. These behaviours were selected as they are often associated with friendliness and empathy in communication research (Burgoon, 1991; Burgoon, Birk, & Pfau, 1990; Seay & Altekruse, 1979; Smith-Hanen, 1977). These same operationalisations were used by Mann et al. (2013) and
Experiment 1 of this thesis. In the neutral condition, the interviewers kept an open posture, but largely did not respond to the participant’s answers. They were also conscious, however, of not appearing negative or disbelieving. The speaking interviewer introduced herself as a trainee interviewer, before mentioning that she was being accompanied by a senior investigator who is an expert in lie detection (to see the exact introduction, see Appendix 2). To make the manipulation more believable, the ‘expert’ interviewer was several years older than the ‘trainee’, and also dressed more formally.

**Coding and Data Analysis**

The interviews were videotaped, audiotaped and transcribed and the verbal coding was based on the transcripts. A coder, blind to the hypotheses and experimental conditions, read each answer carefully and marked every detail the interviewee gave. These details were then classified as visual, spatial or neither. For example, the sentence ‘I put the clipboard on the low table in the left hand corner’ contains three visual details (clipboard, low, table), two spatial details (on, left hand corner), and one other detail (put). A second coder, also blind to the hypotheses and experimental conditions, also coded spatial and visual details using a sub-sample of 37 transcripts (23%). The inter-rater reliability between the two coders for both the normal order question ($r = .85$) and reverse order question ($r = .82$) was high. Comparisons of visual ($t (36) = -.55, p = .588$) and spatial ($t (36) = 1.07, p = .291$) details coded in the normal order question, and visual ($t (36) = 1.28, p = .209$) and spatial ($t (36) = .60, p = .554$) details coded in the reverse order question revealed no differences between the two coders’ data.
To create the difference score, first, the total number of spatial and visual details observed in the normal and reverse order responses were recorded, and two new variables were created with the sum number of these details in each response. Next, a new variable was created by taking away the sum number of visual/spatial details in the reverse order response from that of the normal order response. This new variable represents the difference in detail between the responses, and is referred to as the ‘difference score’. Inspection of the difference scores revealed that the data set contained nine outliers, that is, nine participants with an average difference score that fell plus or minus two standard deviations from the mean of the total sample. Those nine participants were removed from the dataset; a common procedure when dealing with outliers in statistical data (Field, 2005).

The first coder also rated the reverse order responses for the temporal connectives ‘and then’ and ‘before that’. ‘And then’ is considered to be a normal order phrase and ‘before that’ is considered to be a reverse order phrase. For clarity reasons the phrases ‘and then’ and ‘before that’ are used in the Results section. The decision to focus on these phrases originates from the coding of transcripts in Experiment 1, where a coder observed that: (i) ‘and then’ and ‘before that’ were used frequently in the reverse order responses (ii) truth tellers appeared to use ‘before that’ more frequently than liars.

The second coder also rated the temporal connectives in a sub-sample of 37 transcripts (23%). The inter-rater reliability between the two coders ratings of the ‘and then’ (.97) and ‘before that’ phrases was also high (.98). Comparisons of normal order connectives ($t (36) = 2.02, p = .051$) revealed no difference between the coders, however, there was a difference in the coding of reverse order
connectives ($t (36) = 2.462, p = .019$). Regarding the significant difference in reverse order connectives, the mean scores were small and even a small difference amounts to a significant difference. The exceptionally high correlation ($r = .98$) indicates that the coding was reliable.

In order to check that participants took notice of the silent interviewer, all videos were coded subjectively for gaze duration towards the interviewers. A third coder, blind to the hypotheses and experimental conditions, rated the percentage of time the interviewee looked at either of the two interviewers or away from the interviewers, with the total of all three ratings adding up to 100%. For example, the rating could be ‘60% to the speaking interviewer, 20% to the silent interviewer and 20% elsewhere’. A fourth coder, also blind to the hypotheses and experimental conditions, also coded gaze duration using a sub-sample of 59 videos (37%). The inter-rater reliability between the two coders for gaze at the silent (.74) and speaking (.93) interviewers was high.

### 3.3 Results

**Motivation, Incentive and Penalty.** Participants ($N = 168$) were motivated to do well in the experiment ([$M = 4.08$, $SD = .75$] on a five point Likert scale), with 55% reporting that they were ‘Quite motivated’ (score of 4), and 27% ‘Very motivated’ (score of 5). A 2 (Veracity: truth vs lie) X 2 (Silent Interviewer Demeanour: supportive vs neutral) X 2 (Speaking Interviewer Demeanour: supportive vs neutral) ANOVA with motivation as the dependent variable revealed no significant main or interaction effects (all $F’s < 1.38$, all $p’s > .24$) indicating that the participants’ motivation levels were similar amongst the experimental conditions.
The 2 (Veracity: truth vs lie) X 2 (Silent Interviewer Demeanour: supportive vs neutral) X 2 (Speaking Interviewer Demeanour: supportive vs neutral) ANOVA regarding the likelihood of receiving an incentive of £5 resulted in a main effect for Veracity, $F(1, 151) = 10.78, p < .001, \eta^2 = .067$, whereas all other main and interaction effects were not significant, all $F’s < 2.21$, all $p’s > .14$. Truth tellers ($M = 4.64, SD = 1.3$) more than liars ($M = 3.91, SD = 1.5$) were inclined to think that they would receive a £5 incentive.

Another 2 (Veracity: truth vs lie) X 2 (Silent Interviewer Demeanour: supportive vs neutral) X 2 (Speaking Interviewer Demeanour: supportive vs neutral) ANOVA regarding the likelihood of having to write an essay also resulted in a main effect for Veracity, $F(1, 151) = 10.98, p < .001, \eta^2 = .068$, whereas all other main and interaction effects were not significant, all $F’s < 2.49$, all $p’s > .12$. Liars ($M = 3.91, SD = 1.2$) more than truth tellers ($M = 3.29, SD = 1.2$) were inclined to think that they would be requested to write an essay. In sum, the participants were motivated to be convincing and the incentive and penalty appeared realistic.

**Manipulation Checks: Demeanour of Interviewers, Expertise of the Interviewer, and Expectedness of the Questions.** A 2 (Veracity: truth vs lie) X 2 (Silent Interviewer Demeanour: supportive vs neutral) X 2 (Speaking Interviewer Demeanour: supportive vs neutral) ANOVA with ratings of the *speaking interviewer’s* demeanour as dependent variable revealed significant main effects for Veracity, $F(1, 151) = 6.78, p = .013, \eta^2 = .04$, Silent Interviewer, $F(1, 151) = 27.67, p < .001, \eta^2 = .16$, and Speaking Interviewer, $F(1, 151) = 19.97, p < .001, \eta^2 = .12$. None of the interaction effects were significant, all $F’s < .68$, all $p’s > .41$. In alignment with the experimental manipulation, the speaking interviewer was
perceived as more supportive in the supportive speaking interviewer condition ($M = 5.07, SD = 1.1$) than in the neutral speaking interviewer condition ($M = 4.32, SD = 1.2$). In addition, truth tellers found the speaking interviewer more supportive ($M = 4.93, SD = 1.2$) than liars ($M = 4.48, SD = 1.1$). Finally, the speaking interviewer was perceived as more supportive when the silent interviewer was neutral ($M = 5.13, SD = 1.0$) than when the silent interviewer was supportive ($M = 4.23, SD = 1.3$).

A 2 (Veracity: truth vs lie) X 2 (Silent Interviewer Demeanour: supportive vs neutral) X 2 (Speaking Interviewer Demeanour: supportive vs neutral) ANOVA with ratings of the silent interviewer’s demeanour as dependent variable revealed a significant main effect for Veracity, $F(1, 151) = 61.33, p < .001, \eta^2 = .29$, whereas all other main effects and interaction effects were not significant, all $F’s < 2.76$, all $p’s > .103$. Again, in line with the experimental manipulation, the silent interviewer was perceived as more supportive in the supportive silent interviewer condition ($M = 5.22, SD = 1.3$) than in the neutral silent interviewer condition ($M = 3.67, SD = 1.32$).

A 2 (Veracity) X 2 (Silent Interviewer Demeanour) X 2 (Speaking Interviewer Demeanour) X 2 (Expertise of Interviewer) mixed ANOVA with Expertise of the Interviewer (speaking interviewer or silent interviewer) as the only within-subjects factor and ratings of the interviewers’ expertise as the dependent variable revealed a main effect for Expertise, $F(1,140) = 16.13, p < .001, \eta^2 = .10$, whereas all other main and interaction effects were not significant, all $F’s < 2.17$, all $p’s > .137$. The silent interviewer was perceived as being more of an expert in lie detection ($M = 5.22, SD = 1.3$) than the speaking interviewer ($M = 4.66, SD = 1.1$).
A 2 (Veracity) X 2 (Silent Interviewer Demeanour) X 2 (Speaking Interviewer Demeanour) X 2 (Type of Question) mixed ANOVA with the Type of Question (normal order versus reverse order) as the only within-subjects factor and unexpectedness as the dependent variable revealed a significant main effect for Type of Question, $F(1, 151) = 189.29, p < .001, \eta^2 = .56$, whereas all other main effects and interaction effects were not significant, all $F's < 3.60, all p's > .06$. Only 9% ($SD = 28$) of participants found the normal order question unexpected, whereas the majority of participants (68%, $SD = 47$) found the reverse order question unexpected.

In sum, both the speaking and silent interviewers were perceived as more supportive in the supportive interviewer conditions; the silent interviewer was considered more of an expert in lie detection than the speaking interviewer; and the reverse order question was more unexpected than the normal order question. This means that the manipulations were successful.

**Gaze.** A 2 (Veracity) X 2 (Silent Interviewer Demeanour) X 2 (Speaking Interviewer Demeanour) X 2 (Gaze at Interviewer) mixed ANOVA with Gaze at Interviewer (towards speaking interviewer or silent interviewer) as the only within-subjects factor and eye contact as the dependent variable revealed a significant main effect for Gaze at Interviewer, $F(1, 145) = 377.27, p < .001, \eta^2 = .72^2$. Participants looked considerably more at the speaking interviewer ($M = 40.62\%$ of the time, $SD = 20.7$) than at the silent interviewer ($M = 7.33\%$ of the time, $SD = 5.2$). In fact, 7.33% indicates that participants hardly looked at the second interviewer. The

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2 The gaze patterns of 8 participants could not be clearly seen on the videotapes, due to wearing glasses for example, and these participants were dropped from this analysis.
Veracity main effect was also significant, $F(1, 145) = 5.40, p = .022, \eta^2 = .04$, as was the Veracity X Gaze at Interviewer interaction effect, $F(1, 145) = 4.95, p = .028, \eta^2 = .03$. The latter effect is the more informative of the two. Liars ($M = 44.30, SD = 21.7$) maintained more eye contact with the *speaking* interviewer than truth tellers ($M = 36.67, SD = 18.9$), $F(1, 151) = 5.31, p = .023, \eta^2 = .03$, whereas no difference emerged in maintaining eye contact with the *silent* interviewer between liars ($M = 7.46, SD = 6.0$) and truth tellers ($M = 7.21, SD = 4.2$), $F(1, 151) = .09, p = .768, \eta^2 < .01$. All other main effects and interaction effects were not significant, all $F$’s $< 1.81$, all $p$’s $> .178$.

**Hypotheses-Testing**

A 2 (Veracity: truth vs lie) X 2 (Silent Interviewer Demeanour: supportive vs neutral) X 2 (Speaking Interviewer Demeanour: supportive vs neutral) ANOVA with the mean difference score as the dependent variable revealed a significant Veracity X Silent Interviewer Demeanour interaction effect, $F(1, 151) = 9.82, p = .002, \eta^2 = .06$. All other main effects and interaction effects were not significant, all $F$’s $< 1.14$, all $p$’s $> .283$. Simple effect tests showed that liars obtained a significantly larger difference score ($M = 7.78, SD = 6.0$) than truth tellers ($M = 3.33, SD = 7.0$) when the silent interviewer was supportive, $F(1, 75) = 9.39, p = .003, \eta^2 = .11$. In contrast, when the silent interviewer was neutral the difference scores of liars ($M = 4.54, SD = 7.0$) and truth tellers ($M = 6.73, SD = 6.6$) did not differ, $F(1, 80) = 2.24, p = .148, \eta^2 = .03$. This supports Hypothesis 1.

A larger difference score for liars than for truth tellers in the supportive interviewer condition can be caused by liars being more detailed than truth tellers in answering the (expected) normal order question (option 1), liars being less detailed
than truth tellers in answering the (unexpected) reverse order question (option 2), or due to a combination of the two (option 3). In order to examine these three options, a 2 (Veracity) X 2 (Type of Question) mixed ANOVA was carried out with Veracity as a between-subjects factor, Type of Question (normal order or reverse order) as a within-subjects factor and the total number of details as dependent variable. The analysis only included the participants allocated to the supportive silent interviewer condition. The Veracity main effect was not significant, $F(1, 75) = .21, p = .649, \eta^2 < .01$, but the Question main effect was, $F(1, 75) = 58.66, p < .001, \eta^2 = .44$. Of most interest is the Veracity X Question interaction effect, which was also significant, $F(1, 75) = 9.39, p = .003, \eta^2 = .11$. Liars ($M = 23.88, SD = 8.8$) were more detailed than truth tellers ($M = 20.86, SD = 8.7$) when answering the (expected) normal order question and less detailed ($M = 16.10, SD = 8.1$) than truth tellers ($M = 17.53, SD = 7.2$) when answering the (unexpected) reverse order question. However, the difference between liars and truth tellers in the normal order question, $F(1, 75) = 2.27, p = .136, \eta^2 = .03$, and the reverse order question, $F(1, 75) = .66, p = .418, \eta^2 = .01$ were not significant. In other words, the significant difference score obtained between truth tellers and liars and described above was due to the combination of liars being more detailed in answering the expected normal order question and less detailed in answering the unexpected reverse order question (option 3).

A 2 (Veracity: truth vs lie) X 2 (Silent Interviewer Demeanour: supportive vs neutral) X 2 (Speaking Interviewer Demeanour: supportive vs neutral) MANCOVA\(^3\)

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\(^3\) As the frequency of connectives is linked with the length of participants’ responses, total words uttered in participants’ responses to the reverse order questions was introduced as a covariate (which was significant, $F(2, 149) = 48.44, p < .001, \eta^2 = .39$, truth tellers’ ($M = 88.10, SD = 45.7$) responses contained more words than liars’ ($M = 85.99, SD = 39.8$)).
with the use of the phrases ‘and then’ and ‘before that’ as dependent variables revealed a significant Veracity main effect, $F(2, 150) = 4.13, p = .018. \eta^2 = .05$. All other main effects and interaction effects were not significant, all $F$’s < .41, all $p$’s > .667. Univariate tests showed that truth tellers ($M = 1.47, SD = 2.1$) said ‘before that’ more than liars ($M = .74, SD = 1.3$), $F(1, 157) = 7.94, p = .005. \eta^2 = .05$, supporting Hypothesis 2. Truth tellers ($M = 2.27, SD = 2.0$) and liars ($M = 2.18, SD = 2.0$) did not differ from each other in saying ‘and then’, $F(1, 157) = .01, p = .906. \eta^2 = <.01.

The mean scores indicate that both truth tellers and liars used the phrase ‘and then’ more often than the phrase ‘before that’. The ratio of ‘before that’ to ‘and then’ phrases (the frequency of using the phrase ‘before that’ divided by the frequency of using the phrase ‘and then’)\(^{4}\) was calculated before conducting an ANCOVA\(^{5}\) with this ratio as the dependent variable and Veracity as a factor. The analysis revealed a significant effect, $F(1, 159) = 3.93, p = .049. \eta^2 = .02$. Truth tellers’ ratio was close to 1 ($M = .90, SD = 1.6$) indicating that they used the words ‘and then’ and ‘before that’ with similar frequency. Liars’ ratio was close to .5 ($M = .49, SD = .9$), indicating that they used the words ‘and then’ on average twice as much as the word ‘before that’.

\(^{4}\) In case ‘and then’ was 0, the ‘before that’ score was used as a ratio score. For example, if the ‘before that’ score was ‘4’, the ratio score was ‘4’ etc.

\(^{5}\) Once again, the total words uttered in participants’ responses to the reverse order questions was introduced as a covariate (which was significant, $F(1, 157) = 7.83, p = .006. \eta^2 = .05$).
3.4 Discussion

In accordance with previous findings (Mann et al., 2013; Experiment 1 of this thesis), a supportive second interviewer effectively elicited cues to deceit. When the second interviewer was supportive, it was found that the difference in detail between expected and unexpected questions was significantly larger for liars than truth tellers. This was in part due to liars providing more detail in response to the expected question, and fewer details in response to the unexpected question. The finding that liars provided more details is somewhat novel, but not new. It was also found in two other studies in which the expected/unexpected questions approach was used (Lancaster, Vrij, Hope, & Waller, 2012; Warmelink, et al., 2013). For example, in Warmelink et al. truth tellers and liars were interviewed about their alleged forthcoming trip. Expected questions about the purpose of the trip (e.g., “What is the main purpose of your trip?”), were followed by unexpected questions about transport (e.g., “How are you going to travel to your destination?”), planning (“What part of the trip was easiest to plan?”), and the core event (“Keep in mind an image of the most important thing you are going to do on this trip. Please describe this mental image in detail?”). Liars, compared to truth tellers, gave significantly more detail to the expected questions and significantly less detail to the unexpected questions. The same argument in the present study can be given to explain Warmelink et al.’s findings. When liars are presented with a question that they expect and have prepared an answer for, they are motivated to give as much information as possible. In the current study, it appears that a supportive interviewer enhanced this finding.

A second reason for the larger difference in liars is that they were less detailed than truth tellers when answering the unexpected reverse order question.
Reverse order questions are likely to impact on two basic cognitive mechanisms; working memory and speed of processing. For liars, answering in reverse order requires retrieving real and imagined data from long term memory into working memory, which may result in shorter, less detailed answers. Furthermore, liars cannot prepare for unexpected questions, which is likely to reduce the quality of their responses.

The analysis of gaze behaviour replicated the findings of Mann et al. (2013) in three ways. First, participants looked more at the speaking interviewer than the silent interviewer, and liars looked more at the speaking interviewer than truth tellers. Second, both liars and truth tellers looked at the silent interviewer less than 10% of the time. Third, despite the fact that participants hardly looked at the second interviewer, they nonetheless correctly noted the second interviewer’s demeanour and their verbal responses were influenced by this demeanour. It sounds reasonable that a second silent interviewer will have more impact on participants’ responses if participants pay more attention to him or her. In that respect, Mann et al. (2013) suggested that introducing the second interviewer as a ‘senior investigator and expert in lie detection’ (as in the present experiment) might increase the amount of time participants look at the second interviewer. This did not happen. One could argue that there was no reason for participants to look more at the second interviewer since their only activity was to display a certain demeanour (neutral or supportive) and this was correctly noticed by the participants. Other ways to increase the amount of time someone looks at a silent second interviewer could be tested. For example, the second silent interviewer could change his or her demeanour periodically throughout the interview. That might keep the participants alert.
Another possibility is to introduce the second interviewer half-way through the interview, as that may put more emphasis on the second silent interviewer.

The finding that the speaking interviewer’s demeanour had no effect on participants’ responses requires some explanation. Participants looked considerably more at the speaking interviewer and hardly looked at the silent interviewer at all. So why did the speaking interviewer’s demeanour not have more effect on the participants’ responses? There are two possible explanations: First, as reported in the Introduction, the second interviewer was introduced as a ‘senior investigator and expert in lie detection’, and such an introduction could have caused participants to disregard or pay little attention to the speaking interviewer’s demeanour. Second, the speaking interviewer also engaged in verbal communication with the interviewee. In other words, the speaking interviewer provided two sources of information: demeanour and speech. This second source of information (speech) may have diminished the effect of the first source (demeanour), as typically happens when interviewees are exposed to different sources of information (Patterson, 1995). In contrast, the silent interviewer’s only interaction with participants was displaying a positive demeanour. If the speaking interviewer’s verbal interaction with participants acted as a distraction, then the silent interviewer’s demeanour may have impacted more on participants’ responses.

The prediction that liars would use more reverse order temporal connectives was also supported. Truth tellers used the ‘before that’ connective more often than liars, while there was no difference for the ‘and then’ connective. Truth tellers’ experience of the event they recalled during the interview was inherently different from liars’ experience. As a result, truth tellers may have had a more
coherent reverse order script of their activities, reflected in the increased use of reverse order temporal connectives. The finding relating to temporal connectives is new in deception literature, and deserves further attention. Reliable cues to deceit are scarce, and some researchers argue that there are no reliable cues (DePaulo et al., 2003; Vrij, 2008). It is important to examine why truth tellers use more reverse order connectives than liars, and the explanation offered (truth tellers have a more coherent script) could be examined in more detail. For example, participants should be quizzed post-hoc on exactly how they reconstructed an event in reverse order, and whether they deliberately used reverse order connectives.

Future research may benefit from encouraging interviewees to provide more temporal connectives in their responses. In Warmelink, Vrij, Mann, and Granhag (2013, Experiment 2), participants were interviewed on a ferry about their plans for the day. In a minor adjustment to the procedure, the experimenters introduced a specific time-prompt question: “Please describe in as much detail as possible what your time-table is for today at your destination?” As a result, participants provided more time references in their responses, and this information increased detection efficiency. With this in mind, reverse order questions may yield more temporal connectives by asking for a more precise, step-by-step account of events.

