

Discriminating Between True and False Intentions

Questions to Pose and Cues to Use



UNIVERSITY OF GOTHENBURG

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Abstract

In many legal and intelligence settings it is necessary to evaluate whether a stated intention is true or false. This thesis proposes that use of strategic interviewing may successfully elicit cues that allow interviewers to discriminate between true and false intentions. In this thesis the unanticipated questions approach – a form of strategic interviewing – is examined.

Study I examines the differences between lying and truth-telling suspects' answers to questions about their intentions, and questions about the planning of their stated intentions. Half the study's participants (the truth tellers) planned a non-criminal act; the other half (the liars) planned a mock-criminal act. All participants were intercepted and interviewed before they got the chance to perform the acts. The truth-tellers had been instructed to tell the truth about their intentions. The liars had been instructed to tell the cover story they had previously prepared. Both groups were asked two sets of questions in the interviews; (1) questions on their intentions (anticipated) and (2) questions on the planning of their stated intentions (unanticipated). The study revealed that the truth-tellers' answers to the unanticipated question were significantly longer, more detailed, and clearer than the liars' answers.

Study II examines how cues to true and false intentions are moderated when members of small groups are interviewed. The study focuses on within-group consistency and content-based analysis. The experimental set-up was similar to that of Study I with the exception that the participants were divided into dyads and quartets. The study showed that the truth-tellers in the groups answered the unanticipated questions more consistently than the liars in the groups. However the study revealed no difference in the consistency between the two groups in terms of their answers to anticipated questions. The quartet members' answers were less consistent than the dyad members' answers for both anticipated and unanticipated questions. The liars' answers to questions about their stated intentions included more information than the truth tellers' answers about *why* they needed to pursue the stated intention. However, the truth-tellers focused more than the liars on *how* to pursue the stated intention.

Study III examines the combined effect of the Cognitive Interview (CI) and the unanticipated questions approach on the elicited cues to true and false intentions. The experimental set-up was similar to that of Study I with the exception that half the participants were interviewed using the standard interview (SI) technique and half were interviewed using the CI technique. The study reveals that the truth-tellers' answers to the unanticipated questions were significantly more detailed than the liars' answers. Their answers dif-

ferred more in the CI condition than in the SI condition, which indicates that the CI increased these differences. In addition, the truth-tellers' descriptions included more information than the liars' descriptions on *how* they planned to achieve their stated intentions.

The overall findings support the assumption that strategic questioning is a promising way for eliciting cues to deceit and truthfulness.

Keywords: deception detection, true and false intentions, strategic interviewing, unanticipated questions, groups of suspects, goal-directed behavior, consistency

Swedish summary

Både i polisiära och i underrättsesammanhang är det viktigt att kunna avgöra om de intentioner en person uttrycker är sanna eller falska. Trots detta har nästan all tidigare forskning inom fältet lögn-detektion handlat om hur lögnare och sanningssägare berättar om tidigare handlingar. Detta är anmärkningsvärt med tanke på hur viktigt det är att kunna avläsa huruvida en person ljuger eller talar sanning om sina framtida avsikter. Föreliggande avhandling undersöker i vilken grad strategiska intervjuer kan resultera i ledtrådar som diskriminerar mellan sanna och falska intentioner. Det finns flera sätt att intervjua strategiskt. Avhandlingen fokuserar på (a) att under ett förhör ställa oväntade frågor, och (b) en teoridrivna analys av svaren på förväntade frågor. De oväntade frågorna förväntas resultera i ledtrådar till lögn och sanning, eftersom lögnare och sanningssägare förväntas ha olika svårt att besvara dessa frågor. Mot bakgrund av teorin om *implementation intentions* finns skäl att förvänta sig att sanningssägares svar på förväntade frågor kommer skilja sig från lögnares svar. En ökad förståelse för hur människor beter sig (verbalt) när de ljuger respektive när de talar sanning om sina avsikter kan vara till hjälp för att förhindra framtida brott.

Studie I undersökte skillnaderna mellan lögnares och sanningssägares svar på frågor om avsikter och fokuserade på frågor om planeringen av den uttryckta intentionen. Hälften av försökspersonerna planerade för att utföra en icke-kriminell handling (sanningssägare) och hälften planerade för att utföra en fingerad brottslig handling (lögnare). Sanningssägarna instruerades att berätta sanningen om sina avsikter medan lögnare ombads att dölja sina verkliga avsikter. Alla deltagare intervjuades innan de fått möjlighet att genomföra sina avsedda handlingar och fick två uppsättningar frågor, (1) om sina avsikter (förväntade frågor) och (2) om planeringen av den uttryckta intentionen (oväntade frågor). Resultaten visade att sanningssägares (kontra lögnares) svar på oväntade frågor var signifikant längre, mer detaljerade och tydligare.

I **Studie II** undersöktes hur ledtrådar till sanna och falska intentioner påverkas då mindre grupper av misstänkta förhörs. Vi undersökte i vilken mån gruppedlemmarnas utsagor var överensstämmande (inom gruppen). Vi analyserade också om innehållet i utsagorna skiljde sig åt mellan grupper som talade sanning och grupper som ljög. Studiens upplägg liknade upplägget för Studie I med den ändringen att försökspersonerna delades in i par och kvartetter. Resultaten visade att de svar som gavs på oväntade frågor var mer överensstämmande för sanningssägare än för

lögnare. Lögnares och sanningssägares svar på förväntade frågor uppfattades som ungefär lika överensstämmande. Kvartetternas svar uppfattades som mindre överensstämmande än parens svar, på både förväntade och oväntade frågor. Lögnares (kontra sanningssägares) svar på frågan om deras avsikter var mer präglade av information om *varför* de ville uppnå målet, medan sanningssägare fokuserade på att berätta *hur* det uttalade målet skulle uppnås.

Studie III undersökte den kombinerade effekten av Kognitiv Intervju (KI) och oväntade frågor på magnituden av ledtrådar för att diskriminera mellan lögn och sanning. Deltagarna planerade antingen en fingerad brottslig handling eller en icke-kriminell handling, hälften av dem intervjuades med en standardintervju (SI) och hälften med KI. Alla deltagare fick besvara en uppsättning frågor som handlade om deras intentioner (förväntade frågor) och en uppsättning frågor som handlade om planeringen av den handling de avsåg utföra (oväntade frågor). Frågorna om planeringsfasen uppfattades som oväntade av både lögnarna och sanningssägarna. Resultatet visade att sanningssägarnas (kontra lögnarnas) svar på de oväntade frågorna var signifikant mer detaljerade. Lögnarnas och sanningssägarnas svar på frågor om planeringsfasen skiljde sig signifikant åt när de intervjuades med KI, och skiljde sig åt i klart mindre utsträckning när de intervjuades med SI. Kort sagt, KI förstärkte skillnaden mellan lögnare och sanningssägare. Resultaten visade också att sanningssägares (kontra lögnares) beskrivning av sina intentioner utmärktes i högre grad av information som var relaterad till *hur* det uppsatta målet skulle nås.

Det övergripande resultatet stödjer idén om att strategiska förhör kan resultera i ledtrådar som kan användas för att diskriminera mellan lögn och sanning. Avhandlingen visar att oväntade frågor kan användas för att förstärka skillnaden mellan sanningssägare och lögnare. Avhandlingen visar också att analysen av svar på oväntade frågor bör fokusera på överensstämmelse, grad av detaljrikedom och tydlighet. Ett viktigt fynd är att samma ledtrådar skall behandlas med försiktighet när man analyserar svaren på förväntade frågor. Analysen av svar på förväntade frågor bör istället fokusera på svarens specifika innehåll, så som information om *varför* och *hur* intentionerna skall förverkligas. En viktig slutsats är att förhör som syftar till att skilja mellan sanna och falska intentioner bör inkludera frågor om själva intentionen, men också frågor om planeringen av den utryckta intentionen.