In order to examine further the value of temporal connectives as a cue to deceit, the next logical step would be to conduct a deception detection study. In this scenario, participants would examine the transcripts from the current study, and make a veracity judgment based on the use of temporal connectives. This would give some indication as to the diagnostic value of this cue.
In sum, the present experiment, Experiment 1, and Mann et al. (2013) show that a second silent interviewer yields favourable effects when s/he shows a supportive demeanour, as it creates cues to deceit. The use of supportive interviewers has been recommended for some time in interviews with witnesses and victims (Bull, 2010; Fisher, 2010). There is growing evidence that it could also be useful when interviewing suspects.
Chapter 4: Experiment 3a

‘We'll take it from here’: the effect of changing interviewers in information gathering interviews

Foreword

The following chapter is based on the 2014 article with the same name published in Applied Cognitive Psychology. Note that Experiment 3a focuses solely on the effect of changing the interviewers, while the effect of deliberate mimicry (which was manipulated alongside the changing of interviewers) is examined in the following chapter. The decision to examine the two experimental manipulations in isolation was made as it fits with the trend of the thesis thus far; examining the impact of individual manipulations of a second interviewer. Such an approach offers greater clarity on the effect of each manipulation, which in turn will benefit any future recommendations enabled by the findings. Crucially, adopting a 2 (Veracity: truth vs lie) X 2 (Interviewers: Same interviewers vs changed interviewers) X 2 (Mimicry: present vs absent) design to test the hypotheses put forward in Experiment 3a revealed that mimicry did not interact with the other independent variables (Subjective new information: all $F$s <.22, all $p$s >.314; objective new information: all $F$s <.65, all $p$s >.424; subjective detail: all $F$s <.80, all $p$s >.372; objective detail: all $F$s <.79, all $p$s >.376; subjective repetition: all $F$s <.03, all $p$s >.314, objective repetition: $F$s <.2.45, all $p$s >.996).
Abstract

A common strategy in interviewing is to repeatedly focus on the same topics. For example, an interviewer could ask that the event in question is recalled twice, first in normal chronological order, and later in reverse order. The current study adopted this strategy, and examined the effect of changing two interviewers after the normal order question, and the impact this has on cues to deception. Truth tellers may be most encouraged to recall again what they have witnessed when confronted with new interviewers, as these new interviewers have not heard their story before. Liars may be most encouraged to recall again their story when confronted with the same interviewers, realising that these interviewers will check for consistency in their answers. The impact of changing interviewers should lead to more pronounced differences between truth tellers and liars in terms of detail and repetition in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition.

Participants attended a mock security meeting before being interviewed by two interviewers regarding the meeting. In half the interviews the same two interviewers remained throughout, and in the other half two new interviewers took over half-way through. As predicted, differences between truth tellers and liars in terms of detail and repetition were most pronounced in the ‘changed interviewers’ condition. Changing interviewers during an interview effectively differentiates truth tellers and liars with respect to detail and repetition. This finding and its place within investigative interviewing and deception detection literature is discussed.

4.1 Introduction
A common strategy employed by investigators is to repeatedly focus on the same topics throughout an investigative interview (Fisher, 2010). This technique is aimed at giving interviewees the chance to say everything they know, and to ensure that nothing is missed. One way to achieve this is by asking the same question in a different format, for example, by asking an interviewee to recall an event in reverse chronological order (Fisher & Geiselman, 1992). Although the invitation to recall an event in reverse order is mostly used in interviews with collective witnesses (Fisher, 2010), it has also been used when interviewing suspects (Geiselman, 2012). The instruction to recall in reverse order was used in the present experiment in interviews with (mock) suspects. Of particular interest was the impact of using different interviewers in different stages of an interview, and whether this approach can heighten the verbal differences between truth tellers and liars. The present experiment examined the effect of (i) having the same interviewers ask both a normal chronological order question at Stage One and a reverse order question at Stage Two (the ‘same interviewers’ condition) and (ii) changing interviewers after Stage One so that the interviewers who ask the normal order question at Stage One are different from the interviewers who ask the reverse order question at Stage Two (the ‘changed interviewers’ condition).

For truth tellers, the reverse order question and the introduction of new interviewers at Stage Two of the interview may elicit new information. Anderson and Pichert (1978) showed that recalling an event from a different perspective stimulates an interviewee to think again, subsequently evoking new information. Similarly, recalling an event in reverse order in the presence of two new interviewers may encourage an interviewee to think harder about the event in question. For liars, the reverse order question or the introduction of new interviewers is less likely to
result in new information. Liars may find it difficult to come up with new information that sounds plausible (Köhnken, 1996, 2004; Leal, Vrij, Warmelink, Vernham, & Fisher, 2015). Equally, liars may be discouraged from being detailed as this increases the risk of that information being falsified (Hartwig, Granhag, & Strömwall, 2007; Masip & Ces, 2011; Nahari, Vrij, & Fisher, 2012a; Nahari & Vrij, 2014). Therefore, methods that can evoke new information from truth tellers (reverse order recall or the introduction of new interviewers) may not have such an effect on liars. With this in mind, it was predicted that at Stage Two truth tellers would provide more new details than liars (Hypothesis 1a). It was further predicted that truth tellers would provide more new details at Stage Two than liars, particularly when confronted with new interviewers (Hypothesis 1b).

Apart from providing new information at Stage Two, the current study also examined the amount of detail provided during the interview and the amount of repetition in answers between Stages One and Two. Having the same or new interviewers at Stage Two may have opposite effects on truth tellers and liars, notably in terms of detail at Stage Two and the amount of repetition between Stages One and Two responses. Truth tellers will realise that the new interviewers have not heard what they said at Stage One. Therefore, they may be encouraged to be detailed at Stage Two and to repeat what they have said previously when new interviewers are present. Of course, a good reason for truth tellers to be detailed at Stage Two and to repeat themselves when the same interviewers are present is to show consistency in their answers. Consistency is widely seen as a sign of honesty (Strömwall, Granhag, & Hartwig, 2004). However, because truth tellers typically take their credibility for granted (DePaulo et al., 2003; Gilovich, Savitsky, & Medvec, 1998) and have no reason to believe that interviewers will doubt them, they are typically
not concerned with conveying their honesty (Kassin, 2005; Kassin & Gudjonsson, 2004). Given that the same interviewers have already heard their story, and given that reverse order recall is cognitively demanding, truth tellers may be less motivated to tell them the entire story again.

In contrast, liars may be particularly keen to be detailed at Stage Two and to repeat what they have said before when interviewed by the same interviewers. Unlike truth tellers, liars do not take their credibility for granted. Also, given that consistency is perceived as a sign of honesty, they may be keen to show consistency in their answers when the same interviewers are present, resulting in them being detailed at Stage Two and repeating what they have said at Stage One. When two new interviewers take over the interview, the idea that their answers will be compared is less obvious (Vrij, Leal, Mann, & Granhag, 2011). This notion, combined with the difficulty of reverse order recall, may result in liars providing a shorter statement that includes less detail when two new interviewers are present. It was therefore predicted that, because liars may find it difficult to fabricate information or may fear that their responses will be falsified, overall truth tellers will be more detailed than liars (Hypothesis 2a). It was also predicted that truth tellers will be more detailed in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition, whereas liars will be less detailed in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition. As a result, differences in detail between truth tellers and liars will be more pronounced in the ‘changed interviewers’ condition than in the ‘same interviewers’ condition (Hypothesis 2b). The final prediction was that truth tellers will repeat more at Stage Two what they have said at Stage One in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition, and conversely, that liars will show
less repetition in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition. As a result, differences in repetition between truth tellers and liars will be more pronounced in the ‘changed interviewers’ condition than in the ‘same interviewers’ condition (Hypothesis 3).

The idea that liars display less repetition than truth tellers when the questions are asked by different interviewers has been noted twice before (Jundi, Vrij, Hope, Mann, & Hillman, 2015; Vrij, Leal, Mann, & Granhag, 2011). On both occasions, the authors speculated that the change of interviewer may have been responsible for the reduced overlap in liars’ (compared to truth tellers’) responses. In this article this suggestion is put to an empirical test.

One additional and novel aspect of this experiment is that liars could volunteer as little or as much truthful information as they liked. The reason for giving liars this opportunity is that it replicates a real life situation where an individual volunteers false information in order to mislead the authorities. Of course, in order to appear credible someone may provide a mixture of true and false information (lies are also often embedded in truthful information, see Vrij, Granhag, & Porter, 2011), and the present study adopts this scenario to create a sense of realism.

4.2 Method

Design

A 2 (Veracity: truth vs lie) X 2 (Interviewer: same interviewers vs changed interviewers) between-subjects design was adopted, with the following dependent variables: (i) the number of details in Stage One recollections; (ii) the number of
details in Stage Two recollections; (iii) the frequency of ‘meeting events’ (see below) recalled in Stage One recollections; (iv) the frequency of meeting events recalled in Stage Two recollections; and (v) the amount of repetition between Stage One and Stage Two recollections.

Participants

A total of 165 participants (58 males and 107 females) took part in the study. The sample was made up of undergraduate students ($N = 144$), university staff ($N = 18$), and members of the general public ($N = 3$). The average age was $M = 22.56$ years ($SD = 6.64$ years).

Procedure

Participants were recruited via posters, leaflets, and online advertisements on the University’s staff and student portals. An advert was also placed in a local newspaper. Participants were invited to play the role of a secret agent, attending a meeting and then an interview. The advert provided contact details and offered a £5 reward to those who were convincing in the interview.

After arriving at the Department, participants were informed that they were going to play the role of an intelligence officer, attending a secret security meeting conducted by an organisation known as ‘HMI’. The participants were then directed to a small room where the meeting took place.

The meeting. The purpose of the meeting was to vote on a suitable location to plant a spy device, and included a visual presentation of the following details: the three members (confederates) present at the meeting; the spy device and its physical and technical features; and the shortlisted locations suitable to host the device, including
floor plans and details on suitability. Before the third and final location (a hotel reception) was presented, the meeting was interrupted, triggering a vote on which location should host the device. The outcome of this vote was pre-determined, and the participant’s vote could not affect the result (the three confederates voted for a predetermined site, therefore the vote was either unanimously in favour of one location, or the participant was outvoted by three votes to one).

The participant then returned to the room where s/he started the experiment. It was at this stage that all participants were randomly assigned to a veracity condition, either truth tellers (N = 82) or liars (N = 83).

Prior to being interviewed, the truth tellers were informed that a sister organisation, HMR, was aware of the meeting they had just attended. Truth tellers were told that HMR knew who HMI are looking for, and had been pursuing this person for some time. Truth tellers were therefore instructed to have an interview with HMR and volunteer information about the content of meeting. They were told that their task was to fully cooperate with the interviewers and to volunteer all the information they asked for. In addition, the experimenter informed truth tellers that they would receive £5 as a reward if they managed to convince the interviewers. Alternatively, if they failed to convince the interviewers, they would have to write a report about the meeting instead. (All participants in this experiment, truth tellers and liars, received the £5 for taking part, and no one had to write a report). Finally, before being led to the interview room, truth tellers completed a ‘Pre-Interview Questionnaire’ which measured how motivated they were to perform well in the interview. This was measured on a five-point Likert scale ranging from [1] ‘Not at all motivated’ to [5] ‘Very motivated’.
On returning from the meeting, the liars were first informed that a foreign intelligence agency, ‘EFA’, was aware of the meeting they had attended. To prevent an investigation into HMI (the organisation that conducted the meeting), liars were told that they must now meet with EFA and do their utmost to convince the EFA interviewers that they were telling the truth. The liars’ task required them to provide a mixture of truthful and false information. The truthful information, it was argued, would help convince EFA that they were being cooperative. Therefore, liars were first instructed to be completely honest about the room where the meeting took place, and the location that did not win the vote. Second, they were told that they must be completely dishonest about the location that did win the vote. In all cases, liars were instructed to say that the Hotel Reception was the location selected to host the device, and make up the following details: a floor plan, one reason why it was a suitable location, and one reason why it is not. Finally, liars were told that EFA knew something about the spy device and who attended the meeting, though it’s not clear what they knew. As a result, to appear cooperative, liars’ third task was to provide a mixture of truthful and false information about the device, and the people present at the meeting. How much truthful and false information provided was at the discretion of the participant. Liars also received the same information as truth tellers regarding the reward for being convincing and the penalty for being unconvincing. Liars also completed the same ‘Pre-Interview Questionnaire’. Liars were then left alone and given as much time as they needed to think about the details of the Hotel Reception. They were not provided with any writing materials during this time. Also, the time (in seconds) that liars took to consider what they would say about the Hotel Reception was recorded by the experimenter ($M = 264.63$ seconds, $SD = 149.01$ seconds, ranging between 70 and 900 seconds).
The Interview. The interview protocol consisted of two interviewers. A two-interviewer protocol is frequently adopted by the police (Driskell, Blickensderfer, & Salas, 2013; Sim & Lamb, 2012) and intelligence agencies (Soufan, 2011), and thus reflects real life. Four interviewers were used, all female, aged between 31-54. The interviewers had not been formally trained in investigative interviewing, but had extensive experience interviewing participants in previous experiments. All interviewers were blind to the experimental hypotheses. Before the interview commenced, the speaking interviewer introduced herself and the silent interviewer, stressing that the silent interviewer had been trained to detect deception in interviews. The interviewee was also informed that the interviewers knew that s/he had attended the meeting with HMI, and that the purpose of the meeting was to select a location to host a spy device.

The interview schedule consisted of two stages. Stage One required participants to recall what happened during the meeting in normal chronological order, and Stage Two required participants to recall the meeting in reverse order. Participants also responded to questions about the meeting room, the device, the locations, and the confederates present at the meeting. While participants’ responses to these questions were also transcribed and coded, the results are beyond the scope of the present article, and the data is not included in the analyses. The complete interview schedule is included in Appendix 3.

The ‘Interviewer’ manipulation was implemented immediately after participants had answered questions in Stage One. In the ‘same interviewers’ condition, a confederate entered the room and passed a note to the speaking interviewer. The confederate then exited the room, and both interviewers read the note (without
revealing its contents to the interviewee) before proceeding to Stage Two of the interview. In the ‘changed interviewers’ condition, two new interviewers (one silent and one speaking) entered the room. Following the exchange of a note between the new and existing speaking interviewers, the existing pair of interviewers exited the room and were replaced by the new pair. Participants were not given an indication as to why the interviewers changed. The speaking interviewer from the new pair introduced herself and the new silent interviewer, explaining that they would be conducting the interview henceforth. Stage Two commenced after the interviewers had changed.

All participants then completed a ‘Post-Interview Questionnaire’ in which they estimated the likelihood that they would receive the £5 (measured on a seven-point Likert scale ranging from [1] ‘Not at all likely’ to [7] ‘Very likely), and the likelihood that they would have to write a statement (measured on a seven-point Likert scale ranging from [1] ‘Not at all likely’ to [7] ‘Very likely).

The questionnaire also examined what the participants could remember about the device, the locations, and the confederates. Knowing participants’ actual memory of the meeting enabled the calculation of how much remembered information was volunteered by each participant during their interview. After completing the questionnaire, the participants were debriefed and received £5 for taking part.

**Counterbalancing.** The following stimuli were counterbalanced: the locations presented in the meeting; the location that was voted for in the meeting; and the pair of interviewers that changed during in the interviews.
Coding

Overview. The amount of detail conveyed in Stage One and Stage Two was coded subjectively and objectively. The amount of repetition between Stage One and Stage Two responses was also recorded, as well as any new information provided at Stage Two that was not provided at Stage One, again coded subjectively and objectively.

Subjective Detail. The interviews were videotaped, audiotaped and transcribed, and the subjective ratings of detail were derived from the transcripts. A coder blind to the hypotheses and experimental conditions rated participants’ responses using a seven-point scale, ranging from one (low on valuable detail) to seven (high on valuable detail). The responses were not coded, however, according to the accuracy of the details provided. The amount of valuable detail was determined by the degree to which the participant went into detail about events or topics they introduced. For example, the response ‘The meeting started with some introductions, then I saw the device, then we looked at some locations, then we had a vote, and then I left’ would be rated as low on valuable detail, as topics are introduced without further description. In contrast, the response ‘The meeting started with Mr. Black introducing himself, saying that he was the operations manager and that he had worked at the company for seven years’ offers a much more detailed account of individual topics, and therefore would have been rated high on valuable detail.

A second coder also blind to the hypotheses and experimental conditions coded for the same details using a sub sample of 42 transcripts (25%). The inter-rater reliability between the two coders for the Stage One (Intra-class Correlation Coefficient, ICC = .93) and Stage Two details (ICC = .86) was very high.
**Subjective Repetition.** To determine the amount of repetition between participants’ responses, again using the transcripts, Stage Two responses were compared with Stage One responses. A coder blind to the hypotheses and experimental conditions compared participants’ responses, rating them using a seven-point scale ranging from one (low in repetition) to seven (high in repetition). A response would be rated as high in repetition if much of the detail mentioned in Stage One recollections were repeated in Stage Two recollections, and no contradictions emerged between the Stage One and Stage Two recollections. It should be noted, however, that contradictions rarely occurred. Only eight contradictions were noted in the 165 transcripts by the objective coder. A similar measure of repetition was used by Vrij et al. (2009). A second coder, also blind to the hypotheses and experimental conditions, also coded for repetition using a sub sample of 42 transcripts (25%). The inter-rater reliability between the two coders (ICC = .60) was satisfactory.

**Subjective New Information.** To determine the amount of new valuable detail in participants’ Stage Two responses, Stage Two responses were compared with Stage One responses. A coder blind to the hypotheses and experimental conditions compared participants’ responses, rating them using a seven-point scale, ranging from one (low in new information) to seven (high in new information). A response would be rated high in new information if the participant introduced new information, and subsequently went into detail about the new event or topic. Therefore, the coding of new information was identical to the coding of detail, except that it only applied to new information. A second coder also blind to the hypotheses and experimental conditions coded for the same details using a sub
sample of 42 transcripts (25%). The inter-rater reliability between the two coders for new information (Intra-class Correlation Coefficient, ICC = .92) was very high.

**Objective Detail.** The verbal coding was also derived from the transcripts. A coder blind to the hypotheses and experimental conditions read each response carefully and marked every detail the interviewee gave. A second coder also blind to the hypotheses and experimental conditions coded for details using a sub sample of 42 transcripts (25%). The inter-rater reliability between the two coders for the Stage One (Intra-class Correlation Coefficient, ICC = .98) and Stage Two details (ICC = .97) was very high.

**Meeting Events.** In order to objectively measure the amount of repetition and new information present in participants’ responses, a checklist was created comprising the key events of the meeting. The checklist was derived from the script that confederates used to carry out the mock security meeting. The author of this thesis, who created the script and experimental scenario, used the script to identify the key events that took place at the meeting. Consideration was taken to ensure that each event was clear and distinct from other events during the meeting, and that all individual events were of a similar length. After dissecting the script, 18 key events were identified as meeting the above criteria, and these 18 events make up the meeting events checklist.

A coder blind to the hypotheses and experimental conditions scored participants’ responses using the meeting events checklist. Participants could score a maximum of 18 points if they mentioned all events on the checklist, and they scored zero points if none of the details they mentioned were on the checklist. To demonstrate how the checklist works, item 16 on the checklist was: ‘All members
cast their votes by a show of hands for each location’. In order to score a point for each item, the participant must clearly make a reference to that event. If a participant’s response did not have a clear meaning, then s/he did not score a point for that particular item. The complete checklist of key events coded is included in the Appendices (Appendix 4).

A second coder also blind to the hypotheses and experimental conditions coded participants’ responses using a sub sample of 42 transcripts (25%). The inter-rater reliability between the two coders for the Stage One (ICC = .99) and Stage Two (ICC= .98) checklist scores was high. The ‘total detail’ and ‘checklist’ variables were significantly correlated with each other in both Stage One, $r(165) = .69, p < .001$, and Stage Two, $r(165) = .60, p < .001$.

**Objective Repetition.** To calculate the repetition score, a coder blind to the hypotheses and experimental conditions compared the checklist scores from the Stage One and Stage Two responses. Events mentioned at Stage 1 and at Stage 2 were summed to create the repetition score. Therefore, if a participant mentioned events 1-10 at Stage 1, and events 1-7 at Stage 2, their repetition score would be 7, and scores could range from 0 to 18. The few contradictions that occurred in the transcripts were then deducted from that score where applicable.

A second coder, also blind to the hypotheses and experimental conditions, coded participants’ responses using a sub sample of 42 transcripts (25%). The inter-rater reliability between the two coders for repetition (ICC = .92) was high.

**Objective New Information.** To calculate the new information score, a coder blind to the hypotheses and experimental conditions compared the checklist scores
from the Stage One and Stage Two responses. Events mentioned at Stage 2 but not at Stage 1 were summed to create the new information score. The score could range from 0 to 18.

A second coder also blind to the hypotheses and experimental conditions coded participants’ responses using a sub sample of 42 transcripts (25%). The inter-rater reliability between the two coders for new information (ICC = .96) was high.

**Correlations between Subjective and Objective Coding.** While it should be noted that subjective and objective coding schemes did not measure the exact same phenomena, correlations between the schemes were carried out for interest. The correlation between subjective and objective detail coding was satisfactory, $r = .67$ for Stage One detail and $r = .67$ for Stage Two detail. The correlation between subjective new information and objective new information was also satisfactory, $r = .55$. The correlation between subjective and objective repetition coding was lower, $r = .44$, but it should be noted that the subjective and objective repetition coding measured slightly different things. Subjective repetition measured the repetition between the statements as a whole, whereas objective repetition measured the repeated mentioning of key events of the meeting only.

### 4.3 Results

**Motivation, Incentive and Penalty.** Participants were motivated to do well in the experiment ([M = 4.33, SD = .69] on a five-point Likert scale), with 43% reporting that they were ‘quite motivated’ (score of 4), and 44% ‘very motivated’ (score of 5). A 2 (Veracity) X 2 (Interviewers) ANOVA with motivation as the dependent variable revealed no significant main or interaction effects (all Fs < .77, all ps > .380)
indicating that participants’ motivation level was similar across the experimental conditions.

A 2 (Veracity) X 2 (Interviewers) ANOVA regarding the likelihood of receiving the £5 reward resulted in a main effect for Veracity, $F(1, 161) = 41.85, p < .001$, $\eta^2 = .21$, $d = 1.01$. Truth tellers ($M = 4.83, SD = 1.33$) more than liars ($M = 3.40, SD = 1.51$) were inclined to think that they would receive a £5 incentive. The Interviewers main effect and the Veracity X Interviewers interaction effect were not significant, both $F$s $< 3.71$, both $p$s $> .056$.

A 2 (Veracity) X 2 (Interviewers) ANOVA regarding the likelihood of having to write a report resulted in a main effect for Veracity, $F(1, 161) = 42.94, p < .001$, $\eta^2 = .21$, $d = 1.04$. Liars ($M = 4.52, SD = 1.62$) more than truth tellers ($M = 3.03, SD = 1.23$) were inclined to think that they would be requested to write an essay. The Interviewer main effect and the Veracity X Interviewers interaction effect were not significant, both $F$s $< 2.15$, both $p$s $> .144$. Taken together, the above analyses suggest that participants were motivated to be convincing and that the incentive and penalty appeared realistic.

**Meeting Recollections.** Three 2 (Veracity) X 2 (Interviewers) ANOVAs examining participants’ post interview recollections of the device, the locations, and the confederates resulted in no significant main or interaction effects (all $F$s $< 1.51$, all $p$s $> .221$), indicating that participants’ memory of the meeting was similar amongst the experimental conditions. The lack of an ‘Interviewers’ effect (or interaction) suggests that any differences in detail reported during the interview reflect the strategies employed by truth tellers and liars. Participants correctly recalled 84.75% of the device characteristics, 86.50% of the locations characteristics and 67.44% of
the confederate’s characteristics. This represents a satisfactory memory of the meeting.