Preface

This thesis consists of a summary and the following three papers, which are referred to by their Roman numerals:

- I. Sooniste, T., Granhag, P. A., Knieps, M., & Vrij, A. (2013). True and false intentions: Asking about the past to detect lies about the future. *Psychology, Crime & Law*, *19*, 673-685. Doi: 10.1080/1068316X.2013.793333
- II. Sooniste, T., Granhag, P. A., Strömwall, L. A., & Vrij, A. (2014). Discriminating between true and false intent among small cells of suspects. *Legal and Criminological Psychology*. Advance online publication. Doi: 10.1111/lcrp.12063
- III. Sooniste, T., Granhag, P. A., Strömwall, L. A., & Vrij, A. (2015). Statements about true and false intentions: Using the Cognitive Interview to magnify the differences. *Scandinavian Journal of Psychology*. Advance online publication. Doi: 10.1111/sjop.12216

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Tuule Sooniste
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Chapter 1

Introduction

In many legal, security, and intelligence settings it is important to assess whether a person's stated intentions are true or false. Although there is a large body of literature on deception detection, almost all the research deals exclusively with liars' and truth-tellers' statements about their past behavior (Vrij, 2008; Granhag, & Strömwall, 2004). This is remarkable considering the importance of situations that call for assessing whether people are lying or telling the truth about their intentions. Examples of such situations occur at border crossings and high security facilities (Andrew, Aldrich, & Wark, 2009). The examination of true and false intentions is not new to disciplines such as military studies (Donald & Herbig, 1981), negotiation research (Lewicki & Stark, 1996), and social cognition (Beck & Ajzen, 1991). However, this strand of research has, until recently, been ignored in the field of legal psychology (Granhag, 2010).

The applied value of research on true and false intentions is vast, as it may prove useful for preventing crimes. For example, when there is information indicating that a crime is about to take place, and/or when suspects are under surveillance. To be able to discriminate between true and false intentions is not a trivial matter. The September 11th attacks in New York City in 2001 illustrate the potential value of using interview techniques to determine whether people's stated intentions are true or false. Four of the five terrorists who were responsible for one of the attacks were selected for extra security checks by a computerized prescreening system used for airport security. However, only their checked bags were subjected to extra screening. The terrorists later hijacked the aircraft and crashed it into the North Tower of the World Trade Center in New York City (BBC News, 2004).

In brief, if the airport security personnel had been trained in how to strategically interview passengers the event may have ended differently. Asking questions in a strategic way is one possible method of identifying people who are telling the truth about their intentions and people who are lying about their intentions. There are several ways to interview strategically.

This thesis focuses on (a) asking questions which are unanticipated by the suspects, and (b) theory driven analysis of the answers given to anticipated questions. The unanticipated questions may be useful for eliciting cues to

deception as lying and truth-telling suspects' answers to these questions may differ. Furthermore, based on the theory of implementation intentions the answers to the anticipated questions may be characterized by certain utterings to a different extent for lying and truth-telling suspects. Therefore, an increased understanding of how people behave (verbally) when lying and when telling the truth about their intentions might be helpful in preventing future crimes.

The thesis

In order to examine the differences between statements that express true intent and statements that express false intent two major objectives are set for the present thesis. The first objective is to examine to what extent strategic questioning can elicit cues that are diagnostic to deception and truth. That is, the thesis examines the efficacy of the unanticipated questions approach (to be discussed later), as well as how factors such as group size and interview type moderate the efficacy of the unanticipated questions approach. Efficacy in this context refers to the number and strength of the elicited cues.

The second objective of the thesis is to examine how theory driven analysis of the answers given to anticipated questions (questions on intent) help to elicit cues to deception and truth. More specifically, it is proposed and tested that using the theory of implementation intentions, combined with findings on suspects' counter interrogation strategies, will be prosperous for eliciting cues to true and false intentions.

Study I examined to what extent strategic interviewing is successful in eliciting cues to true intentions and false intentions. Study II examined how small groups of suspects may moderate the cues elicited, with a particular focus on the consistency between group members. Study III examined whether the use of a combination of the Cognitive Interview and the unanticipated questions approach further enhances the differences between deceptive and truthful statements. Finally, Study II and III both examined the extent to which the theory of goal-directed behavior, and implementation intentions, may elicit cues to deception and truth (Gollwitzer, 1990).