**Hypothesis Testing**

**New Information.** A 2 (Veracity) X 2 (Interviewers) ANCOVA with participants’ additions at Stage Two (new information) as the dependent variable (subjective coding) and the Stage One subjective details score as covariate\(^6\) revealed a significant main effect for Veracity, \(F(1, 160) = 12.62, p = .001, \eta^2 = .07, d = .42\). Truth tellers (\(M = 2.38, SD = 1.30\)) gave more new information than liars (\(M = 1.90, SD = 1.00\)), supporting Hypothesis 1a. The Interviewers main effect, \(F(1, 160) = 1.45, p = .23, \eta^2 = .009\), and the Veracity X Interviewers interaction effect, \(F(1, 160) = 2.93, p = .089, \eta^2 = .02\), were not significant. The absence of an interaction-effect means that Hypothesis 1b was not supported.

A 2 (Veracity) X 2 (Interviewer) ANCOVA with participants’ objective new information at Stage Two as the dependent variable and the Stage One objective details score as covariate revealed a significant main effect for Veracity, \(F(1, 160) = 4.06, p = .045, \eta^2 = .025, d = .08\). Truth tellers (\(M = 2.46, SD = 2.28\)) offered more new information than liars (\(M = 2.28, SD = 2.01\)), supporting Hypothesis 1a. The Interviewer main effect, \(F(1, 160) = .20, p = .660, \eta^2 = .001\), and the Veracity X Interviewer interaction effect, \(F(1, 160) = 0.01, p = .926, \eta^2 < .001\), were not significant. The absence of an interaction-effect means that Hypothesis 1b was not supported.

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\(^6\) The new information at Stage Two results could have been affected by the Stage One subjective details results. For example, if someone was very detailed at Stage One, new information at Stage Two is less likely to occur. Subjective details as Stage One was therefore introduced as a covariate.
**Detail.** A 2 (Veracity) X 2 (Interviewers) ANCOVA with the Stage Two subjective details as dependent variable was carried out. Since the Stage Two subjective details are linked with the Stage One subjective detail (the Stage One and Stage Two detail within the same interviewee was compared) subjective detail at Stage One was introduced as a covariate (which was significant, $F(1, 160) = 35.87, p < .001, \eta^2 = .18$). The analysis revealed a main effect for Veracity, $F(1, 160) = 13.90, p < .001, \eta^2 = .08, d = .68$. Truth tellers ($M = 4.45, SD = 1.28$) provided significantly more detailed responses than liars ($M = 3.63, SD = 1.13$), supporting Hypothesis 2a. The Interviewers main effect was not significant, $F(1, 160) = .51, p = .475, \eta^2 < .01$, but the Veracity X Interviewers interaction effect was, $F(1, 160) = 7.83, p = .006, \eta^2 = .05$.

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7An alternative analysis would be a 2 (Veracity) X 2 (Interview) X 2 (Time: Stage One versus Stage Two) analysis. The disadvantage of this analysis is that at Stage One the ‘Same/Changed Interviewers’ manipulation was not yet introduced, whereas the analysis treats the Stage One data as if this factor was introduced at Stage One.
Figure 4.1. Subjective detail at Stage Two as a Function of Veracity and Interviewer. Error bars represent confident intervals (95%).

Figure 4.1 shows that truth tellers gave more detail in the ‘changed interviewers’ condition than in the ‘same interviewers’ condition, whereas liars gave less detail in the ‘changed interviewers’ condition than in the ‘same interviewers’ condition. In the ‘same interviewers’ condition, truth tellers ($M = 4.17, SD = 1.10$) and liars were equally detailed ($M = 3.84, SD = 1.21$), $F (1, 82) = .37, p = .548, \eta^2 < .01, d = .29$. In the ‘changed interviewers’ condition, truth tellers ($M = 4.75, SD = 1.39$) were more detailed than liars ($M = 3.40, SD = 1.01$), $F (1, 77) = 19.27, p < .001, \eta^2 = .20, d = 1.11$. This supports Hypothesis 2b.
A 2 (Veracity) X 2 (Interviewer) ANCOVA was conducted with the *objective* details variable from Stage Two as dependent variable and the Stage One objective details as covariate. The analysis revealed a main effect for Veracity, $F(1, 160) = 21.13, p < .001, \eta^2 = .12, d = .97$. Truth tellers ($M = 28.91, SD = 12.06$) provided significantly more detailed responses than liars ($M = 19.00, SD = 7.87$). The Interviewer main effect was not significant, $F(1, 160) = .68, p = .410, \eta^2 = .004$, but the Veracity X Interviewer interaction effect was, $F(1, 160) = 5.49, p = .020, \eta^2 = .03$. In the ‘same interviewers’ condition truth tellers ($M = 27.29, SD = 10.85$) and liars ($M = 19.63, SD = 8.09$) gave a similar amount of detail, $F(1, 82) = 2.66, p = .107, \eta^2 = .03, d = .80$. In the ‘changed interviewers’ condition, truth tellers ($M = 30.63, SD = 13.13$) gave significantly more details than liars ($M = 18.33, SD = 7.67$), $F(1, 77) = 20.69, p < .001, \eta^2 = .21, d = 1.14$. This supports Hypothesis 2b.

**Repetition.** A 2 (Veracity) X 2 (Interviewers) ANCOVA with participants’ *subjective* repetition scores as the dependent variable and the Stage One subjective details score as covariate (which was significant, $F(1, 160) = 117.56, p < .001, \eta^2 = .42$)\(^8\). The analysis revealed a significant main effect for Veracity, $F(1, 160) = 6.41, p = .012, \eta^2 = .04, d = .55$. Truth tellers ($M = 3.76, SD = 1.39$) showed more repetition than liars ($M = 3.06, SD = 1.13$). The Interviewers main effect, $F(1, 160) = .01, p = .926, \eta^2 < .001$ was not significant, but the Veracity X Interviewers interaction effect was, $F(1, 160) = 6.33, p = .013, \eta^2 = .04$.

\(^8\)The subjective detail at Stage Two results could have been affected by the Stage One subjective details results. For example, those who reported many details at Stage One have a greater likelihood to obtain a higher repetition score on Stage Two. Subjective details at Stage One was therefore introduced as a covariate.
Figure 4.2. Subjective repetition between Stages One and Two as a Function of Veracity and Interviewer. Error bars represent confidence intervals (95%).

Figure 4.2 shows that truth tellers showed more repetition in the ‘changed interviewers’ condition than in the ‘same interviewers’ condition, whereas liars showed less repetition in the ‘changed interviewers’ condition than in the ‘same interviewers’ condition. In the ‘same interviewers’ condition, truth tellers’ ($M = 3.57, SD = 1.25$) and liars’ ($M = 3.30, SD = 1.28$) repetition did not differ from each other, $F (1, 82) = .01, p = .920, \eta^2 < .01, d = .21$. In the ‘changed interviewers’ condition, truth tellers repeated themselves more ($M = 3.95, SD = 1.52$) than liars ($M$
A 2 (Veracity) X 2 (Interviewer) ANCOVA with participants’ *objective* repetition scores as dependent variable and the Stage One objective detail as covariate revealed a main effect for Veracity, $F(1, 160) = 10.79, p = .001, \eta^2 = .06, d = 0.80$. Truth tellers repeated themselves more ($M = 8.26, SD = 3.52$) than liars ($M = 5.81, SD = 2.62$). The main effect for Interviewer was not significant, $F(1, 160) = .01, p = .910, \eta^2 < .001$, but the Veracity X Interviewer interaction effect was, $F(1, 160) = 8.61, p = .004, \eta^2 = .05$. In the ‘same interviewers’ condition, truth tellers ($M = 7.86, SD = 3.54$) and liars ($M = 6.35, SD = 2.84$) did not differ in terms of repetition, $F(1, 82) = .009, p = .924, \eta^2 < .001$. In the ‘changed interviewers’, truth tellers repeated themselves more ($M = 8.78, SD = 3.43$) than liars ($M = 5.33, SD = 2.32$), $F(1, 77) = 21.88, p < .001, \eta^2 = .22, d = 1.17$. This supports Hypothesis 3.

**Discussion**

In the present experiment truth tellers and liars were first asked to recall an event in chronological order (Stage One) and then in reverse order (Stage Two). This study examined the effect of changing interviewers between the two stages or keeping the same interviewers throughout on cues to deceit (new information, level of detail and repetition in answers).

The ‘changed interviewers’ condition was more successful in eliciting cues to deceit than the ‘same interviewers’ condition. When the same interviewers were present throughout the interview, no differences emerged between truth tellers and liars in terms of the amount of detail in Stage Two, and the amount of repetition
between Stages One and Two. In contrast, when confronted with new interviewers at Stage Two truth tellers were more detailed in Stage Two than liars, and their answers in Stages Two showed more repetition than the answers given by liars.

Truth tellers were more detailed in recalling again what they had witnessed when confronted with new interviewers than when confronted with the same interviewers. The new interviewers had not heard their story before, which may have encouraged the truth tellers to say more. In contrast, liars were less detailed in telling their story again when confronted with new interviewers than when confronted with the same interviewers. To convey honesty, liars may wish to produce consistent responses, but the need to do this may be less when confronted with new interviewers who have not heard their previous answer than when confronted with the same interviewers who have heard their previous answers before.

The findings that truth tellers and liars showed similar repetition in the ‘same interviewers’ condition and that liars showed less repetition than truth tellers in the ‘changed interviewers’ condition, sheds new light on the ongoing debate about whether liars are more or less consistent than truth tellers. The idea that liars are less consistent than truth tellers is a popular view amongst practitioners (Strömwall, Granhag, & Hartwig, 2004) and promoted in police manuals (Vrij & Granhag, 2007), but research shows that liars are not always less consistent than truth tellers (Fisher, Vrij, & Leins, 2013). In this respect, Granhag and colleagues introduced the ‘reconstruct – versus repeat’ hypothesis (Granhag & Strömwall, 1999, 2001; Granhag, Strömwall, & Jonsson, 2003), which states that when asked to report information for a second time, truth tellers will search their memory for the original
event and will reconstruct their story again based on these memoires. In contrast, liars will think about what they have said the first time and will try to repeat this information. Repetition may lead to the same level or even to more consistency than reconstruction. The present results suggest that when confronted with two new interviewers, truth tellers’ tendency to ‘reconstruct’ and liars’ tendency to ‘repeat’ is weakened. The end result is that truth tellers repeat themselves more, and liars repeat themselves less. The notion that liars are likely to be less consistent than truth tellers only after a change of format is introduced, was also found by Leins, Vrij, and Fisher (2012). In their experiment, truthful participants had visited a room whereas deceptive participants had not. However, in the interview all participants claimed to have visited the room. Participants were asked to verbally recall the layout of the room twice, to sketch it twice, or to verbally recall it once and to sketch it once. Liars contradicted themselves more than truth tellers, but only in the ‘verbal recall – drawing’ condition. In other words, to find differences in consistency between truth tellers and liars, it may be necessary to introduce a change in strategy when asking for the same information, either by using different interviewers (the present experiment) or by asking the same question in different formats (Leins et al., 2012).

The findings suggest that ‘external factors’ (such as changing versus maintaining the same interviewers) can have a profound effect on consistency in truth tellers’ and liars’ responses. It may well be that truth tellers and liars have different interview strategies which are highlighted by external factors. Future research could attempt to shed light on the external factors that highlight such strategies.
One of the hypotheses was not supported. Although truth tellers provided, as predicted, more new information at Stage Two than liars did, having the same or new interviewers at Stage Two did not affect the amount of new information truth tellers gave. It was predicted that truth tellers would give more new information with new interviewers, because of the expectation that this change in interviewers would stimulate them to search their memory for more detail. It is not clear why the predicted effect did not occur. The request to report the event in reverse order already triggered truth tellers to provide new information and perhaps this task overshadowed the effect that new interviewers may have on eliciting new information.

One noteworthy limitation of this experiment is the lack of a more comprehensive objective coding scheme to calculate the repetition and new information scores. For example, coding each individual detail at Stage 1, and then identifying which of those details were repeated at Stage 2 would have provided a more informed repetition score. While the adopted approach (breaking down the meeting into key events) captured most examples of repetition, some evidence of repetition was likely missed, and this must be taken into account when considering the findings.

The ‘same interviewers’ condition is the standard procedure in the Cognitive Interview (CI, Fisher & Geiselman, 1992). This procedure should not be changed based on the findings presented in this experiment. The reverse order question in the CI is designed to elicit new information. The Reverse Order question did elicit new information and this was not influenced by the interviewer condition. In the present experiment the author was also interested in the repetition of information previously
reported, something the CI is less concerned about. It is in this elicitation of old information where the interviewer condition differentiated truth tellers and liars. In other words, if the interviewer has no reason to believe that the interviewee is lying, which is often the case in the Cognitive Interview as it is mainly used when interviewing cooperative witnesses (Fisher, 2010), only the elicitation of new information is relevant and therefore there is no need to change interviewers during the interview.

The present experiment compliments the new wave of ‘interviewing to detect deception’ research aimed at eliciting cues to deceit through specific interventions (Vrij & Granhag, 2012). Since truth tellers said more than liars, particularly in the ‘changed interviewers’ condition, this manipulation fits particularly well in the ‘encouraging truth tellers to say more’ research domain (Leal, Vrij, Warmelink, Vernham, & Fisher, 2015). Encouraging truth tellers to say more has several benefits. It addresses the core of investigative interviewing, which is to obtain as much information as possible from interviewees (Fisher, 2010). In addition, if truth tellers provide lots of information they are more likely to be believed, because the richer an account is perceived to be, the more likely it is to be believed (Bell & Loftus, 1989; Johnson, 2006; Johnson, Foley, Suengas, & Raye, 1988). Finally, the additional information truth tellers provide could provide leads for investigators to pursue.

Methods that encourage truth tellers to say more are unlikely to have the same effect on liars. First, liars may find it too cognitively demanding to add as many details as truth tellers do. Moreover, if liars do add a sufficient amount of detail, the additional information may be of lesser quality or may sound less plausible (Leal et
al., 2015). Finally, liars may be reluctant to add more information out of fear that it will provide leads to investigators and, consequently, give their lies away (Nahari, Vrij, & Fisher, 2012a).

In conclusion, the present experiment demonstrated the beneficial effect of changing interviewers half-way through an interview, notably when interviewers discuss the same topics twice over the course of an interview. In their second response, truth tellers provided more new information, more detail overall and repeated themselves more compared to liars, but only if the interviewers had changed half-way through the interview. The findings challenge previous findings (Granhag & Strömwall, 1999, 2001; Granhag, Strömwall, & Jonsson, 2003) where liars appeared more consistent than truth tellers. The present findings highlight the complex relationship between consistency and deception, suggesting that consistency may depend on both internal (such as retrieval strategies) and external factors (such as interview setting).
Chapter 5: Experiment 3b

Mimicry and investigative interviewing: Using deliberate mimicry to elicit information and cues to deceit

Foreword

The following chapter is based on the 2015 article with the same name published in the Journal of Investigative Psychology and Offender Profiling. As mentioned previously, Experiments 3a and 3b examine the same data set. However, it should be noted that Experiment 3b examines the impact of a mimicry manipulation in Stage One, before the Interviewers manipulation was implemented. Therefore, unlike Experiment 3a, it was not necessary to check for an interaction between the Interviewers (changed vs same interviewers) variable and the Mimicry (present vs absent) independent variable.

Abstract

The present study examined the effect of deliberate mimicry on eliciting (accurate) information and cues to deceit. Mimicry is considered to facilitate cooperation and compliance in truth tellers, whereas liars are limited in their ability provide detailed accounts. It was therefore predicted that truth tellers would be more detailed than liars, particularly after being mimicked. A total of 165 participants told the truth or lied about
a meeting they attended. In half of the interviews, a second interviewer deliberately mimicked participants’ non-verbal behaviour. Truth tellers were more detailed than liars, but only in the ‘mimicry present’ condition. Truth tellers also gave more accurate units of information than liars, and the difference was most pronounced in the ‘mimicry present’ condition. Mimicry as a tool for eliciting information and cues to deceit fits well with the emerging ‘interviewing to detect deception’ literature, particularly in the ‘encouraging interviewees to say more’ approach.

5.1 Introduction

In the last decade researchers have started to examine ways to elicit verbal cues to deceit during interviews (Vrij & Granhag, 2012). One technique currently being tested is encouraging interviewees to say more, which results in less detailed and less plausible answers from liars compared to truth tellers (Leal, Vrij, Warmelink, Vernham, & Fisher, 2015; Mann et al., 2013; Shaw et al., 2014). Encouraging interviewees to say more links particularly well with the core principles of interviewing: to obtain as much information as possible (Bull, 2010; Fisher, 2010; Lamb, Orbach, Hershkowitz, Esplin, & Horowitz, 2007). Therefore, any (ethical) strategy that encourages interviewees to say more is valuable. The relationship between interviewer and interviewee can affect how much information is yielded in forensic interviews (Vallano & Compo, 2011; Walsh & Bull, 2012). The present study examines whether deliberate mimicry, a method to enhance the relationship between interviewer and interviewee, encourages interviewees to say more and thereby magnify differences between truth tellers and liars in terms of detail they offer.
People often automatically (and unconsciously) mimic the behaviour of their interaction partners, as seeing someone behave in a particular way activates a behavioural representation, causing the perceiver to adopt the exhibited behaviour (for a review, see Chartrand and Bargh, 1999). Mimicry may have evolved to serve a social function by fostering relationships (Lakin, Jefferis, Cheng, & Chartrand, 2003). Humans have a fundamental need to belong and affiliate (Baumeister & Leary, 1995) and mimicry is conceived as a strategy for facilitating affiliation, a sort of ‘social glue’ (Lakin et al., 2003). When two interaction partners share an embodied state, they are likely to activate the same cognitions and affective states (Barsalou, Niedenthal, Barbey, & Ruppert, 2003). This shared mental state creates in both the mimicker and the perceiver enhanced feelings of empathy and rapport (Chartrand & Bargh, 1999; Stel, van Baaren, & Vonk, 2008; Lakin & Chartrand, 2003).

There is also evidence to suggest that deliberate mimicry of another person’s nonverbal behaviour can benefit social interaction. In Chartrand and Bargh (1999) participants completed a task with a confederate. In the experimental condition, the confederate deliberately mimicked participants’ mannerisms, and in the control condition the confederate displayed neutral mannerisms. Participants who were mimicked reported liking the confederate more, and felt that their interaction had been more smooth and harmonious.

Research also suggests that deliberate mimicry can promote pro-social behaviour and compliance, which would be of great benefit in forensic interviews. Regarding pro-social behaviour, Van Baaren, Holland, Steenaert, and Van Knippenberg (2003) instructed a waitress to mimic the verbal behaviour of her
customers, simply by repeating back their order. Over two studies, the findings revealed that customers in the mimicry condition tipped more often, and gave significantly larger amounts compared to customers in the non-mimicry condition. Similarly, in Van Baaren, Holland, Kwakami, and Van Knippenberg (2004), participants first completed an unrelated task during which the participants’ posture and body orientation was or was not mimicked by an experimenter. The experimenter then ‘accidentally’ dropped six pens when walking past the participant. Mimicked participants helped the experimenter pick up the pens on every occasion compared to only a third in the non-mimicry condition.

With regard to compliance, Fischer-Lokou, Martin, Guéguen and Lamy (2011) instructed confederates to ask pedestrians for directions. In the experimental condition, the confederates mimicked the pedestrians’ verbal and nonverbal behaviour, whereas in the control condition no mimicry occurred. The mimicked pedestrians complied more with an additional request for money and gave significantly more than the pedestrians in the control group. Similar findings were obtained in another study of deliberate mimicry and compliance (Guéguen, Martin, & Meineri, 2011). Participants were either mimicked or not by a confederate while discussing painting photography. After the discussion, the confederate approached the participant about help with an essay, adding a time constraint. In the mimicry condition, 76% of the participants complied with the confederate’s request compared to 46% in the non-mimicry condition. Note that the request for help in these two compliance studies was explicit rather than implicit (the participants were asked directly rather than having to act spontaneously), which is comparable to an interviewer requesting information during an interview.
Perhaps more comparable to the realm of investigative interviewing is a study conducted by Maddux, Mullen and Galins (2008). In study 1, business school students enrolled in a negotiation class were placed into a dyad, and engaged in a mock employment negotiation. In half of the negotiations, one member of the dyad was instructed to mimic their opponent; in the other half, no mimicry occurred. Mimicry facilitated negotiations, yielding greater joint gains compared to dyads in the non-mimicry condition. In study two, the experimenter employed the same methodology, but made it more difficult for each pair to come to an agreement. Again, mimicry facilitated cooperation, helping negotiators to establish compatible interests and increased the likelihood of obtaining a deal.

In the light of the above, deliberate mimicry may enhance cooperation during interviews. In (police) interview settings, cooperation is typically defined as a willingness to give answers of any significance (Baldwin, 2003; Vrij, 2003). One could argue that cooperation could be further operationalised and that the more detail an interviewee volunteers, the more cooperative s/he appears to be. Truth tellers typically volunteer more detail than liars (Masip, Sporer, Garrido, & Herrero, 2005; Vrij, 2005, 2008), as liars have some constraints. They may be reluctant to be detailed as they run the risk that such detail can be falsified by an investigator (Hartwig, Granhag, & Strömwall, 2007; Masip & Ces, 2011; Nahari, Vrij, & Fisher, 2012a) and they may lack the imagination to conjure up details that sound plausible (Köhnken, 1996, 2004; Leal et al., 2015). Liars may also want to limit the amount of false information they provide so that they have less false information to remember in case they are interviewed again (Vrij, 2008). If deliberate mimicry encourages interviewees to cooperate, it could magnify the differences between truth tellers and liars in terms of detail, as reluctance to be detailed and a lack of imagination makes
it less likely that liars will add detail compared to truth tellers. It was therefore hypothesised that the difference between truth tellers and liars in reporting detail will be more pronounced in the mimicry present than in the mimicry absent condition (Hypothesis 1).

Given that mimicry can increase levels of cooperation and compliance, it is interesting to examine whether mimicry would also result in liars volunteering more accurate information. This is an important question often ignored in deception research, which mainly focuses on ‘cues to deceit’. This focus differs from the aim of an investigative interview, which is to elicit accurate information from an interviewee (Bull, 2010; Fisher, 2010). Liars rarely make up entire stories but typically embed their lies in truthful stories (Leins, Fisher, & Ross, 2013; Vrij, 2008), which means that liars provide a combination of false and accurate information. It is therefore relevant to examine whether certain interview techniques encourage liars to provide more accurate information. It is also important to know if that technique does not encourage liars to provide more inaccurate information, and this was explored in the present experiment. Truth tellers were instructed to say nothing but the truth. Liars were instructed to give a mixture of false and accurate information, whereby the amount of accurate information they volunteered was up to them. The constraints mentioned above (liars’ reluctance to provide too many false details and lack of imagination) refer to providing false information, but not to providing accurate information, and liars, like truth tellers, could provide additional accurate information if they wish to do so.

Mimicry requires concentration and cognitive effort and an interviewer may lack mental resources for this as he or she has to focus on the interview (Patterson,
1995). With this in mind, a two-interviewer protocol was adopted, with one speaking interviewer and one silent interviewer, with the silent speaker carrying out the mimicking. This protocol was adopted as it reflects the way in which two interviewers are employed by UK police and by intelligence agencies (Sim & Lamb, 2012; Soufan, 2011). In addition, one previously noted benefit of using two interviewers is that it enables each interviewer to focus on their role within the interview (Huber & Power, 1985; Kincaid & Bright, 1957).

5.2 Method

Design

A 2 (Veracity: truth vs lie) X 2 (Mimicry: absent vs present) between-subjects design was used with two dependent variables: (i) the frequency of visual, spatial, temporal, action and auditory details in participants’ responses, and (ii) the frequency of accurate details volunteered by participants.

Participants

A total of 165 participants (58 males and 107 females) took part in the study. The sample was made up of undergraduate students (N = 144), university staff (N = 18), and members of the general public (N = 3). The average age was M = 22.56 years (SD = 6.64 years).

Procedure

Participants were recruited via posters, leaflets, and online advertisements on the University’s staff and student portals. An advert was also placed in a local newspaper. Participants were invited to play the role of a secret agent, attending a
meeting and then an interview. The advert provided contact details and offered a £5 reward to those who were convincing in the interview.

After arriving at the Psychology Department, the participant was greeted by the experimenter and signed an informed consent form before being briefed on their task. At this stage, all participants received the same instructions:

Today you are going to play the role of a junior member of an intelligence agency known as ‘HMI’. You will attend a secret meeting with three senior members of HMI. The focus of the meeting is to decide on the most suitable location to plant a spy device, and you will be required to vote on which location you think is best to host the device. The device will be used to track a target, someone of great interest to HMI. The meeting will also involve some discussion of the device. It is essential that you remember all the details of the meeting, as it will be your job to inform someone else later on. Given the sensitive nature of the information, you won’t be able to make notes.

In addition, the experimenter instructed the participant not to introduce him/herself or interject during the meeting, and to return to the lab after the meeting had finished.

The meeting. The meeting took place in a small room, which contained a table, four chairs, presentation materials (a laptop and a projector) and three confederates. The purpose of the meeting was to vote on a suitable location to plant a spy device, and included a visual presentation of the following details: the background of the three members other than the participant (confederates) present at the meeting; the spy device and its physical and technical features; and the
shortlisted locations suitable to host the device, including floor plans and details on suitability. Before the third and final location (a hotel reception) was presented, a scheduled interjection (notification of time constraints) by a confederate triggered a vote on which location should host the device. The outcome of this vote was pre-determined, and the participant’s vote could not affect the result (the three confederates voted for a predetermined site, therefore the vote was either unanimously in favour of one location, or the participant was outvoted by three votes to one)

The participant then returned to the room where s/he started the experiment. It was at this stage that all participants were randomly assigned to a veracity condition, either truth tellers ($N = 82$) or liars ($N = 83$). Prior to being interviewed, the truth tellers were informed that a sister organisation, HMR, was aware of the meeting they had attended. HMR knows HMI’s target and have been pursuing this person for some time. As a result, HMR want to work with HMI in a joint operation. Truth tellers were therefore instructed to have an interview with HMR and volunteer information about the meeting’s content. They were told that their task was to cooperate fully with the interviewers and to volunteer all the information they asked for. In addition, the experimenter informed the truth tellers that they would receive £5 as a reward if they managed to convince the HMR interviewers that they were telling the truth and cooperative. Alternatively, if they failed to convince the interviewers, they would have to write a report about the meeting instead. All participants in this experiment, truth tellers and liars, received the £5 for taking part, and no one had to write a report. Finally, before being led to the interview room, truth tellers completed a ‘Pre-Interview Questionnaire’ which measured how
motivated they were to perform well in the interview. This was measured on a five-point scale ranging from [1] ‘Not at all motivated’ to [5] ‘Very motivated’.

On returning from the meeting, the liars were first informed that a foreign intelligence agency, ‘EFA’, was aware of the meeting they had attended. To prevent an investigation into HMI, liars were told that they must now meet with EFA and do their upmost to convince the EFA interviewers that they were telling the truth and cooperative. The liars’ task required them to provide a mixture of truthful and false information. The truthful information, it was argued, would help convince EFA that they were being cooperative. Therefore, liars were first instructed to be completely honest about the room where the meeting took place, and the location that did not win the vote. Second, they were told that they must be completely dishonest about the location that did win the vote. In all cases, liars were instructed to say that the Hotel Reception was the location selected to host the device, and make up the following details: a floor plan, one reason why it was a suitable location, and one reason why it was not. Finally, liars were told that EFA knew something about the spy device and who attended the meeting, though it’s not clear what they knew. As a result, to appear cooperative, liars’ third task was to provide a mixture of truthful and false information about the device and the people present at the meeting. How much truthful and false information provided was at the discretion of the participant. Liars also received the same information as truth tellers regarding the reward for being convincing and the penalty for being unconvincing and completed the same ‘Pre-Interview Questionnaire’. However, before liars started the interview, they were left alone and given as much time as they needed to think about the details of the Hotel Reception. They were not provided with any writing materials during this time. The time (in seconds) that liars took to consider what they would say about the
Hotel Reception was recorded by the experimenter. They took on average $M = 264.63$ seconds ($SD = 149.01$ seconds) to prepare themselves and preparation time ranged from 70 to 900 seconds.

**The Interview.** All interviews were videotaped and the participant was made aware of this videotaping. The interview protocol consists of two interviewers, one silent and one speaking. The interviewers were blind to the veracity condition and did not have any knowledge of the information presented in the meeting. Four interviewers were used in total, all female, aged between 31 – 54 years. Before the interview commenced, the speaking interviewer introduced herself and the silent interviewer, stressing that the silent interviewer had been trained to detect deception in interviews. The interviewee was also informed that the interviewers knew s/he attended the meeting with HMI, and that the purpose of the meeting was to select a location to host a spy device. The interview consisted of two stages. This experiment focuses on Stage 1 (see Experiment 3a which examines stage 2 also), which consisted of 15 questions examining the content of the meeting and the members present. Questions 1-2 focussed on the room where the meeting took place, and what occurred during the meeting. Questions 3-12 examined the locations that were presented in the meeting, and all the associated details. Questions 13-14 required participants to provide information about the device, and its physical and technical features. Finally, for Question 15, participants examined a series of photos and were required to identify those people present in the meeting, as well as providing details about their role in HMI. The complete interview schedule is included in Appendix 3.

**Mimicry.** In the mimicry ‘present’ condition ($N = 84$), from the beginning of the interview, the silent interviewer mimicked the posture and mannerisms displayed
by the participant (adapted from Chartrand and Bargh, 1999). The interview room
was set up so that the interviewee was positioned four feet in front of the two
interviewers, with clear lines of sight between all those present. As soon as the
participant had taken their seat, the silent interviewer altered her own posture to
mimic that of the interviewee. With regard to the participants’ mannerisms, the silent
interviewer mimicked the resting position and stereotyped movement of the legs and
arms. The silent interviewer did not mimic gesticulations, as this type of mimicry
may be too obvious and could lead to the mimicry being detected by the interviewee.
The silent interviewer was extremely careful not to engage in any mimicry that may
cause the participant to become aware that they were being mimicked (mainly
gesticulations), as this could have a damaging effect on rapport (Lakin & Chartrand,
2003). The mimicry manipulation was tested in a pilot study which revealed that a
silent interviewer was able to mimic the behaviour of interviewees without the
interviewees realising. In order for the mimicry manipulation to go unnoticed,
interviewers delayed their mimicry of the interviewees by a few seconds. In the
mimicry ‘absent’ condition, no mimicry of the interviewee took place throughout the
interview; instead the interviewer displayed neutral mannerisms, which remained
constant throughout the interview. Of those participants who were mimicked ($N = 81$),
ine reported in the post-interview questionnaire that the silent interviewer was
mimicking their behaviour. These nine participants did not influence the results, as
excluding them from the analyses yielded the same results as when they were
included. Therefore, these participants were included in the analyses. The first
interviewer was not instructed to mimic the interviewees’ behaviour, and adopted a
neutral posture (seated upright, legs uncrossed) throughout the interview.
After the interview, all participants completed a ‘Post-Interview Questionnaire’ examining what the participants could remember about the three aspects of the meeting (device, location, and people present at the meeting). First, participants were asked to list nine details about the device, including the mnemonic (for example, ‘What was the name of the acronym you were given to help remember the spy device?’), as well as the four physical and four technical details of the device (for each of the eight letters of the mnemonic, participants had to fill in the corresponding word, for example, the first letter ‘B’ related to a physical detail of the device, and represented the word ‘Black’). Second, the participants had to recall six details about the locations presented in the meeting, including: the name of each location (for example, ‘In the meeting, which location was voted for?’), and the reason why each location was suitable/unsuitable. Finally, the questionnaire had nine items relating to the confederates, with three items about their names (for example, ‘In the meeting, under which names were the other members introduced to you?’), three about their roles, and three about their length of service. For each correct detail recalled, the participant scored one point, and the total for each topic was then calculated. After completing the questionnaire, the participants were debriefed and received £5 for taking part.

**Counterbalancing.** Three aspects of the procedure (the suggested locations, the selected location and the interviewers) were counterbalanced. First, to control for any effects on recall resulting from the different locations, the locations were counterbalanced. In each meeting, two locations were presented from a selection of four. The two locations presented were determined by a schedule ensuring that an equal number of participants were exposed to each location. Second, each meeting resulted in a different location winning the vote to host the device, which was also
pre-determined for the same reason. The locations themselves were standardised so that each location contained the same number of features re-arranged in a different format. For example, each location floor plan consisted of three rooms (one L-shaped, one rectangular, and one square, two of which were labelled, one which remained blank), and one labelled object (for example, a table or desk). Third, the frequency with which each pair of interviewers was used was counterbalanced, so that the four interviewers were used an equal number of times. The interviewers never changed role, and the same interviewers remained in their respective role of either speaking or silent interviewer.

Coding

**Objective Detail and Accuracy.** A transcript of every interview was created using audiotapes from each interview. The verbal coding was derived from the transcripts. A coder blind to the hypotheses and experimental conditions read each answer carefully and marked every detail the interviewee gave. These details were then classified as visual, spatial, temporal, action, and auditory. For example, the sentence ‘...then I sat down in front of the laptop which was beeping’ contains one visual detail (laptop), one spatial detail (in front of), one temporal detail (then), one action detail (sat down) and one auditory detail (beeping). All the details coded were then combined into one new variable, representing participants’ ‘objective detail’ score. This objective detail score could range from 0 (no details given) to an indefinite number. In fact, the score ranged from 26 (score obtained by a lying participant) to 124 (score obtained by a truth telling participant). A second coder, also blind to the hypotheses and experimental conditions, coded a sub-sample of 42 transcripts (25%). The inter-rater reliability between the two coders for objective
detail was very high (Intra-class Correlation Coefficient, ICC = .80). For each component detail, the results were as follows: visual detail: ICC = .93; spatial detail: ICC = .93; temporal detail: ICC = 1.00; action detail: ICC = .81; and auditory detail: ICC = .86.

**Accurate Detail.** In addition, the coder also marked whether each detail was accurate. Note that accurate detail in liars’ responses could only be coded when the information volunteered could be coded for accuracy. For example, fictitious details relating to hotel reception could not be coded for accuracy, as liars were instructed to falsify these details. A series of checklists were created to help the coder score each response. Different checklists were used for different parts of the interview. For example, one checklist coded the participant’s normal order recollection of what occurred in the meeting (Question 2). A participant scored one point for each event s/he mentioned that occurred on the checklist (all checklists used to code the data are located in Appendix 5). To demonstrate how the checklist works, item 16 on this checklist was: ‘All members cast their votes by a show of hands for each location’. In order to score a point for this item, the participant must clearly make a reference to that event. For example, if the transcript read: ‘After the presentation, we had a vote to decide on which location should host the device’, the participant scored one point. If a participant’s response did not have a clear meaning (by stating something akin to: ‘After that, we all put our hands up’, then s/he did not score a point for that particular item. In addition, a participant earned extra points for any additional accurate information not present on the checklists. The total accuracy details score could thus range from 0 (no accurate information given) to an indefinite number of accurate units of information given. In fact, the total accuracy details score ranged from eight (score obtained by a lying participant) to 50 (score obtained by a truth
telling participant). A second coder, also blind to the hypotheses and experimental conditions, coded a sub sample of 42 transcripts (25%). The inter-rater reliability between the two coders was very high (Intra-class Correlation Coefficient, ICC= .94).

5.3 Results

**Motivation.** Participants were motivated to do well in the experiment ($M = 4.33, SD = .69$ on a five-point Likert scale), with 43% reporting that they were ‘quite motivated’ (score of 4), and 45% ‘very motivated’ (score of 5). A 2 (Veracity) X 2 (Mimicry) ANOVA with motivation as the dependent variable revealed no significant main or interaction effects (all $F$s < .54, all $p$s > .445) indicating that participants’ motivation level was similar amongst the experimental conditions.

**Accurate Detail Remembered.** Three 2 (Veracity) X 2 (Mimicry) ANOVAs examining participants’ post-interview recollections of the device, locations, and confederates resulted in no significant main or interaction effects (all $F$s < .87, all $p$s > .353) indicating that participants’ memory of the meeting was similar amongst the experimental conditions. The participants correctly recalled 84.75% of the device characteristics, 86.50% of the locations characteristics and 67.44% of the confederate’s characteristics. This represents a satisfactory memory of the meeting.

**Hypothesis Testing**

**Objective detail.** A 2 (Veracity) X 2 (Mimicry) ANOVA with objective detail as the dependent variable revealed a significant main effect for Veracity, $F (1, 161) = 8.27, p = .005, \eta^2 = .05, d = .46$, whereas the Mimicry main effect, $F (1, 161) = 2.86, p = .093, \eta^2 = .02$, and the Veracity X Mimicry interaction effect, $F (1, 161) = \ldots$
107

\[ r = 2.89, \ p = .091, \ \eta^2 = .02, \] were not significant. Regarding the Veracity main effect, truth tellers \((M = 58.10, \ SD = 23.05)\) provided more details than liars \((M = 49.16, \ SD = 16.20)\). The interaction statistics \((p = .091)\) refer, of course, to any type of interaction. However, the hypothesis predicted a specific type of interaction based on theory and previous mimicry research and the pattern of results matched the pattern of results predicted in Hypothesis 1. In alignment with Nahari and Ben-Shakhar (2011), this justifies further examination of the data, specifically examining the difference between truth tellers and liars in the two mimicry conditions separately, as this addresses Hypothesis 1. Truth tellers provided more detail in the mimicry ‘present’ condition \((M = 63.16, \ SD = 22.19, \ 95\% \ CI [56.23, 70.10])\) than in the mimicry ‘absent’ condition \((M = 52.78, \ SD = 23.00, \ 95\% \ CI [45.67, 59.88])\), \(F(1, 80) = 4.34, \ p = .04, \ \eta^2 = .05, \ d = .46\), whereas liars gave a similar amount of detail in the mimicry ‘present’ \((M = 49.14, \ SD = 16.19, \ 95\% \ CI [44.14, 54.15])\) and mimicry ‘absent’ \((M = 49.17, \ SD = 16.41, \ 95\% \ CI [44.11, 54.24])\) conditions, \(F(1,81) = .000, \ p = .99, \ \eta^2 = .00, \ d = .02\). In the mimicry ‘absent’ condition truth tellers \((M = 52.78, \ SD = 23.00, \ 95\% \ CI [46.50, 59.05])\) were no more detailed than liars \((M = 49.17, \ SD = 16.41, \ 95\% \ CI [42.97, 55.37])\), \(F (1, 79) = .66, \ p = .418, \ d = .18\). A discriminant analysis using the mimicry ‘absent’ data with the Veracity group as the classifying variable and objective detail as the predictor did not yield a significant discriminant function, \(\chi^2 (1) = .66, \ \text{Wilk’s Lambda} = .99, \ p = .418\).

Unsurprisingly, the non-significant function resulted in a chance level total accuracy, 54.3%, with 40.0% of truth tellers and 68.3% of liars being classified correctly. In contrast, in the mimicry ‘present’ condition truth tellers \((M = 63.17, \ SD = 22.19, 
95\% \ CI [57.21, 69.13])\) provided more detailed responses than liars \((M = 49.14, \ SD = 16.19, \ 95\% \ CI [43.18, 55.11])\), \(F (1, 82) = 10.95, \ p = .001, \ d = .72\). A discriminant
analysis using the mimicry ‘present’ data with the Veracity group as the classifying variable and objective detail as the predictor revealed a significant discriminant function, $\chi^2 (1) = 10.21$, Wilk’s Lambda = .88, $p = .001$. The function correctly identified 52.4% of truth tellers and 69.0% of liars, resulting in a total accuracy of 60.7%. These findings support Hypothesis 1.

**Accurate detail.** A 2 (Veracity) × 2 (Mimicry) ANOVA with accurate units of information as the dependent variable revealed a significant main effect for Veracity, $F (1, 161) = 129.71, p < .001, d = 1.76$, and a significant Veracity × Mimicry interaction effect $F (1, 161) = 5.79, p = .017, \eta^2 = .04$. The Mimicry main effect was not significant, $F (1, 161) = .02, p = .894, d = .008$. The Veracity main effect showed that truth tellers ($M = 32.77, SD = 8.01, 95\% CI [31.26, 34.28]$) provided more accurate units of information than liars ($M = 20.55, SD = 5.67, 95\% CI [19.05, 22.06]$). This, of course, is the direct result of the different instructions given to truth tellers and liars, and therefore this effect should be treated as a manipulation check. Regarding the Veracity × Mimicry interaction effect, truth tellers gave a similar number of accurate units of information in the mimicry ‘present’ ($M = 33.95, SD = 9.03, 95\% CI [31.51, 36.40]$) and mimicry ‘absent’ conditions ($M = 31.52, SD = 6.65, 95\% CI [29.02, 34.03]$), $F(1, 80) = 1.91, p = .17, \eta^2 = .02, d = .3$, whereas liars volunteered fewer accurate units of information in the mimicry ‘present’ condition ($M = 19.21, SD = 5.77, 95\% CI [17.51, 20.92]$) than in the mimicry ‘absent’ condition ($M = 21.93, SD = 5.34, 95\% CI [20.20, 23.66]$), $F(1, 81) = 4.93, p = .029, \eta^2 = .057, d = .49$. As a result, the difference in reporting accurate detail was larger in the ‘mimicry present’ than in the ‘mimicry absent’ condition. In the ‘mimicry absent’ condition, truth tellers ($M = 31.53, SD = 6.65$,
95% CI [29.63, 33.42]) volunteered more accurate units of information than liars \((M = 21.93, SD = 5.34, 95\% \text{ CI} [20.06, 23.80])\), \(F(1, 79) = 51.44, p < .001, \eta^2 = .39, d = 1.59\). A discriminant analysis using the mimicry ‘absent’ data with the Veracity group as the classifying variable and accurate units of information as the predictor revealed a significant discriminant function, \(\chi^2 (1) = 39.36, \text{Wilk’s Lambda} = .61, p < .001\). The function correctly identified 77.5% of truth tellers and 73.2% of liars, resulting in a total accuracy of 75.3%. In the mimicry ‘present’ condition, truth tellers \((M = 33.95, SD = 9.03, 95\% \text{ CI} [31.63, 36.28])\) again volunteered more accurate units of information than liars \((M = 19.21, SD = 5.77, 95\% \text{ CI} [16.89, 21.54])\), \(F(1, 82) = 79.36, p < .001\). The function correctly identified 76.2% of truth tellers and 90.5% of liars, resulting in a total accuracy of 83.3%.

### 5.4 Discussion

In the present experiment, truth tellers and liars were interviewed about a meeting they attended. Of particular interest was the effect of deliberately mimicking participants’ nonverbal behaviour on eliciting information and cues to deceit (verbal detail and accurate information volunteered).

The mimicry ‘present’ condition was somewhat more successful in eliciting cues to deceit than the mimicry ‘absent’ condition. The Veracity X Mimicry interaction effect was not significant, which suggest that mimicry had no effect. However, without mimicry, no differences emerged between truth tellers and liars in the amount of detail they provided, whereas truth tellers gave more detail than liars when the silent interviewer mimicked the interviewees’ behaviour. This suggests that mimicry did have a (small) effect. The pattern of results suggest that mimicry
facilitated talking in truth tellers (but not in liars), supporting previous mimicry research showing that being mimicked makes people more cooperative and compliant (Van Baaren et al., 2003, 2004; Maddux, Mullen and Galins, 2008; Fischer-Lokou et al., 2011; Guéguen et al., 2011). The fact that mimicry did not make liars more talkative could be the result of their inability to make up plausible details (Köhnken, 1996, 2004; Leal et al., 2015) or their reluctance to provide detailed responses out of fear that these details will be falsified (Hartwig et al., 2007; Masip & Ces, 2011; Nahari et al., 2012a) or not remembered at a later stage (Vrij, 2008).

The finding that truth tellers and liars were equally detailed in the non-mimicry condition may appear to be at odds with the deception literature in which it is typically found that truth tellers are more detailed than liars (DePaulo et al., 2003; Masip et al., 2005; Vrij, 2005, 2008). Two differences between the present study and other deception studies may explain this exceptional finding. First, unlike in many other studies in which liars are often expected to fabricate their statement (Leins et al., 2003, and see Vrij, Granhag, & Porter, 2010 for a brief overview of deception scenarios), liars were in the present experiment instructed to provide a mixture of truthful and false information. Second, in the present study truth tellers and liars attended the same event, whereas in many other deception studies truth tellers and liars are involved in different activities. The fact that liars were allowed to provide truthful information and undertook the same activities as truth tellers makes lying in the present experiment cognitively easier than in many other studies, and when the task in hand is easy liars may give as many detail as truth tellers. Finally, one other explanation for this finding is that it is anomalous, and replications of the present
study may find that truth tellers are more detailed than liars when no mimicry takes place.

The results showed an intriguing pattern for providing accurate detail, as it gave the impression that deliberate mimicry led liars to provide less accurate detail. There is no clear explanation for this finding and it needs to be replicated before any possible negative effects of mimicry on liars can be drawn. This finding, however, demonstrates the relevance of making a distinction between the provision of accurate and inaccurate information, and the author recommends that this distinction is made in future deception research.

One limitation of the findings relating to accurate detail is that in a real world setting, accuracy as a cue to deceit can very rarely (if ever) be used in the way it has been presented in this experiment. For accuracy to be coded as a cue, the exact details of the event in question must be known, and investigators in most cases will not have this information. What is more likely is that investigators have some correct but incomplete information (the instructions given to liars in this study alluded to this) which cannot be used to judge the overall accuracy of an interviewee’s testimony. Therefore, in real terms, accuracy is a cue that can only be used diagnostically in laboratory experiments where the ground truth is known. One additional limitation is that no manipulation check was conducted to be sure that the interviewee’s mannerisms were mimicked. This could have been achieved by simply examining all those present at interview simultaneously (via videotaping), and checking that the second interviewer effectively mimicked participants.

The finding that deliberate mimicry encouraged truth tellers in particular to talk further benefits investigators as it enlarges the differences between truth tellers
and liars, which, in turn, facilitates lie detection. This finding also fits well in a current stream of deception research: encouraging interviewees to say more (Leal et al., 2015; Mann et al., 2013). Encouraging truth tellers to say more has clear benefits. It results in more information, considered to be the core objective of investigative interviewing (Fisher, 2010), and it benefits investigators because a more detailed account gives them a more detailed picture of the topic under investigation. It also benefits truth tellers as, typically, detailed accounts are more likely to be believed by observers (Bell & Loftus, 1989).

Future research may build on the present study by examining in more detail the impact of mimicry on the quality of the interaction during the interview. What is not clear at this stage is exactly why mimicry impacted on truth tellers in the way it did. One way to examine this would be to measure in various ways the interviewees’ perceptions of the interviewers, which might determine how and why mimicry caused an increase in detail. Presenting participants with an accepted definition of rapport before asking them to rate it would be a starting point for understanding the impact of mimicry on rapport.
Chapter 6: Experiment 4

Examining repetition as a cue to deceit in reverse order accounts: A deception detection study

Abstract

Research suggests that under certain conditions, liars repeat themselves more than truth tellers when recalling a story a second time in reverse order. The present study examines whether changing interviewers half way through an interview and instructing judges to look for repetition can increase detection efficiency. Each participant \( N = 165 \) read two unique extracts from interview transcripts. The transcripts were derived from a previous study of deception, and interviewees were either telling the truth or lying. Participants were randomly assigned into two groups: the experimental group received instructions asking them to look for evidence of repetition in the extracts, and then make a veracity judgement. The control group were instructed to simply read the extracts before make a judgement. As consistency is the most frequently cited cue to deceit, it was predicted that participants in the control group would cite consistency as a judgement cue more than any other cue. The change of interviewers and ‘Instruction’ manipulations had no effect on detection efficiency. The results do not support the contention that repetition in reverse order responses is a cue to deceit. However, the results do support previous research indicating that consistency is the most commonly cited cue to deceit. Recommendations for future deception studies are discussed.
6.1 Introduction

Detecting deceit in suspects remains a challenging but important task for investigators. Research suggests that people are poor at detecting deception. Bond and DePaulo (2006) examined detection accuracy in numerous studies. In all cases, the observers did not know the targets, had no background information or training, and did not conduct the interviews. The authors found that in these circumstances, people are able to detect deceit around 54% of the time. There are several reasons why lie detection is difficult (see Vrij, 2008, for a review). One reason is that while there are genuine cues to deceit, such cues are faint and unreliable (DePaulo et al., 2003), a notion that is strongly supported in thorough examinations of the literature (Hartwig & Bond, 2011). Another reason is that judges are sometimes misguided by their false beliefs about deception (Elaad, 2009). In their meta-analysis, Hartwig and Bond (2011) challenged the idea that judges are simply attending to the wrong cues. It appears that there is a clear difference between the cues that judges report using and what they actually use. The idea that lie detection judgements depend on stereotypical cues such as gaze behaviour and fidgeting may be inaccurate. Rather, it seems that judges often use cues that are positively correlated with deception, such as plausibility and lack of detail. In fact, research tells us that these are two cues that judges also believe to be associated with deception. While the beliefs that people hold about deception are often inaccurate, people ‘…seem intuitively in tune with the characteristics of deceptive behaviour’ (p. 655). The authors highlight two factors that hinder judges’ detection efficiency. The first is the overestimation of some cues; that a particular cue is strongly linked to deceit when in fact it is not. The second is the general lack of valid cues available to detectors. In order to
improve our ability to detect deceit, it is argued that future research should focus on magnifying the difference between liars and truth tellers.

**Consistency.** A lack of consistency between two accounts is the most often cited reason for discrediting another human being (Granhag & Strömwall, 1999, 2000; Granhag, Strömwall & Jonsson, 2003). Inconsistency is viewed as deceptive because it indicates a poor memory (suggesting that the individual in question did not experience what they claim) or that someone is unable to keep “their story straight” (Fisher, Vrij, & Leins, 2013). Broadly speaking, inconsistency in autobiographical memory is present if it meets one of the following criteria: (a) a direct contradiction of earlier claims, (b) new recollections that did not appear in earlier reports (commissions), and (c) old recollections not being repeated in later reports. However, despite there being clear criteria for consistency, the relationship between deception and consistency is complex. The idea that liars are more inconsistent is too simplistic and unreliable, and research shows that truth tellers are not always more consistent than liars (Fisher, Vrij, & Leins, 2013). For example, when giving a statement a second time, truth tellers tend to reconstruct the event from memory, which can lead to details being remembered differently or new details emerging. When liars give a second account, they simply repeat what they have said previously. Therefore, truth teller’s ‘reconstruct’ approach can result in them appearing less consistent (i.e., less repetition of the same information) than liars’ adopting a ‘repeat’ approach (Granhag, Strömwall & Jonsson, 2003).

**Cognitive Load.** People have finite mental resources, and lying can be more cognitively demanding than telling the truth, particularly in interviews (DePaulo et al., 2003; Mann & Vrij, 2006; Vrij, 2008, Zuckerman et al., 1981). If lying is
difficult, then by making it more difficult, more deceptive leakage may emerge as a result. One strategy that appears to make lying more difficult is recalling an event in reverse order; a task that on its own has high cognitive demands (Johnston, Greenberg, Fisher, & Martin 1970). The reverse order instruction is a memory enhancing technique from the Cognitive Interview (Fisher & Geiselman, 1992), and was intended for use with truth telling witnesses. Research showed that this technique helps witnesses to recall new information (Memon, Meissner, & Fraser, 2010). However, studies of deception tell us that liars struggle to recall their fabrication in reverse order. In Vrij et al., (2008) truth tellers and liars were interviewed about a staged event. Truth tellers had participated in the event in question, and were instructed to tell the truth in the interview. Liars had completed a separate ‘illegal’ task, but were told what the truth tellers did so they could use this information as an alibi. In the control condition, both groups simply recalled the event in normal chronological order, whereas in the experimental condition, participants recalled the event in reverse order. In the experimental condition, eight cues to deceit emerged from the analyses, compared to only one cue from the control condition.

When recalling in reverse order, liars were less detailed (providing fewer auditory and contextual details) than truth tellers, and spoke more slowly. In addition, liars’ accounts included more hesitations, errors, and cognitive operations. Furthermore, in a subsequent deception detection study, judges were better able to classify truth tellers and liars when they recalled the event in reverse order. In Evans et al., (2013), participants either lied or told the truth about their whereabouts the previous Saturday, giving accounts in either normal or reverse order. Again, the reverse order condition differentiated liars and truth tellers. When 46 judges watched
the videotaped interviews, of those participants that described their whereabouts in normal order, 37% were correctly classified compared to 67% of reverse order accounts.

Studies that have adopted the reverse order strategy have largely focussed on detail as a cue to deceit. One instance where reverse order recall influenced consistency is Vrij, Mann, Leal, and Fisher (2011), where participants (N = 28) completed a ‘mission’ involving the collection and delivery of a package. After delivering the package, participants were interviewed about the journey they took to complete their mission. The interview required participants to recall both in normal and reverse order the route they had taken. Comparisons of the normal and reverse order accounts after the interviews revealed that liars contradicted themselves significantly more than truth tellers.

This experiment examines the diagnostic value of one measure of consistency - repetition - as a cue to deceit in a deception detection study. Participants in the present study were placed in two conditions. In the ‘instruction’ condition, participants were instructed to look for evidence of repetition in the reverse order responses, and use this information to help them make a veracity judgement. In the ‘no instruction’ condition, participants were simply asked to read the extracts before making a judgement, and repetition was not mentioned. There are a few reasons why participants were asked to look for repetition. First, previous research showed that truth tellers tend to repeat themselves more than liars in reverse order accounts (Shaw et al., 2014), but this outcome depends on the interview setting. In Shaw et al. (2014) participants played the role of junior intelligence officers, attending a mock security meeting. After the meeting, participants were
informed that they were going to be interviewed about what they learned in the meeting. After being assigned to a veracity condition, truth tellers were instructed to be completely honest about what occurred in the meeting, while liars were told to provide a mixture of false and truthful information. In the interview, two interviewers (one speaking, one silent) first asked participants to recall the meeting in normal chronological order, and then later in reverse chronological order. The researchers manipulated the behaviour of the interviewers by having two new interviewers took over at a pre-determined point. The results showed that when the interviewers changed, truth tellers repeated themselves more (were more consistent) than liars when recalling what happened in reverse order. When the same interviewers remained throughout the interview, there were no differences between truth tellers and liars in terms of repetition. The explanation for this finding relates to the ‘repeat’ versus ‘reconstruct’ hypothesis (Granhag et al., 2003). When repeating their description for a second time to the same two interviewers, liars may have adopted the ‘repeat’ approach in order to be appear consistent. When two new interviewers took over the interview, for liars’, the need to appear consistent may have diminished, as the new interviewers may not have heard the previous statement. Therefore, the ‘changed interviewers’ condition may have reduced liars’ tendency to be consistent by repeating themselves.

The second reason why participants were asked to look for repetition is that consistency is often cited as a cue to deceit, and repetition is one measure of consistency. Therefore, those participants in the experimental condition were not taught a new cue, rather, they were encouraged to look for a cue they were already likely to know. Being familiar with consistency may help participants in the ‘Instruction’ condition to understand exactly what it is they are looking for. Finally,
while there are other cues to deceit that emerge from reverse order accounts, care was taken not to overwhelm participants by giving them too many cues to look for.

Based on Shaw et al.’s (2014) findings, three predictions were made. First, participants in the ‘Instruction’ condition would have a higher overall accuracy in their veracity judgements than those in the ‘No Instruction’ condition (Hypothesis 1). Second, those participants who read transcripts from a ‘changed interviewers’ protocol would have a higher overall accuracy than those participants that read transcripts from a ‘same interviewers’ condition. This prediction is based on a Veracity X Changed Interviewers interaction effect that emerged from the findings of Shaw et al. (2014). When the interviewers changed, liars repeated themselves less than truth tellers in the reverse order accounts. There were no differences between the groups in terms of repetition when the same interviewers remained throughout the interview. Therefore, when participants in the present study read transcripts from the ‘changed interviewers’ condition, the expectation is that the lack of repetition displayed by liars compared to truth tellers should increase overall accuracy (Hypothesis 2). Finally, it is predicted that the two main effects described in Hypotheses 1 and 2 will strengthen each other so that the highest accuracy rate will be achieved in the ‘instruction’, ‘changed interviewers’ condition (Hypothesis 3).

Studies examining verbal cues in truth tellers’ and liars’ responses have found that truth tellers’ responses tend to appear more plausible (DePaulo et al., 2003; Leal et al., 2015; Vrij, 2004; Vrij, Leal, Mann, & Fisher, 2012)’. Plausibility in this context represents the degree to which something could have happened as described by the participant, and is therefore not comparable to subjective ratings of
consistency, which look for evidence of consistency across two responses. In order to replicate previous research relating to plausibility, participants in the current study were asked to rate the extracts for plausibility. It was predicted that truth tellers’ transcripts would be rated by participants as being more plausible than liars’ transcripts (Hypothesis 4).

In addition, participants also rated how truthful the transcripts were. In Shaw et al., the details that interviewees gave in the normal and reverse order responses were coded for accuracy. A score was created for the total number of accurate details volunteered in these two responses. To determine whether participants were able to detect the amount of truthful details in the extracts, participants’ ratings of truthfulness were compared with the accurate details score. Finally, in an open ended question, participants were also asked to explain their veracity decision. Participants in the ‘instruction’ condition were instructed to look for evidence of inconsistency (lack of repetition), but participants in the ‘no instruction’ condition were not.

Consistency is the most frequently cited reason for discrediting another human being (Gran Hag & Strömwall, 1999, 2000; Gran Hag, Strömwall, & Jonsson, 2003), however, its remains unknown whether this cue (or more precisely, one measure of this cue; repetition) will emerge from untrained judges examining reverse order accounts. Based on the literature, it was predicted that the majority of participants in the ‘no instruction’ condition would cite consistency (relating to either a truthful or deceptive judgement) as a cue to deceit (Hypothesis 5).
6.2 Method

Participants

A total of 165 participants (68 males and 97 females) took part in the study. The sample was made up of undergraduate students, university staff, and members of the general public.

Design

The experiment adopted a 2 (Veracity: truth vs lie) X 2 (Interviewer: same interviewers vs changed interviewers) X 2 (Instruction: instruction vs no instruction) between-subjects design, with the following dependent variables: (i) participants’ veracity judgements of the transcripts (ii) participants’ ratings of repetition in the transcripts (iii) participants’ ratings of plausibility in the transcripts (iv) participants’ reasoning for their veracity judgement. To clarify, as the current study is examining the transcripts derived from Experiment 3a, the Veracity and Interviewer independent variables are those implemented in Experiment 3a.

Procedure

Participants were recruited via an online advertisement on the University’s staff and student portals and through opportunity sampling in the Department of Psychology. Participants were invited to play the role of a lie detector. The advert explained that participants would be required to read an interview transcript, and then make a veracity judgement about the interviewee’s responses. All participants were offered
a goody bag for taking part. Those that made contact with the experimenter were given details on when they could take part.

After arriving at the Psychology Department, participants were greeted by the experimenter and taken to a cubicle nearby. Between one and six participants were tested simultaneously in separate cubicles. Participants then read and signed an informed consent form, which explained what the task entailed. All participants were presented with a few pre-prepared sheets of paper, which consisted of all the materials required to complete their task. Each set of materials contained some instructions, the transcript extracts, and a questionnaire. Participants completed the task in three steps. First, participants read the following instructions:

‘Below are two extracts from an interview transcript. The transcript is taken from a previous experiment where participants were instructed to either lie or tell the truth about a meeting they attended. Truth tellers were instructed to be completely honest, while liars were instructed to give a mixture of false and truthful information about what happened in the meeting.

The first extract is the participant’s description of what happened in the meeting in normal chronological order (beginning to end), and the second extract is the participant’s description of what happened in reverse chronological order (end to beginning). Please read the extracts carefully, then answer the questionnaire.’

Participants in the experimental condition had some additional instructions:

‘Research suggests that truth tellers (more than liars) repeat what they have said previously when asked to describe an event a second time in reverse order. Please read the two descriptions carefully, noting the amount of details - from the first
description - that are repeated in the second description. Please use this as the
criterion for determining whether the participant was lying or telling the truth.’

Next, participants read two extracts from an interview transcript. The extracts
were derived from a mock forensic interview conducted in a previous experiment,
where 165 participants (playing the role of an intelligence officer) either told the
truth or lied about a security meeting they attended. Of the 165 participants that took
part in the previous experiment, 82 were instructed to be completely truthful in the
interview, and 83 were told provide a mixture of false and truthful information. The
interview protocol consisted of two interviewers, with one speaking interviewer
(asking the questions), and one remaining silent. The silent interviewer was
introduced as being trained in detecting lies in interviews. The behaviour of the
interviewers was manipulated. In half of the interviews, two new interviewers
replaced the existing pair at a pre-determined point (the ‘changed interviewers’
condition). In the other half of the interviews, the same pair of interviewers
conducted the entire interview (the ‘same interviewers’ condition).

Each participant in the present study read extracts from one transcript, and
each transcript they read was unique. After reading the transcripts, participants
completed a short four-item questionnaire asking participants to rate: whether the
interviewee was lying or telling the truth; the degree to which the extracts were
truthful (measured on a seven point scale ranging from [1] ‘Complete truth’ to [7]
‘Complete lie’); the perceived plausibility of the extracts (measured on a seven point
scale ranging from [1] ‘Totally plausible’ to [7] ‘Not at all plausible’). The fourth
item was an open-ended question asking participants to explain why they thought the
interviewee was lying/telling the truth. After completing the questionnaire, participants were debriefed, given a goody bag and thanked for their time.

**Coding.** Responses to the open-ended questions were carefully examined to determine the rationale/s behind each veracity judgement. Given the prediction that participants in the ‘no instruction’ group would cite consistency most frequently as a cue to deceit (Hypothesis 5), some clear guidelines were devised for coding consistency in participants’ responses to the open-ended question. For consistency to be coded as a given reason for a veracity judgment, participants had to make an explicit and clear reference to consistency. Once this had been established, the coder then decided whether the response referred to either repetitions, commissions, omissions, or contradictions. If the participant did not make it clear exactly how consistency was a factor by mentioning one the four components above, then the response was coded as ‘consistency (unspecified)’. For example, the response ‘The two answers were not at all consistent with each other’ would be coded as ‘consistency (unspecified)’, while the following ‘The second answer completely contradicted the first answer’ was coded as a ‘contradiction’.

Accuracy rates were determined by calculating the number of correct judgments of truthful and deceptive interviewees made by each participant in each experimental condition.

### 6.3 Results

**Overall Accuracy**
From a sample of 165, one participant could not make a judgement on the extracts alone, and was removed from the dataset. Of the remaining participants, 50.6% made correct veracity judgments, which did not significantly differ from chance accuracy (50%), $t(163) = .156, p = .876$.

**Hypothesis Testing**

A 2 (Veracity) X 2 (Changing interviewers) X 2 (Instruction) ANOVA was conducted with accuracy as the dependent variable. The analyses revealed a significant main effect of Veracity, $F(1, 148) = 7.67, p = .006$, while all other main effects and interaction effects were not significant (all $F$s < 1.34, all $p$s > .249). The Veracity main effect was the result of the truth accuracy ($M = 39.5\%, SD = .49$) being significantly lower than lie accuracy ($M = 61.4\%, SD = .49$), $t(80) = 3.93, p < .001$. Truth accuracy did not differ from chance accuracy, $t(80) = -1.92, p = .058$, but lie accuracy did, $t(82) = 2.13, p = .036$.

For interest, to determine whether the actual levels of repetition present in the responses had any impact on detection accuracy, some further analyses were conducted. Using the coding conducted in Experiment 3a, each response that participants rated in the present experiment was assigned into one of two groups: one group containing ‘low’ levels of objective repetition (those responses which were coded as having 0-6 observations of repetition, $N = 75$) and another group containing ‘high’ levels of objective repetition (those responses which were coded as having 7-14 observations of repetition, $N = 89$). A 2 (Veracity) X 2 (Objective Repetition) X 2 (Instruction) ANOVA was then conducted with accuracy as the dependent variable. The analyses again revealed a significant main effect of Veracity, $F(1, 156) = 4.646, p = .033$, as a result of the lower truth accuracy ($M =$
39.5%, $SD = .49$) compared to lie accuracy ($M = 61.4\%, SD = .49$). However, all other main effects and interaction effects were not significant (all $Fs < 2.14$, all $ps > .145$).
Table 6.1 Correct classifications overall in the ‘changed interviewers’ and ‘instruction’ conditions.

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<th>Changed Interviewers</th>
<th>Same Interviewers</th>
<th>Overall</th>
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<tbody>
<tr>
<td><strong>Instruction</strong></td>
<td>50%</td>
<td>57%</td>
<td>54%</td>
</tr>
<tr>
<td><strong>No Instruction</strong></td>
<td>48%</td>
<td>48%</td>
<td>48%</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>49%</td>
<td>52%</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2 Correct classifications of truth tellers and liars across the ‘changed interviewers’ and ‘instruction’ conditions.

<table>
<thead>
<tr>
<th></th>
<th>Changed Interviewers</th>
<th>Same Interviewers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Truth Tellers</td>
<td>Liars</td>
</tr>
<tr>
<td><strong>Instruction</strong></td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td><strong>No Instruction</strong></td>
<td>45%</td>
<td>50%</td>
</tr>
</tbody>
</table>
Table 6.1 shows that participants in the ‘instruction’ condition made more correct veracity judgements ($N = 84, 53.6\%$) than participants in the ‘no instruction’ condition ($N = 80, 47.5\%$ accuracy), though the difference was not significant, $t(83) = -1.16, p = .251$, rejecting Hypothesis 1. In addition, participants that read transcripts from the ‘changed interviewers’ condition did not make more correct classifications ($N = 80, 48.8\%$ accuracy) than participants who read transcripts from the ‘same interviewers’ condition ($N = 84, 52.4\%$ accuracy), $t(83) = .62, p = .539$, rejecting Hypothesis 2. Finally, the Changing interviewers X Instruction interaction was not significant, $F(1, 160) = .19, p = .666$, rejecting Hypothesis 3.

A one-way (Veracity) ANOVA was conducted with participants’ ratings of plausibility as the dependent variable. The test revealed that truth tellers’ ($M = 3.42, SD = 1.35$) and liars ($M = 3.36, SD = 1.49$) accounts did not differ in terms of plausibility, rejecting Hypothesis 4.
Table 6.3. Distribution of judgment cues cited by participants in the ‘instruction’ group that judged transcripts to be truthful (N = 30).

<table>
<thead>
<tr>
<th>Judgement Cue</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetition</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>Lack of repetition</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Seemed genuine</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Pauses</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Commissions</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 6.4. Distribution of judgment cues cited by participants in the ‘instruction’ group that judged transcripts to be deceitful (N = 54).

<table>
<thead>
<tr>
<th>Judgement Cue</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of repetition</td>
<td>34</td>
<td>63</td>
</tr>
<tr>
<td>Pauses</td>
<td>15</td>
<td>28</td>
</tr>
<tr>
<td>Lack of detail</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Appeared unsure</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Commissions</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>
Table 6.5. *Distribution of judgment cues cited by participants in the ‘no instruction’ group that judged transcripts to be truthful (N = 34).*

<table>
<thead>
<tr>
<th>Judgement Cue</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency (unspecified)</td>
<td>13</td>
<td>38</td>
</tr>
<tr>
<td>Seemed genuine</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Detailed descriptions</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Commissions</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Spontaneous corrections</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 6.6. *Distribution of judgment cues cited by participants in the ‘no instruction’ group that judged transcripts to be deceitful (N = 46).*

<table>
<thead>
<tr>
<th>Judgement Cue</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pauses</td>
<td>25</td>
<td>54</td>
</tr>
<tr>
<td>Consistency (unspecified)</td>
<td>16</td>
<td>35</td>
</tr>
<tr>
<td>Lack of detail</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Omissions</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Seemed to struggle</td>
<td>4</td>
<td>9</td>
</tr>
</tbody>
</table>
Tables 3, 4, 5 and 6 display the frequencies of judgement cues cited by participants in the ‘instruction’ and ‘no instruction’ conditions, according to the veracity judgement (truth or deceit) they made. Tables 3 and 4 show that the most frequently cited cues by participants in the ‘instruction’ condition were either ‘lack of repetition’ or ‘repetition’. This suggests that the ‘Instruction’ manipulation was observed and implemented by participants.

Tables 5 and 6 show that consistency was the most frequently cited judgement cue by participants in the ‘no instruction’ condition. This supports Hypothesis 5. However, in the majority of cases where consistency was cited, it was not clear whether the participant was referring to either: a) contradictions, b) lack of repetition, or c) commissions. For interest, some additional analyses were conducted comparing those participants who cited ‘consistency’ (‘specified’ and ‘unspecified’) with those who did not cite it as a cue that they used. A one-way ANOVA with ‘Consistency’ (two levels: participants that cited consistency as a cue to deceit, $N = 103$; and participants that did not cite consistency as a cue to deceit, $N = 61$) as the independent variable and detection accuracy as the dependent variable revealed that participants’ use of consistency when making a veracity decision had no impact on the accuracy of veracity decisions overall, $F(1, 162) = 2.759, p = .099$.

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9 Note that participants could cite more than one cue as being influential in their veracity judgement, and the tables do not differentiate between those participants that cited two or more cues.
6.4 Discussion

In the present experiment, participants read two extracts from interview transcripts and made a veracity judgement about the interviewee’s responses. The analyses examined the effect of the ‘Changing interviewers’ and ‘Instruction’ manipulations on participants’ ability to correctly classify truthful and deceptive responses. The results did not support Hypotheses 1, 2 and 3, as neither of the manipulations examined had any effect on participants’ veracity judgements. There was an effect of ‘Veracity’, as participants correctly classified more liars than truth tellers. Veracity, however, did not affect participants’ ratings of plausibility, rejecting Hypothesis 4. Finally, the results supported the prediction that the majority of the ‘no instruction’ group would cite consistency as a judgment cue.

The findings provide an insight into the cues that judges use when making veracity judgments. When instructed to look for lack of repetition, the findings suggest that the majority of participants acted upon this instruction. In the ‘no instruction’ condition, the majority of participants also cited consistency as a judgement cue, but were not specific as to which type of consistency. That so many participants in the ‘no instruction’ condition referred to consistency supports the idea that it is central to veracity judgments in general (Granhag & Strömwall, 1999, 2000; Granhag, Strömwall, & Jonsson, 2003). Furthermore, many participants made references to the global impression of a transcript; that it ‘seemed genuine’, or the interviewee ‘appeared unsure’. This supports Hartwig and Bond (2011) contention that many judges use these particular cues when making veracity judgements.

What is striking about the results is that the sample appeared to possess some valid knowledge of deception. Of particular note is the number of participants who
cited ‘pauses’ as a cue to deceit when judging a transcript to be deceptive ($N = 40$). Deception literature tells us that there is a concrete link between pauses and deceptive behaviour (Mann, Vrij, & Bull, 2002), and specifically in reverse order responses (Vrij et al., 2008). These findings support the notion that judges use cues that are correlated with deception (Hartwig and Bond, 2011), even if in this instance they did not improve detection efficiency. It is worth noting also that the sample comprised undergraduate psychology students, many of whom may have been to lectures on deception detection. Therefore, it may be that a lay population with no exposure to deception literature would use different cues to make a credibility judgment, and this may have had some impact on the findings relating to judgement cues.

Meta-analyses of lie detection literature show that observers tend to have a truth bias (Bond & DePaulo, 2006). However, the opposite was found in the present study, with 61% of participants judging the extracts to be deceitful. One explanation for this bias is the Othello error; that suspicious participants discounted cues of truthfulness in the extracts due to an early formed suspicion that the interviewee was lying. As mentioned, several participants in the ‘instruction’ and ‘no instruction’ groups cited ‘pauses’ as a judgement cue. While pauses are linked with deception, some judges could have become fixated on this cue, and overrated its diagnostic value when making a judgement. The presence of pauses in the normal order responses (first extract) could have coloured judges’ perception of the reverse order responses, causing them to disregard any other cues that indicate truthfulness.

In the present study, no differences emerged between the ‘instruction’ and ‘no instruction’ groups in terms of deception accuracy. The most obvious
explanation is that cues to deceit are indeed faint and unreliable (DePaulo et al., 2003; Hartwig and Bond, 2011). In the ‘instruction’ condition, 38 (45%) participants did not cite repetition as a cue to deceit, which suggests either that there was little evidence of it in the transcripts, or that it was difficult to detect. Research suggests that consistency is not a reliable cue to deceit, and one reason for that could be the different ways in which truth tellers and liars recall their story (Granhag & Strömwall, 1999).

One factor that may have affected the outcomes of the present paper is the instructions. Participants were instructed to look for repetition in the reverse order transcripts. The rationale for doing so stems from a finding in a previous study that liars tend to repeat themselves less in reverse order responses (Shaw et al., 2014). In order to prevent participants from being overwhelmed, only one cue used to make a veracity judgement. One criterion may not have been enough to facilitate detection efficiency. Consider also that in Shaw et al., the cue emerged from a judge rating all 165 transcripts for evidence of repetition. In the present study, 84 participants read 84 unique transcripts and were instructed to look for repetition. It is possible that the remaining 80 transcripts contained more evidence of repetition/a lack of repetition in the reverse order responses, which may not have been recognised by the participants in the ‘no instruction’ group. The present study would have benefited from having each transcript rated by two participants, one in each of the ‘instruction’ and ‘no instruction’ conditions.

One other factor that may explain the results is individual differences. The degree to which humans differ in their behaviour is one reason why deception detection is difficult (Vrij, 2008), and cues to deceit may be faint and unreliable for
this reason. However, there is another individual difference to consider: Those between judges. In Nahari and Vrij (2014), participants wrote one statement about something they had done in last 30 minutes, and one additional statement about a past event. After writing these statements, participants rated the quality of another statement written by someone else. The ratings of the target statements were conducted using Reality Monitoring (Sporer, 2004; Vrij, 2008) criteria, which includes: vividness, detail, perceptual information, spatial information, temporal information, affect, clarity, and realism. The findings revealed that if a participant was detailed in their own statement, they were more critical in their judgement of someone else’s statement. Equally, if a participant did not provide a detail rich statement, they were less critical in their judgement of others’ statements.

Nahari and Vrij’s (2014) findings make it clear that individual differences between judges can have a dramatic effect on their judgements of others. Applying this concept to the present study, participants’ global judgement of each transcript would have varied significantly. It is reasonable to assume that most participants did not use just one cue (such as repetition or pauses) when making a veracity decision. Rather, it seems more likely that judges integrated several cues in order to come to decision. Indeed, many participants cited more than one judgement cue when explaining their veracity decision, even in the ‘instruction’ condition. Nahari and Vrij’s findings suggest that for each measure of a statement, there is likely to be considerable differences between judges in their assessment of that phenomenon. In the present study, participants in both the ‘instruction’ and ‘no instruction’ groups cited repetition as a cue to deceit. However, controlling for the actual presence of repetition within a given transcript, the degree to which participants rate repetition is likely to have varied considerably. This variation between participants in how they
rated repetition (and all other cues that they deemed important) may explain why no differences emerged between the experimental groups. In Nahari and Vrij, participants rated the detail in the statements using eleven six-point scales. The authors concluded by highlighting the need to use within-subjects lie detection tools (a recommendation echoed here), and carrying out objective (frequency counting) rather than subjective (scale ratings) RM coding. These recommendations can be applied to other criteria, such as repetition and cues to deceit. Future studies may benefit from having judges use a sheet to count frequencies of certain cues, which has two probable benefits. First, participants have an objective measure of a given construct, which is likely to diminish the variation caused by subjective ratings and individual differences. Second, with physical evidence of certain cues in front of them, it may help participants to focus on the cues that they have been instructed to measure.

To conclude, the findings presented here do not support the contention that repetition is helpful for detection accuracy, as this cue did not facilitate detection efficiency in judges instructed to look for repetition. Training judges may be ineffective if there is lack of valid cues, and if judges already have an understanding of these cues. Future studies should look to include more than one relevant cue and means to help judges objectively assess statements, and these measures are particularly important given the individual differences in deceptive behaviour.
Chapter 7: General Discussion

7.1 Overview of main findings and theoretical implications

This thesis had three objectives. First, to determine what demeanour a second interviewer should adopt in order to effectively elicit cues to deceit. Second, to define ways in which a second interviewer can be used to encourage truth tellers to say more. Third, to use a second interviewer to learn more about consistency as a cue to deceit. Taken together, the findings discussed here show that each of these aims has been met.

To the author’s knowledge, no previous research has tested a two interviewer protocol in this way. In three experiments, participants were instructed to either tell the truth or lie in a mock forensic interview. Each interview was conducted by two interviewers, of whom one asked the questions and the other remained silent. Each experiment tested a different two-interviewer protocol. In the fourth experiment, a deception detection study tested a new cue to deceit.

Experiment 1 examined the effect of second interviewer demeanour on consistency as a cue to deceit. After being assigned to a veracity condition, participants were interviewed about their occupation and their journey to work. All participants were asked to describe their journey first in normal chronological order before being asked to recall the same information in reverse order. During the interview, the silent second interviewer adopted a demeanour that was either supportive, neutral, or suspicious. As predicted, examination of the reverse order accounts revealed that truth tellers repeated fewer details (from their normal order
accounts) compared to liars, but only when the second interviewer was supportive. Experiment 1 also provided some evidence that the reverse order instruction is not expected by participants prior to a mock forensic interview.

The findings in Experiment 1 lend support to the literature on deception and consistency, particularly the ‘reconstruct versus repeat’ hypothesis (Gran Hag & Strömwall, 1999, 2001; Gran Hag, Strömwall, & Jonsson, 2003). This theory contends that truth tellers and liars use different retrieval strategies when recalling information a second time. Truth tellers use their actual memory of the event in question to ‘reconstruct’ a story. Liars recall what they said in their first recollection, and simply try to ‘repeat’ this information as closely as possible. Liars’ strategy can result in them appearing more consistent than truth tellers (Fisher, Vrij, and Leins, 2013), and the findings in Experiment 1 support this contention. However, support for the ‘reconstruct versus repeat’ hypothesis was only found in the supportive interviewer condition. A supportive interviewer may encourage interviewees to do well by providing a source of positive reinforcement. This could result in them putting more effort into using their preferred strategies. Thus, the presence of a supportive interviewer may have encouraged liars to use their ‘repeat’ strategy, which would explain why they repeated themselves more than truth tellers in their second accounts. In line with Mann et al. (2013), Experiment 1 recommends that forensic interviews adopt a supportive demeanour.

Experiment 1 showed that a supportive second interview can elicit cues to deceit and that the reverse order instruction is not expected. Experiment 2 developed on these findings by examining the effect of first and second interviewer demeanour on detail in expected and unexpected questions. In a mock forensic interview,
participants either told the truth or lied about preparing a room for a seminar.

Therefore, in terms of the method, Experiment 2 differed from Experiment 1 in a few ways. Experiment 2 required participants to complete a task as part of the experiment before either telling the truth or lying about that task in an interview. Experiment 1 required participants to recall topographical memories (their journey to work), whereas Experiment 2 required participants to recall episodic memories (how the seminar room was prepared just prior to the interview).

Experiment 2 also differed from Experiment 1 in that both interviewers behaved either neutrally or supportive in each interview, and the second interviewer was presented as an ‘expert’ in lie detection. It was predicted that liars would provide more detail in response to the expected normal order question (due to preparation) and less detail in response to the unexpected reverse order question (due to a lack of imagination and desire to provide detailed accounts), and that this difference would be magnified by the presence of a supportive interviewer. Indeed, when the second interviewer was supportive, the difference in detail between responses to the expected and unexpected question was significantly larger for liars than truth tellers. This outcome was due to the combination of liars being more detailed than truth tellers in answering the expected (normal order) question and less detailed in answering the unexpected (reverse order) question. No differences emerged when the interviewer was neutral. Finally, the prediction relating to the use of temporal connectives was supported, as truth tellers used more reverse order connectives (e.g., use of the phrase “before that”) than liars.

The findings in Experiment 2 support previous research suggesting that a supportive interviewer elicits detail as a cue to deceit (Mann et al., 2013), and that
liars can provide more detailed responses to expected questions than truth tellers (Lancaster, Vrij, Hope, & Waller, 2012; Warmelink, et al, 2012). Liars may have interpreted the supportive interviewer’s positive nonverbal behaviour as a form of positive feedback, indicating that they were being convincing. Liars responded to this feedback by providing a particularly detailed response to a question they had prepared for. As such, the findings also lend support to Interpersonal Deception Theory (IDT, Buller & Burgoon, 1996). Central to IDT is the notion that when deception occurs in a dyad, both the liar and the target mutually influence each other. This occurs because liars have to monitor their target to see whether they are being convincing and to respond appropriately. As a result, the target’s behaviour can directly and indirectly influence the behaviour of the liar (Burgoon et al, 1999). Directly, the target can influence the synchrony or behavioural mimicry that emerges from communication (Chartrand & Bargh, 1999). Indirectly, through feedback, the target can influence the liar’s assessment of how they are being perceived. In Experiment 2, liars may have responded to what they perceived as positive feedback by providing a particularly detailed response to a question they had prepared for.

IDT can also explain why liars had a significantly larger difference in detail compared to truth tellers. Regardless of the response liars gave to the unexpected question, the supportive interviewer always provided positive feedback. Liars know that investigators check their responses and worry they will be caught out by adding new information (Hartwig, Granhag, & Strömwall, 2007; Masip & Ces, 2011; Nahari, Vrij, & Fisher, 2012a, 2012b). Therefore, adding new details is an unnecessary risk if liars believe they are already being convincing. Liars may have adjusted their behaviour in response to the supportive interviewer’s behaviour by providing fewer details in response to the question they had not prepared for.
The temporal connectives finding provides support for Schank’s (1986) script theory, and the suggestion that temporal connectives act as retrieval cues (Kintsch & Mannes, 1987). A script is a mental construct that details a sequence of events necessary to achieve a goal. For example, a restaurant script outlines the actions required in order to have a meal, which involves taking a seat and placing an order, before waiting for the food to arrive. It was speculated that truth tellers and liars formulated a script of how to prepare Room A for a seminar. Theoretically, although neither truth tellers nor liars are likely to have a strong script for preparing the room (compared to a more common activity, such as eating in a restaurant), truth tellers should have a stronger script than liars, because they had acted out the sequence of events, rather than solely using their imagination (see Duran, Hall, McCarthy & McNamara, 2010). When truth tellers recalled how they prepared the room in reverse order, they used connectives that reflected the reverse order. Temporal connectives are thought to act as retrieval cues. Overall, this suggests that truth tellers reorganised their scripts with great ease; a process that was aided by their strong retrieval cues. As liars did not actually experience preparing the room, when they reordered their script, the links between each episode were weaker, which in turn resulted in fewer reverse order connectives.

An alternative explanation for the connectives results is that liars experienced greater cognitive load when asked to reorder their script. Cognitive Load Theory posits that all humans have finite mental resources. Several aspects of lying can increase cognitive load (Zuckerman, DePaulo, & Rosenthal, 1981), and the reverse order instruction is known to make lying even more difficult (Vrij et al, 2008). Arguably, liars were disadvantaged by having a less detailed script for preparing Room A; this may have made the task of reorganising their script more mentally
taxing. Having knowledge of a script that can be applied in a certain situation requires less thinking and mental activity (Schank, 1986). Therefore, when liars recalled the preparation task in reverse order, they may not have had the mental resources available to use connectives that reflect a reverse order recollection.

Experiments 1 and 2 demonstrated that having a silent second interviewer behave supportively elicits cues to deceit. Manipulating the demeanour of the first interviewer did not appear to have any influence on interviewees’ responses. Therefore, Experiments 1 and 2 suggested that the most effective use of a two interviewer protocol is to have a neutral first interviewer (who asks all the questions), and a supportive second interviewer (who remains silent). While these findings were integrated into Experiments 3a and 3b (a supportive second interviewer was used), the focus shifted away from interviewer demeanour, and instead examined other ways of using two interviewers.

Experiment 3a examined the effect of changing the interviewers half-way through an interview on two cues to deceit; detail and consistency. In a mock suspect interview, participants either lied or told the truth about a secret security meeting they had attended, answering a question in normal chronological order at Stage 1, and a question in reverse order at Stage 2. Therefore, while the scenario in Experiment 3a differed significantly from Experiments 1 and 2, participants in Experiment 3a (and Experiment 3b) were once again required to recall episodic memories. Experiment 3a adopted a similar approach to Experiments 1 and 2 in terms of the interview schedule, however, the time references ‘Stages 1 and 2’ were introduced to bring clarity to when each question was asked and when the experimental manipulations were implemented.
The manipulation of the interviewers was implemented between Stages 1 and 2, and differed from previous experiments in that, for half of the interviews, the pair of interviewers changed and for the other half the interviewers did not change. In the ‘same interviewers’ condition, the same pair of interviewers conducted the entire interview. In the ‘changed interviewers’ condition, the two interviewers conducting the interview were replaced with two new interviewers at a predetermined point. In all cases, the first (speaking) interviewer was neutral and the second (silent) interviewer was supportive. Five predictions were made about the impact of changing the interviewers on truth tellers’ and liars’ responses. It was predicted that at Stage Two, truth tellers would provide more new details than liars (Hypothesis 1a), particularly when confronted with new interviewers (Hypothesis 1b). It was further predicted that overall, truth tellers would be more detailed than liars (Hypothesis 2a). The fourth prediction stated that truth tellers would be more detailed in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition, whereas liars would be less detailed in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition. (Hypothesis 2b). The fifth and final prediction was that truth tellers would repeat more at Stage Two what they have said at Stage One in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition, and conversely, that liars would show less repetition in the ‘changed interviewers’ condition compared to the ‘same interviewers’ condition (Hypothesis 3). All hypotheses were supported with the exception of Hypothesis 1b.

Experiment 3a makes two contributions to the literature on deception and consistency. First, when confronted with two new interviewers, truth tellers’ tendency to ‘reconstruct’ and liars’ tendency to ‘repeat’ may have been weakened,
resulting in truth tellers repeating themselves more, and liars repeating themselves less. Second, the findings also add to the ongoing debate about whether liars are more or less consistent than truth tellers. Experiment 3a makes it clear that consistency is an unreliable cue to deceit (Fisher, Leins & Vrij, 2013), and that various factors can affect the degree to which truth tellers and liars appear consistent. This thesis highlights that interviewer demeanour can have a dramatic effect on consistency as a cue to deceit. More precisely, the findings in Experiments 1 and 3a suggest that a two-interviewer protocol can either discourage or encourage truth tellers’ and liars’ default retrieval strategies. Experiment 1 suggests that a supportive interviewer strengthens reconstruction (truth tellers) and repetition (liars). Experiment 3a suggests that the introduction of two new interviewers discourages the use of these strategies. It may be that the degree to which a retrieval strategy is used is determined by how effective it appears to be. If participants think they are being believed, their default strategy is encouraged, if not, then their default strategy is discouraged. It is a fair assumption that a supportive interviewer caused participants to think they were being convincing. Liars are known to monitor their targets for any indication that they are being believed or not (Buller & Burgoon, 1996). Experiment 1 suggests that truth tellers also pay attention to their targets. Therefore, when a supportive second interviewer provides positive feedback, he or she acts as a kind of social reinforcement, encouraging and strengthening the participant’s current behaviour. Conversely, Experiment 3a suggests that the ‘Changing Interviewers’ manipulation was interpreted by interviewees as a sign of suspicion, which would explain why it discouraged truth tellers and liars from adopting their default retrieval strategies.
The idea that external feedback can encourage or discourage a default strategy may explain the findings pertaining to detail in Experiment 2. Perhaps the supportive interviewer encouraged participants’ default strategies when responding to expected questions. The way in which truth tellers and liars naturally respond to expected questions is likely to be very different. Liars have prepared for expected questions, therefore their strategy for such questions may be to give as detailed answers as possible to such questions. As mentioned previously, a supportive interviewer could have encouraged liars to give a particularly detailed version of their prepared response. Truth tellers do not prepare themselves as much as liars prior to an interview (Hartwig et al., 2007), rather they believe that the truth will “shine through”. Therefore, their default strategy for expected questions may be to simply provide an adequate response, and to wait for more follow-up questions.

Neither truth tellers nor liars can prepare for an unanticipated question. However, that does not rule out the formulation of an ad hoc strategy in the moments before providing a response. Liars’ default strategy for an unexpected question is not likely to involve providing a detailed response, as liars struggle to fabricate new details (Köhnenk, 1996, 2004; Leal et al., 2015), and are discouraged from adding new details (Hartwig et al., 2007; Masip & Ces, 2011; Nahari et al., 2012a). Assuming that liars adopted a strategy of providing just enough details, this strategy would have been encouraged by the supportive interviewer, who provided positive feedback and social reinforcement. Truth tellers’ default strategy for unexpected questions may be exactly the same as their strategy for expected questions: To provide an adequate response. Taken together, the proposed impact of interviewer demeanour on default response strategies offers an explanation of the findings in Experiments 1, 2, and 3a.
Experiment 3b examined the effect of deliberate mimicry on detail as a cue to deceit. In an interview, participants either told the truth or lied about a meeting they had attended. In half of the interviews, the second interviewer deliberately mimicked participants’ behaviour. Therefore, Experiment 3b differed from all previous experiments in a few ways. First, it was the first investigation to recruit a supportive second interviewer who also mimicked interviewees’ behaviour. Second, in no previous experiments were liars instructed to provide a mixture of truthful and false information in response to specific questions during the interview. Third, Experiment 3b examined detail in two ways; the amount of details provided and the accuracy of details provided.

As predicted, deliberate mimicry resulted in truth tellers providing more detailed responses than liars. No differences emerged between truth tellers and liars in the non-mimicry condition. In addition, the results revealed that liars volunteered significantly less accurate information when they were mimicked.

Experiment 3b contributes to mimicry literature in a few ways. The finding that deliberate mimicry elicited detailed responses from truth tellers supports previous research that being mimicked makes people more cooperative and compliant (Van Baaren et al., 2003, 2004; Maddux, Mullen and Galins, 2008; Fischer-Lokou et al., 2011; Guéguen et al., 2011). Mimicry had no effect on the amount of detail in liars’ responses, possibly due to their inability to fabricate new details (Köhnken, 1996, 2004; Leal et al., 2015) or their concern that adding new information may reveal their guilt (Hartwig et al., 2007; Masip & Ces, 2011; Nahari et al., 2012a).
On a more fundamental level, the findings support the hypothesis that humans have a pervasive need to belong (Baumeister & Leary, 1995). The belongingness hypothesis posits that humans have a strong desire to form and maintain positive interpersonal attachments. An interview is simply another opportunity for two or more human beings to establish new bonds. Deliberate mimicry appeared to foster a strong relationship between truth tellers and the interviewers, resulting in more detailed responses (Lakin, Jefferis, Cheng, & Chartrand, 2003). In contrast, deliberate mimicry had a negative effect on liars by reducing the amount of accurate detail they volunteered. One possible explanation for this finding is that being mimicked discouraged liars from cooperating. Mimicry is believed to create an unconscious bond between interaction partners (Barsalou, Niedenthal, Barbey, & Ruppert, 2003). However, rather than forge a bond, mimicry appeared to have the opposite effect and this may have something to do with rapport. The impact that rapport has on deceptive suspects has not been examined in great detail. It’s not clear whether rapport encourages or discourages liars to cooperate (this idea is discussed further below in the Future Research section). The real question is whether deceptive suspects are interested in establishing rapport with an investigative interviewer. There are conceivable benefits to doing so, certainly if this helps a liars to appear convincing. However, rapport itself is defined as being founded upon a shared interest (Newberry and Stubbs, 1990), and there is a clear conflict of interests between liars and their targets. If liars are not motivated to establish a rapport, this could explain why any attempt to facilitate a social bond may have the opposite effect. Perhaps, for the liars in Experiment 3b, rather than generate rapport, mimicry highlighted the conflict of interests between deceiver and
target. If the deliberate mimicry did minimise the rapport between liars and the interviewer, this may explain why liars volunteered less accurate information.

Experiment 4 used the data from Experiment 3a in a deception detection study. The purpose of the study was to determine whether training participants to look for repetition as a cue to deceit can improve detection efficiency. Participants read extracts from transcripts generated from the interviews conducted in Experiment 3a. More precisely, participants in Experiment 4 read responses to the normal and reverse order questions provided by interviewees in Experiment 3a. Half of the participants in Experiment 4 were instructed to look for evidence of repetition in the reverse order responses. After reading the transcripts, all participants made a veracity judgement, citing the judgement cues they used. The results rejected all but one of the five predictions. Although participants in the ‘instruction’ condition indicated that they did use consistency as a cue to deceit, the instruction had no effect on detection efficiency, rejecting Hypothesis 1. Furthermore, judges who read transcripts of interviewees in the ‘changed interviewers’ condition were no more accurate than judges who read transcripts of interviewees in the ‘same interviewers’ condition, rejecting Hypothesis 2. The ‘Instruction’ and ‘Interviewer’ manipulations combined had no effect on overall accuracy, rejecting Hypothesis 3. Truth tellers’ transcripts were not rated as being more plausible than liars’, rejecting Hypothesis 4. Finally, the majority of the participants in the ‘instruction’ condition cited consistency as a cue to deceit, supporting Hypothesis 5.

Experiment 4 contributes to the literature examining consistency as a cue to deceit in suspect testimony. The results support the contention that inconsistency between two accounts is the most frequently cited reason for discrediting another
human being (Gran Hag & Strömwall, 1999, 2000; Gran Hag, Strömwall & Jonsson, 2003). Participants in the ‘no instruction’ group cited consistency as a cue to deceit more than any other cue. While consistency certainly should be regarded as a cue to deceit, this thesis demonstrates that consistency can be determined by external factors such as interviewer demeanour. Veracity alone does not determine whether consistency emerges as a cue to deceit. Therefore, Experiment 4 supports previous research implying that judges do not rely on the wrong cues, rather that the cues themselves are faint and unreliable (DePaulo et al., 2003; Hartwig & Bond, 2011). This thesis supports the recommendation that lie detection will be improved by creating stronger cues to deceive, and not by learning about the characteristics of deceptive behaviour (Hartwig & Bond, 2011). There is a compelling sense that judges do not have the cues at their disposal to effectively detect deceit.

In sum, the findings discussed here provide evidence that a second supportive interviewer elicits cues to deceit. Combined with deliberate mimicry, a second supportive interviewer can encourage truth tellers to say more, which in turn can magnify the differences between truth tellers and liars. In terms of detail, a supportive second interviewer effectively differentiated liars and truth tellers by encouraging truth tellers i) to provide more information (Experiments 2 and 3b), ii) to provide more accurate information (Experiment 3b), iii) and to provide more new information (Experiments 1 and 3a). A two-interviewer protocol also elicited consistency as a cue to deceit (Experiments 1 and 3a).

7.2 Practical Implications

**A second supportive interviewer.** The findings discussed here represent the first attempt to examine and understand a two interviewer protocol of this nature. It is too
early at this stage to recommend that practitioners adopt the two-interviewer protocol tested in this thesis. Clearly, this strategy shows promise of being an effective means of collecting detailed accounts and catching out liars, but this research is still in its infancy. On 9th December, 2014, the United States Senate Select Committee on Intelligence (SSCI) released a summary of a report on the Central Intelligence Agency's Detention and Interrogation Program. Crucially, the summary showed that the torture methods described therein were ineffective in acquiring intelligence or encouraging cooperation. The contents of the report led to international condemnation of the agency’s “enhanced interrogation techniques” and highlighted the need for ethical and effective means of information gathering, particularly in intelligence settings. The findings presented here contribute to forensic interviewing in a few ways:

**Supportive interviewing.** In all experiments, the presence of a supportive interviewer helped to differentiate truth tellers and liars. Therefore, one recommendation offered to practitioners is to have forensic interviewers behave supportively. This is not the first time this recommendation has been made. This thesis directly supports previous research highlighting good practice in interviewing children, witnesses and suspects (see Bull, 2010, Fisher, 2010, Kassin, Appleby, & Torkildson-Perillo, 2010; Meissner, Redlich, Batt, & Brandon, 2012; Vrij, 2011, for recent reviews), and indirectly the growing support for a rapport-building approach to investigative interviewing (Meissner, Redlich, Bhatt, & Brandon, 2013). Therefore, the option to train and use supportive interviewers in real life forensic interviews should be taken very seriously. Practitioners may benefit from working with researchers to formulate a new protocol and to determine which behaviours will reliably show support of an interviewee’s testimony. This new protocol should be
extensively tested and reviewed (in real world forensic interviews) with reference to the latest research in investigative interviewing and the rapport-building approach to ensure its efficacy and longevity. There is real scope to use a supportive interviewer to better meet the overarching goal of investigative interviewing; to obtain detailed accounts from interviewees (Fisher, 2010).

**Encouraging interviewees to say more.** A supportive second interviewer is one method that can encourage truth tellers and liars (in certain conditions) to say more, and there are several benefits to encouraging real life interviewees (suspects and witnesses) to do the same. The first obvious benefit is the increased level of detail in interviewees’ accounts, which may help investigators to gain access to crucial information that in other interviews may not have been volunteered. Second, encouraging suspects to provide detailed accounts will help truth tellers to prove their innocence and liars to trip themselves up. Detailed testimony offers more opportunities for investigators to verify certain details and to spot any inconsistencies. In addition, encouraging detailed responses may help investigators to focus in on certain topics. For example, encouraging all suspects interviewed for the same crime to provide detailed accounts may show that one suspect is offering less detail in their responses. This on its own does not indicate deceit, but may be cause for investigators to examine more closely the suspect who offers less detail. The investigation of detail as a cue to deceit is ongoing, but encouraging detailed responses may help magnify the differences between truth tellers and liars, as demonstrated in this thesis. Finally, evoking detailed responses from interviewees may help to highlight differences in responses to expected and unexpected questions, which was a cue to deceit in Experiment 2. This approach exploits the fact that liars cannot prepare for unexpected questions, while also encouraging liars to give
particularly detailed accounts in response to expected questions. Overall, any method that helps in some way to reveal the truth will help reduce miscarriages of justice and ensure that perpetrators are brought to justice.

### 7.3 Future Research

**The second interviewer.** In every experiment in this thesis, the second interviewer was silent. In Mann et al. (2013), judges rated that interviewees looked at a (silent) second interviewer less than ten percent of the time. Interviewees probably didn’t pay that much attention to the second interviewer simply because this interviewer was silent. Despite this, the second interviewer’s demeanour still had an effect on interviewees’ responses. If liars do monitor their targets to gauge whether they are being believed or not (Buller & Burgoon, 1996), drawing more attention to the second interviewer (and their demeanour) may enhance his or her overall impact. This idea should be explored by future research. There are several ways in which interviewees could be encouraged to pay more attention to the second interviewer. One obvious avenue to pursue is to have the second interviewer involved in the questioning. There is a clear rationale for thinking that an extra speaking interviewer will draw more of the interviewees’ attention than an extra silent interviewer. First, simply as a result of the verbal interaction, interviewees will pay more attention to the second interviewer’s demeanour. Second, a speaking interviewer can show that they are actively listening to what the interviewee has to say. This informs the interviewee that this extra interviewer is paying attention, and that they are involved in the analysis of the testimony. Third, a talking second interviewer shows that they have an active and important role in the interview schedule, as opposed to a passive silent interviewer who has no involvement in the questioning.
Having a speaking second interviewer offers new ways for that interviewer to express support for the interviewee’s testimony. While this thesis shows that manipulating the non-verbal behaviour of the second interviewer can be effective, the scope for showing support via non-verbal gestures is quite limited. The same cannot be said of verbal behaviour. There is a wealth of opportunity for future researchers to use language in order to have a second interviewer behave supportively. The possibilities are seemingly endless. There are many more ways to experiment with the combination and intonation of words than there are with simple gestures and posture. This thesis has explored new territory by testing a silent second interviewer in a variety of ways, and showing that a supportive second interviewer can elicit cues to deceit. The next logical step is to explore the potential benefits of a supportive speaking interviewer.

One note of caution regarding the testing and implementation of a second supportive interviewer is that at certain times, behaving supportively may appear odd or unnerving. For example, if the first interviewer is asking particularly difficult questions which prompt an admission of guilt (in a real life forensic interview this could relate to a particularly heinous or shameful act), an overly supportive second interviewer (adopting the mannerisms tested in this thesis) could have a negative impact on the interviewee. The degree to which a second interviewer should be supportive must take into account the nature of the questioning and responses, and should therefore be fluid. Based on the findings presented here, a second interviewer may be best employed during certain stages of an interview where it is deemed that they will have the greatest impact. For example, the second interviewer could be present at the beginning of the interview to establish and build rapport, then he or she could remove themselves for a brief period during the particularly difficult
stages of the interview, returning shortly after to continue to provide a source of support for the remainder of the questioning. Future research should also examine ways in which a second interviewer can be supportive in a more subtle way, notably during stages of the interview where the questions are emotionally challenging.

**Rapport.** A growing body of literature now supports the rapport-building approach to investigative interviewing rather than an accusatorial style (Meissner, 2011; Redlich, Bhatt, & Brandon, 2013). Understanding and building rapport is becoming an increasingly important goal for lie detection researchers and practitioners. While rapport was not examined directly in this thesis, the second interviewer’s impact may in part have resulted from fostering rapport. For example, the nonverbal behaviours displayed by the supportive interviewer (smiling, leaning forward, head nodding, and maintaining gaze) are all behaviours that are associated with perceptions of warmth (Rosenfeld, 1966; Burgoon, Buller, Hale, & deTurck, 1984; Kleinke, 1986; Coker & Burgoon, 1987; Burgoon, 1991) and behavioural mimicry has been directly linked with building rapport between interaction partners and cooperation in social interactions (Chartrand & Bargh, 1999; Lakin & Chartrand, 2003; Maddux, Mullen & Galins, 2008; Stel, van Baaren, & Vonk, 2008; Guéguen, Martin, & Meineri, 2011). If the second interviewer did generate rapport, it likely impacted on truth tellers and liars differently. Greater rapport between interviewer and truth telling interviewees may explain why that truth tellers were encouraged to say more. Indeed, researchers believe rapport can encourage interviewees to cooperate and engage in free discussion (Buckwalter, 1983). It is harder to speculate on what impact rapport may have had on liars, particularly if rapport is a “…harmonious, empathic, or sympathetic relation or connecting to another self” (Newberry and Stubbs, 1990, p. 14). This definition implies the forging of a bond,
borne out of a common interest, but a deceptive suspect and an investigative interviewer do not share a common goal. What role then, does rapport play between liars and interviewers? Perhaps rapport has no impact (or even a negative impact, see Experiment 3b) on liars until it reaches an important threshold; the point at which the strength of the bond created by rapport persuades a liar to offer truthful information. Rapport may not have to reach a threshold where truth tellers are concerned. In contrast, rapport may build immediately in light of the shared interests between truth tellers and interviewers. This notion would explain the positive findings yielded from having a supportive second interviewer present.

Future research should focus on establishing whether a supportive second interviewer does foster rapport. This could be achieved simply by examining the relationship between interviewees and the interviewer using the definition of rapport above. Note that in none of the experiments reported here was a liar instructed that they could switch to being a truth teller during the interview. If a supportive second interviewer does generate rapport, the next step would be to test whether this rapport can turn liars into truth tellers, and the best way to achieve this.

7.4 Limitations

The One Interviewer Protocol. One obvious limitation of all the experiments presented here is the lack of a one-interviewer control condition. Such a comparison may have been useful. Being able to show that a two-interviewer protocol is superior (or inferior) to a one-interviewer protocol (albeit in an experimental setting) would have strengthened the overall contribution of this research. However, to the author’s knowledge, this thesis is the first examination of a second interviewer in mock
forensic interviews, and the lack of research examining a two-interviewer protocol was the driving force behind this thesis.

Reverse order recall. In all experiments, participants were required to recall the same information in two ways: first, in normal chronological order and again in reverse chronological order. In addition to the three main aims of this thesis, one more minor aim was to build on previous research showing that the reverse order instruction can elicit cues to deceit; the findings presented in this thesis support this contention. However, comparing reverse order responses with normal order responses may attract some criticism, as the reverse order instruction could be considered a confound. The author accepts that the reverse order instruction may have impacted on the results by interacting with the experimental manipulations, and it is not possible to know the degree to which this instruction effected the results. Despite this, considering the variation in the designs adopted (in terms of how the second interviewer was employed) and the consistent pattern of results across all experiments, it seems likely that the reverse order instruction did not have a greater effect than the manipulation of the second interviewer.

Consistency. When consistency is rated objectively, each statement from the second recollection (Time 2, or T2) is compared with the first recollection (Time 1, or T1; note that T1 and T2 are comparable to Stages 1 and Stage 2 as described in Experiment 3a, however, the references T1 and T2 are used here as they reflect the wider literature relating to consistency coding), and categorised as being either consistent (a statement at T1 that is correctly repeated at T2), contradictory (a statement at T2 that contradicts a statement at T1), reminiscent (new information at T2 not mentioned in T1), or forgotten (a statement at T1 that is not present at T2, see
Fisher, Vrij, & Leins, 2013). One general limitation of these findings is that only repetitions are included in the analyses of consistency (including the subjective ratings), as no findings emerged for the other measures of consistency. In Experiments 1 and 3a, the number of statements at T1 that were repeated at T2 were measured. Repetition is only one measure of consistency, and yet the findings have been related to consistency without recognition of this limitation. Critics of the findings presented here could argue that repetition on its own does not reflect consistency as a whole.

There is one other limitation that relates to the ‘Meeting events checklist’ used to objectively code consistency in Experiment 3a. The checklist in question divided the secret meeting into 18 key events. The checklist had two columns side by side to code the T1 and T2 recollections. At T1 and T2, the coder simply marked whether each of the 18 key events was mentioned correctly. After coding both recollections, the coder was able to determine each measure of consistency by simply comparing the two columns. An event mentioned at T1 and T2 represented a repetition, and event mentioned only at T1 represented an omission, and an event only mentioned at T2 represented a commission. Contradictions were determined by making a direct comparison between corresponding events between the T1 and T2. This method was used as it enabled the transcripts to be coded in less time. The downfall of this approach is that participants could mention details that would not be captured by the checklist, as they could be beyond the scope of the 18 events listed. This approach is weaker than coding each individual statement provided by participants. In using a checklist which could not account for every detail provided, inevitably, some examples of consistency and inconsistency have not been coded.
Stakes. Stakes are an important factor in deception research, as participants in low stakes settings (such as those tested in this thesis) may behave differently from real life suspects where the consequences are much more grave (Mann, Vrij, & Bull, 2002; Vrij & Granhag, 2012).

This thesis shows that a second interviewer can elicit cues to deceit in mock suspect interviews, but testing in a high stakes setting would have increased the overall credibility of this research. Recent studies on high stakes deception highlight the importance of context in deceptive behaviour, and how some cues displayed in low stakes settings do not always arise in high stakes settings (Porter, 2010; Whelan, Wagstaff, & Wheatcroft, 2013). Experiments 1-4 show that relatively subtle manipulations can profoundly affect how interviewees respond. Given that the interviewee’s experience is qualitatively different in a high stakes interview, the way in which a second interviewer is interpreted and attended to may also be different. In a high stakes setting, a second interviewer could have an altogether different impact on interviewees. Note that the overwhelming majority of participants were undergraduate students who may respond differently to real life suspects presented with a supportive second interviewer. It is possible that hardened criminals interpret the supportive mannerisms tested in this thesis differently, and could even be suspicious of such behaviour, especially if it conflicts with their previous experience of forensic interviewers. It also possible that a high stakes setting may enhance a second interviewer’s ability to elicit cues to deceit, though this remains unclear.

In all the experiments described in this thesis, great care was taken to raise the stakes in an ethical and realistic way. Evidence that the stakes were raised lies in the fact that several participants expressed that the meeting scenarios made them
nervous. However, for good reason, there is a limit to how high the stakes can be raised in an experimental setting, and this limitation must be respected. It is therefore crucial that future research replicates the findings discussed here in a high stakes setting.

‘No comment’ interviewees. In many jurisdictions all over the world, suspects have the right to remain silent during an investigative interview (Bucke, Street, & Brown, 2000). Research conducted in the UK suggests that around 5% of suspects opt to remain silent (Moston, Stephenson, & Williamson, 1993). Therefore, while it is a notable limitation of this research that it can only be applied to interviews where the interviewee is prepared to talk, in most cases interviewees cooperate by providing a verbal response (Baldwin, 1993).

7.5 Conclusions

This thesis offers three key findings that contribute to the deception literature and forensic interviewing. First, that investigative interviewers may benefit from adopting a supportive demeanour in suspect interviews. Second, that a second interviewer can be used to evoke detailed responses and elicit cues to deceit. Finally, whether consistency emerges as a cue to deceit is dependent on situational factors. The findings support previous research relating to good practice in investigative interviewing, and therefore contribute to real life forensic interviewing.
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Appendices

Appendix 1

Experiment 1: Interview schedule

1. What is your job, and how many hours a week do you work?
2. Where are you living at the moment?
3. How long have you been in your job?
4. Where do you work?
5. Can you describe in detail how you get from home to work?
6. Can you describe in detail how you get from here to work?
7. Please describe the layout of your place of work in as much detail as you can.
8. There must be one single experience in your job that must stand out - what is that? What happened?
9. Can you describe a typical day at work/shift, hour by hour?
10. Can you tell me about a recent interaction or event that you were involved in within the last week that occurred in your workplace?
11. If you were training me to do your job for a day, what things would I need to know about it?
12. Could you please describe your boss?
13. Can you list your reasons and motivations for doing your job?
14. Can you list the negative aspects about your job?
15. Can you describe in detail how you get from your work to home? To clarify, I’d now like you to recall your journey from home to work in reverse chronological order. Therefore, starting from your work, I’d like you to work backwards and explain the journey in reverse order.
16. Can you describe in detail how you get from your work to here? To clarify, I’d now like you to recall your journey from here to work in reverse chronological order. Therefore, starting from your work, I’d like you to work backwards and explain the journey in reverse order.
Appendix 2

Experiment 2: Interview schedule: Part A

First interviewer: My name is Sarah and I will be interviewing you today. I am a trainee investigator and I am accompanied by a senior investigator, Jackie, who is an expert in lie detection. We have reason to believe that some information was illegally accessed from our servers in this building. The incident in question took place earlier today. Our records show that you were in the building at this time, preparing Room A for a seminar. I will now ask you some questions about what you did in Room A. If you are ready, we will start the interview.

Part A

Q1: Giving as much detail as possible, please describe everything you saw in room A.

Q2: Again, giving as much detail as possible, please describe all the things you did whilst inside Room A in the exact order in which you did them.

First interviewer: I am now going to ask you to describe the locations of some of the items in room A. When you answer, I would like you to make reference to where the item was in relation to at least two other items in the room. For example if I asked ‘where was the sofa’ an appropriate answer might be ‘the sofa was to the left of the door and opposite a purple chair’.

Q3: In relation to at least two other items, can you tell me where the materials (articles, pads, and pens) were when you entered the room?

Q4: Again, in relation to at least two other items, can you tell me where the Attendance Sheet was when you entered the room?

First interviewer: I want to now ask you about how you arranged the room as part of the preparation.

Q5: Please describe exactly how you arranged the four different chairs you placed under the tables?
First interviewer: I am now going to ask you to describe again everything you did in room A only this time I would like you to tell me in reverse chronological order. This will mean starting with the last thing you did in the room and ending with the first thing you did.

Q6: Please now describe, in reverse chronological order, exactly what you did in Room A?

First interviewer: I’m going to ask you again about some objects in the room only this time I would like you to answer as if you were standing in front of the flip chart, facing the chairs and tables.

Q7: Please tell me where the Attendance Sheet was located after you arranged the room?

Q8: Can you tell me where the materials (articles, pads, and pens) were located after you had sorted through them?

Q9: Please describe the final position of the black office chair in relation to the other 3 coloured chairs that you arranged? E.g. Which coloured chairs were either side of the black chair etc.
Appendix 3

Experiment 3: Complete interview schedule

Stage 1

Before we start, I will explain a little about how the interview will be conducted. I will be asking all the questions, and I am joined by a silent interviewer, who will monitor your responses. Now, the silent interviewer has been trained to detect lies in interviews, and will help determine whether you are telling the truth.

In this interview, we will discuss the content of a meeting that you recently attended with members of HMI. We know that the aim of the meeting was to decide on a suitable location to plant a spy device. First of all, we would like to know about where the meeting took place.

1. Please describe in as much detail as possible the room where you attended the meeting.

2. I’d now like you to recall what happened during the meeting. That is, start from the moment you entered the meeting room, and describe to me what happened from that point onwards until the end of the meeting.

We would now like to talk to you about the location that was rejected, that is, the location that was not chosen to host the device. Please try to provide as much detail as you can to the following questions:

3. Please describe what type of building it was and the layout of this building.

4. Ok, now I would like you tell me the exact location - at the rejected site – where the device would be planted?

5. What would have made this location suitable?

6. What was the downside of this location?

7. Is there any information you wish to add about this site?

Now we would like to talk to you about the site that was selected, that is, the location that was chosen to host the device. Again, please try to provide as much detail as you can to the following questions:

8. Please describe what type of building it was and the layout of this building

9. Ok, now I would like you tell me the exact location - at the selected site – where the device would be planted?

10. Why was this location thought to be suitable?

11. Was there a downside to this location?

12. Is there any information you wish to add about this site?

13. Moving on to the device, please can you provide me with a detailed description of the device? That is, please tell us everything you know about the device. Even features you may think are irrelevant.
14. Is there any information you wish to add about the device?

15. I’d like to focus now on the other members that were present at the meeting with you. We have some photos we would like to show you, and these may or may not include the individuals who attended the meeting with you. For each photo we show you, please say whether he or she was at the meeting. If you identify someone, please then tell us all you know about this person.

**Interviewer manipulation**

*A note is presented to the speaking interviewer. The interviewers remain or swap depending on the condition.*

**Stage 2**

16. I’d now like you to recall what happened during the meeting in reverse chronological order. That is, start from the moment you left the meeting room, and describe to me what happened from that point backwards until the beginning of the meeting.

17. I would now like you to draw the floor plan of the location that was *selected*. I also want you to mark with an ‘X’ the exact location where the device would be planted. Take your time and try to include as many details as possible. While you are sketching, please describe in words the plan and the device location.

18. I now want to turn the focus back to the device. I want to you describe the device for me again, but this time I want you to close your eyes when you do so. Research has shown that closing your eyes can help with memory recall. So, closing your eyes before you answer, please can you provide me with a detailed description of the device? That is, please tell us anything you know about the device? Even features you may think are irrelevant?

19. We’ll now focus on the other members that were present in the meeting with you. Please sketch each of the people who were present during the meeting in as much detail as you can remember. Again, also describe in words what you are sketching.

20. I am now going to show you photos again. As before, for each photo we show you, please say whether he or she was at the meeting with you. If you identify someone, please then tell us all you know about this person.
### Appendix 4

### Experiment 3a: Meeting events checklist

**Meeting Events Checklist**

<table>
<thead>
<tr>
<th>1 point for each.</th>
<th>1st</th>
<th>2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The participant enters the meeting room, is greeted, and instructed where to sit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Mr. Black explains why the participant is there, their role, and the purpose of the meeting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Mr. Black then introduces himself, his role, and how long he has worked for the company.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Ms. Yellow then introduces herself, her role, and how long she has worked for the company.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Mr. Pink then introduces himself, his role, and how long he has worked for the company.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Mr. Black then mentions the time pressure, and what will happen if they run out of time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The participant then examines the device and puts it in the middle of the table.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Mr. Black then introduces the 8 features of the device, and the mnemonic BTRD AVE.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Mr. Black then details the physical features of the device.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Mr. Black then details the technical features of the device.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Mr. Black then introduces [LOCATION 1], and where the device would be planted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Mr. Black then explains why [LOCATION 2] is suitable, and its downside.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Mr. Black then introduces [LOCATION 2], and where the device would be planted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Mr. Black then explains why [LOCATION 2] is suitable, and its downside.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Mr. Black then introduces the Hotel Reception before being told time is nearly up.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. All members then cast their votes by a show of hands for each location.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Mr. Black then declares that the device will be planted at [SELECTED LOCATION].</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Mr. Black then instructs the participant to leave first.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Correct order: YES/NO?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Totals**
Appendix 5

Experiment 3b: Accurate detail coding sheets

<table>
<thead>
<tr>
<th>Meeting members checklist: 1 point for each</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mr. Black:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified the photo as Mr. Black.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stated that the individual in the photo is an operations manager.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stated that the individual in the photo has worked for HMI for 7 years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State that individual in the photo was took the lead for the meeting.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ms. Yellow:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified photo as Ms. Yellow.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stated that the individual in the photo was an electrical engineer.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stated that the individual in the photo has worked for HMI for 5 years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mr. Pink:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified photo as Mr. Pink.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stated that the individual in the photo is a technical analyst.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stated that the individual in the photo has worked for HMI for 3 years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MR BLACK LIST</strong></td>
<td><strong>MR. PINK LIST</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-----------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short hair.</td>
<td>Long hair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue eyes.</td>
<td>Wavy hair.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stubble.</td>
<td>Brown eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suit.</td>
<td>Not Caucasian.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey suit.</td>
<td>Olive skin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinstripe suit.</td>
<td>Stubble.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shirt.</td>
<td>Red jumper/fleece.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light shirt.</td>
<td>Olive panels.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top button unbuttoned.</td>
<td>Sleeves rolled up.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No tie.</td>
<td>Light t-shirt.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black shoes.</td>
<td>Jeans.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smart shoes.</td>
<td>Blue jeans.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shiny shoes.</td>
<td>Black shoes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belt.</td>
<td>Tennis shoes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black belt.</td>
<td>Long hair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>MS YELLOW (TUES) LIST</strong></th>
<th><strong>MS YELLOW (WED) LIST</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Long hair.</td>
<td>Medium length hair.</td>
</tr>
<tr>
<td>Brown hair.</td>
<td>Brown hair.</td>
</tr>
<tr>
<td>Wavy hair.</td>
<td>Wavy/curly hair.</td>
</tr>
<tr>
<td>Long fringe.</td>
<td>Brown eyes.</td>
</tr>
<tr>
<td>Blue eyes.</td>
<td>Scarf.</td>
</tr>
<tr>
<td>Eyeliner.</td>
<td>Blue scarf.</td>
</tr>
<tr>
<td>White blouse/shirt.</td>
<td>Black jeans.</td>
</tr>
<tr>
<td>Jeans.</td>
<td>Boots.</td>
</tr>
<tr>
<td>Dark/navy jeans.</td>
<td>Black boots.</td>
</tr>
<tr>
<td>Necklace.</td>
<td>Dark top.</td>
</tr>
<tr>
<td>Bronze necklace.</td>
<td></td>
</tr>
<tr>
<td>Piectrum necklace</td>
<td></td>
</tr>
<tr>
<td>Black shoes.</td>
<td></td>
</tr>
<tr>
<td>Long hair.</td>
<td></td>
</tr>
<tr>
<td>Brown hair.</td>
<td></td>
</tr>
<tr>
<td>Wavy hair.</td>
<td></td>
</tr>
<tr>
<td>Long fringe.</td>
<td></td>
</tr>
<tr>
<td>Blue eyes.</td>
<td></td>
</tr>
<tr>
<td>Eyeliner.</td>
<td></td>
</tr>
<tr>
<td>Caucasian.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Total</strong></th>
<th><strong>Total</strong></th>
</tr>
</thead>
</table>

192
Select relevant checklists from the following:

RESTAURANT

1 point for each.

1. Identified foyer.
2. Correctly located foyer.
3. Identified restaurant floor.
4. Correctly located restaurant floor.
5. Identified table.
6. Correctly located table.
7. Identified unnamed room.
8. Correctly located unnamed room.
9. ‘We know Target X meets with foreign spies here’
10. ‘The device won’t work if it’s too noisy’

<table>
<thead>
<tr>
<th></th>
<th>1st</th>
<th>2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
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<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
EMBASSY

1 point for each.

<table>
<thead>
<tr>
<th></th>
<th>1st</th>
<th>2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identified waiting area.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Correctly located waiting area.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Identified office.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Correctly located office.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Identified desk.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Correctly located desk.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Identified unnamed room.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Correctly located unnamed room.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>‘...because our target has been issuing passports illegally from here’</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>‘...the device may not get past security’.</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram of Embassy layout]

WAITING AREA

OFFICE

DESK
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 point for each.</strong></td>
<td>1st</td>
</tr>
<tr>
<td>1. Identified reception.</td>
<td></td>
</tr>
<tr>
<td>2. Correctly located reception.</td>
<td></td>
</tr>
<tr>
<td>3. Identified boardroom.</td>
<td></td>
</tr>
<tr>
<td>4. Correctly located boardroom.</td>
<td></td>
</tr>
<tr>
<td>5. Identified table.</td>
<td></td>
</tr>
<tr>
<td>6. Correctly located table.</td>
<td></td>
</tr>
<tr>
<td>7. Identified unnamed room.</td>
<td></td>
</tr>
<tr>
<td>8. Correctly located unnamed room.</td>
<td></td>
</tr>
<tr>
<td>9. ‘...because we know Target X has been laundering money through this bank’.</td>
<td></td>
</tr>
<tr>
<td>10. ‘The target rarely visits the bank’.</td>
<td></td>
</tr>
</tbody>
</table>

**Diagram:**
- **Boardroom**
- **Reception**
- **Table**
<table>
<thead>
<tr>
<th>FLAT</th>
<th>1 point for each.</th>
<th>1st</th>
<th>2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identified kitchen.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Correctly located kitchen.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Identified lounge.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Correctly located lounge.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Identified desk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Correctly located desk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Identified unnamed room.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Correctly located unnamed room.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>‘...because our target has a well hidden safe here’.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>‘...Target X routinely screens the flat for devices’.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Diagram:**
- **KITCHEN**
- **LOUNGE**
- **DESK**
HOTEL RECEPTION

1 point for each of the following:

- Each room that is identified
- Each room that is located
- Each object that is identified
- Each object that is located
- Each reason that it is suitable
- Each reason that it is not suitable

<table>
<thead>
<tr>
<th>1 point for each.</th>
<th>1st</th>
<th>2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Device Checklist

1 point for each.

<table>
<thead>
<tr>
<th></th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mentioned it being black.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Mentioned it was black because it remains discrete in a range of environments.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Mentioned it was rectangular.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Mentioned it was rectangular so it doesn’t attract attention to itself.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Mentioned it was insulated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Mentioned it was insulated with a special tape to protect it from interference.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Mentioned it was thin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Mentioned it was thin so it could be placed in a range of different places.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Mentioned it can copy electronic documents.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Mentioned it can record audio.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Mentioned it can record visual information.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Mentioned it can hack email accounts.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total:

Additional:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

Total:
Appendix 6

Evidence of favourable ethical review for Experiment 1.

November 15, 2010

Dr. Susan Brandon
FBI, BSU - HIIG
935 Pennsylvania Ave. NW
Washington, DC 20535

RE: #174-10 – Eliciting Cues by Imposing Cognitive Load and Asking Unanticipated Questions

The Institutional Review Board (IRB) completed an electronic vote on the captioned project on October 29, 2010. Following a discussion of the information you provided, the IRB voted to approve the initiation of this project.

A continuing review must be conducted on a yearly basis until the research is finalized. Please remember that any significant changes in your project or adverse effects suffered by a subject must be reported to the IRB immediately. If you close this project within the year, please inform the IRB.

We wish you every success with your research. If you have any questions, or need further assistance or guidance, please do not hesitate to contact Elizabeth Withnell, Privacy and Civil Liberties Unit, OGC, (202) 324-3396, or Scott Brotherton, (703) 632-8061.

Sincerely,

Catherine E. Theisen, Ph.D., Chair
IRB

1 - Ms. Withnell
1 - PCLU Tickler
1 - PCLU Library
1 - File 174-10

SHB
Appendix 7

Evidence of favourable ethical review for Experiment 2.

December 19, 2011

Susan Brandon
BSU HIG
Quantico, Va 22135

RE: 210-11 Eliciting Cues by Imposing Cognitive Load and Asking Unanticipated Questions

The Institutional Review Board (IRB) conducted a review of the captioned research project. Following a review of the information you provided, the IRB voted to approve the initiation of the project.

Please remember that any significant changes in your project or adverse effects suffered by a subject must be reported to the IRB immediately. Also you must receive IRB approval before making any changes to the incentive amount offered to recruit research projects. If you close this project within one year please inform the IRB.

If you have any questions, or need further assistance or guidance, please do not hesitate to contact Elizabeth Withnell, Privacy and Civil Liberties Unit, OGC, (202) 324-3396, or Sonia Biggs-Knight, IRB Administrator, (703) 632-1107.

Sincerely,

Steve Krueger, Chair
IRB

1 - Ms. Withnell
1 - PCLU Tiekler
1 - PCLU Library
1 - File 210-11
Appendix 8

Evidence of favourable ethical review for Experiments 3a and 3b.
### PART B  CHECKLIST OF ETHICAL AND RISK ASSESSMENT ISSUES

<table>
<thead>
<tr>
<th>SECTION 1: Please answer the following questions by ticking the appropriate box</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are your participants members of the following groups?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 16 years of age</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>People with Autism Spectrum Disorder</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>People with learning difficulties</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>People with mental health problems</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>People in custody</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People engaged in illegal / illicit activities (e.g. drug-taking)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION 2: Please answer the following questions by ticking the appropriate box</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you in a position of authority or influence over your participants? (e.g. a lecturer, a head of an organisation / society of which the participants are members)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will the study require the co-operation of a gatekeeper for initial access to the groups or individuals to be recruited (e.g. students at school, members of self-help groups, residents of a nursing home, incarcerated individuals)?</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Will the study involve discussion of sensitive topics (e.g. sexual activity, illicit drug use, illegal activity)?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will your project involve deliberately misleading participants in any way?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you going to be making audio or video recordings?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION 3: Please answer the following questions by ticking the appropriate box</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there any realistic risk to the participants of either physical or psychological distress or discomfort?</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Is there any realistic risk to the researcher of either physical or psychological distress or discomfort?</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Are participants required to ingest anything? (e.g. caffeine, alcohol)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does the study involve taking psycho-physiological measures? (e.g. EEG, heart rate)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Does the study involve prolonged repetitive testing (for over 30 minutes on a computer-based task)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The research will take place off University premises?</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

If you have ticked Yes to any of the questions in SECTION 3 the committee recommends that you should also submit a Risk Assessment to the Ethics Committee—see Model for data.

### SECTION 4: Please answer the following questions by ticking the appropriate box

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>WILL YOU DESCRIBE THE MAIN EXPERIMENTAL PROCEDURES TO PARTICIPANTS IN ADVANCE, SO THAT THEY ARE INFORMED ABOUT WHAT TO EXPECT?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>WILL YOU INFORM PARTICIPANTS THAT THEIR PARTICIPATION IS VOLUNTARY?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WILL YOU OBTAIN WRITTEN CONSENT FOR PARTICIPATION (OR ORAL CONSENT FOR INTERVIEW-BASED RESEARCH)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IF THE RESEARCH IS OBSERVATIONAL, WILL YOU INFORM PARTICIPANTS FOR THEIR CONSENT TO BE OBSERVED?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WILL YOU INFORM THE PARTICIPANTS THAT THEY MAY WITHDRAW FROM THE RESEARCH AT ANY TIME AND FOR ANY REASON?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WITH QUESTIONNAIRES, WILL YOU GIVE PARTICIPANTS THE OPTION OF OMITTING OR SKIPPING QUESTIONS THEY DO NOT WANT TO ANSWER?</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

### DECLARATION

(Please sign Declaration A OR Declaration B)

**Declaration A**

I am familiar with the BPS Guidelines for ethical practices in psychological research and have discussed them with the other researchers involved in the project. I consider that this project has substantive ethical Implications.

**Declaration B**

I am familiar with the BPS Guidelines for ethical practices in psychological research and have discussed them with the other researchers involved in the project. I consider that this project has no substantive ethical implications.

Signed: Prof. Aldert Vrij
Part C   Administrative Information for Departmental Committee Review

This Ethics submission is for (please tick one of the following two options):
[x] 1) Full review for the first time
2) Expedited review (please tick one box)
   □ A revision in response to Ethics Committee feedback. Please attach an additional sheet that details your responses to the concerns listed previously, along with the original submission.
   □ Modification of already approved project — attach full previously approved proposal with a list of modifications or changes on a separate sheet
   □ Practicals (1st and 3rd yr undergraduate)

Checklist for expedited and full reviews: Check that each of the following documents is enclosed with this form:
[x] Responses to the items 1-17,
[x] RESEARCH PROPOSAL,
[x] Recruitment information (e.g. letters to parents, information sheet, Participant Pool poster, if applicable),
[x] Informed Consent Form (required),
[x] Debriefing Form (required),
[x] All questionnaires/interview schedule — if applicable.

------------------------------------------------------------------------------------------------------------

Decision of Ethics Committee:

☑ Favourable opinion

☑ Favourable opinion with provision [make the changes indicated on the proposal – no need to resubmit].

☑ Unfavourable opinion - consult with your supervisor, tutor or mentor to rectify or address the concerns noted on the proposal, then resubmit following the instructions below.

☐ No opinion possible [some of the required information is missing - see proposal for details and resubmit following the instructions below]

Signed: Claire Nee (also reviewed by Jim Sauz)  Date: 12/9/12

N.B. Revised proposals should be submitted by email to the member of the ethics committee that forwarded you your initial decision (usually Claire.nee@port.ac.uk or Maggie.linnell@port.ac.uk). You do not have to wait for the next ethics committee deadline. Remember to tick the first box under 2 above and include
(i) the original submission,
(ii) the revised proposal (clearly title as such), and
(iii) a list of your responses to the feedback.
2. Shaw & Vrij - Favourable opinion

The project investigates the effects of (a) subtle mimicry and (b) the presence of a second, silent interviewer on participants' truth-telling and lying behaviour in an interview setting. Participants will attend a mock security meeting, be introduced to some 'senior intelligence officers', and discuss plans to plant surveillance equipment in one of three public locations. Afterwards, participants will be interviewed and questioned about those at the meeting (and be asked to attempt to identify those present from a "lineup"), and the plans for the device. Participants will be instructed to conceal certain information from these interviewers while appearing cooperative (i.e., volunteer some truthful information, but withhold other information) or cooperate fully. In the mimicry-present condition, the second interviewer will subtly mimic the non-verbal mannerisms of the participant during the interview to see if this aids rapport-building, and increases participants' willingness to volunteer information. Participants will be university students (recruited through usual channels: LookUP, lectures, etc.) and members of the general public (recruited through an ad in the newspaper). The recruiting, IC and debrief protocols are fine. I have no concerns here, other than the risk assessment issue.

No RA required as you will not be doing anything physically unusual with your participants.
Appendix 9

Evidence of favourable ethical review for Experiment 4.

FAVOURABLE OPINION WITH MINOR AMENDMENTS

Proposal Title: The effective use of two interviewers to facilitate cooperation and detect deceit.

Dear Dom,

Thank you for submitting your protocol for ethical review. The proposal has been on SFEC Moodle for two weeks for light touch review.

The Science Faculty Ethics Committee has given your application a favourable opinion (subject to minor amendments). Alongside the comments made on the attached proposal (from the internal/peer review), please address the comments from the external reviewers (in the other attached document).

Please send a final electronic version of your SFEC proposal and associated documents (informed consent, debrief, etc.) with your responses to the comments listed at the top of the proposal and amendments highlighted within the text myself AND sci.fac@port.ac.uk. You may go ahead with the research with no further action once this is done. We will place the final version on SFEC Moodle.

Good luck with the study,

Best wishes,

Dr Jim Sauer
Psychology rep, Science Faculty Ethics Committee

CC -
Dr Chris Markham – Chair of SFEC
Sci.fac@port.ac.uk
psychologycourseadmin@port.ac.uk
Appendix 10

Completed UPR16 Form (updated 4.8.15).
FORM UPR16
Research Ethics Review Checklist

Please include this completed form as an appendix to your thesis (see the Postgraduate Research Student Handbook for more information)

Postgraduate Research Student (PGRS) Information

<table>
<thead>
<tr>
<th>Student ID: 630010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidate Name: DOMINIC SHAW</td>
</tr>
<tr>
<td>Department: PSYCHOLOGY</td>
</tr>
<tr>
<td>First Supervisor: PROF. ALDERT VRIJ</td>
</tr>
<tr>
<td>Start Date: 01.02.11</td>
</tr>
</tbody>
</table>

Study Mode and Route:

- Part-time [✓]
- Full-time [✓]
- MPhil [✓]
- MD [✓]
- PhD [✓]
- Integrated Doctorate (New Route) [✓]
- Prof Doc (PD) [✓]

Title of Thesis:

USING A SECOND INTERVIEWER TO ELICIT CUES TO DECEIT.

Thesis Word Count:

40,974

If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University's Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study.

Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).

UKRIO Finished Research Checklist:

(If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: http://www.ukrio.org/what-we-do/code-of-practice-for-research/)

<table>
<thead>
<tr>
<th>a) Have all of your research and findings been reported accurately, honestly and within a reasonable time frame?</th>
<th>YES/NO*</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Have all contributions to knowledge been acknowledged?</td>
<td>YES/NO*</td>
</tr>
<tr>
<td>c) Have you complied with all agreements relating to intellectual property, publication and authorship?</td>
<td>YES/NO*</td>
</tr>
<tr>
<td>d) Has your research data been retained in a secure and accessible form and will it remain so for the required duration?</td>
<td>YES/NO*</td>
</tr>
<tr>
<td>e) Does your research comply with all legal, ethical, and contractual requirements?</td>
<td>YES/NO*</td>
</tr>
</tbody>
</table>

*Delete as appropriate
Candidate Statement:

I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s)

<table>
<thead>
<tr>
<th>Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC):</th>
<th>SFEC: Psychology. August, 2013.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signed: (Student)</td>
<td>Date: 04.08.15</td>
</tr>
</tbody>
</table>

If you have *not* submitted your work for ethical review, and/or you have answered 'No' to one or more of questions a) to e), please explain why this is so:

<table>
<thead>
<tr>
<th>Signed: (Student)</th>
<th>Date:</th>
</tr>
</thead>
</table>