The experimental set-up used in the three studies derives from a study by Granhag and Knieps (2011), with adjustments made to fit the different features of each study. In the studies, half the participants, who planned a mock crime, are referred to as 'liars'. The other participants, who planned a non-criminal act, are referred to as 'truth-tellers'. All participants were intercepted and interviewed before they could carry out their planned acts. In the interviews, truth-tellers told the truth about their stated intentions whereas liars

used their previously planned cover stories to hide their mock-criminal intentions.

The objects of analysis were the statements given during the interview and the ratings the participants provided in a Post Interview Questionnaire (PIQ). The main dependent variables were the length of the answers (Study I), clarity of the statements (Study I), the level of detail (Studies I, II, and III), within-group consistency (Study II), and information on *why* and *how* to attain the stated goal (Studies II and III).

Deception

For this thesis, I use Vrij's (2008, p. 15) definition of deception: "a successful or unsuccessful deliberate attempt, without forewarning, to create in another a belief which the communicator considers to be untrue". Vrij's definition includes two important features. First, deception is an act that involves at least two people (a sender and a receiver); this means that the definition excludes self-deception. Second, because lying is an intentional act, a liar is a person who intentionally attempts to create misbeliefs in another person. Therefore, misbeliefs created in another person unintentionally (e.g., by mistake) are not considered lies.

According to DePaulo, Kashy, Kidrkendol, Wyer, and Epstein (1996), there are three types of lies: *outright lies*, *exaggerations*, and *subtle lies*. Outright lies are lies in which the information conveyed is completely different from that which the liar knows is true. An example is when a student says she is going to school, but instead goes to the cinema. Exaggerations are lies in which the facts are over- or understated. An example is when a person exaggerates his regret about being late to a friend's birthday party. Finally, subtle lies involve actual truths that aim to mislead another person. This could include a lie used to conceal information by evading the question or by omitting relevant details. An example is when a student says she went to school, but omits the fact that she left school after the first class. Outright lies are the most common type of lies (DePaulo et al., 1996).

Future-directed behavior

Definition of intention

Intention plays an essential role in future actions. In examining true and false intentions, it is necessary first to define the word *intention*. According to research on social cognition, an intention can be defined as an agent's mental state preceding a corresponding action (Malle, Moses, & Baldwin, 2001). To clarify, *intention* is not the same as *intentionality*. Intentionality refers to the quality of an action (i.e., a purposeful action) or desire (Malle et al., 2001). Thus, intentions are directed at the intender's own actions (many desires are not) and tend to convey a strong commitment (which many desires lack). In addition, most intentions involve planning, regardless of whether they are criminal or non-criminal (Schacter, Addis, & Buckner, 2008). It should also be noted that an individual can have intentions that do not involve planning such as script-like actions (e.g., doing the laundry, walking to work, etc.).

While this definition of intention is helpful, it is still quite imprecise. For example, the definition does not place any restrictions on the spatial and temporal aspects of the intended act. Following the research guidelines suggested by Granhag (2010), this thesis deals with specific situations in which the actors plan single acts that are to be performed in the near future. Thus, the thesis only deals with situations in which the act's what, how, when, and where are already determined.

The words *true*, *false*, and *criminal* are frequently used in this thesis to describe intentions. True intentions refer to truth-tellers' and liars' actual intentions. Truth-tellers can talk openly about their true intentions because they are planning a non-criminal act (e.g., visiting a friend). In contrast, liars who are planning to commit a criminal act cannot reveal their true intentions (e.g., setting off a bomb). In order not to reveal a true intention, a criminally inclined person has to conceal that intention if asked about it.

False intentions refer to the *cover story* that liars often prepare in order to conceal their criminal intentions. The false intention (the cover story), therefore, has a lawful nature. For example, if asked about the intention, a criminally inclined person (a liar) would present a cover story (e.g., visiting a friend or taking a vacation) instead of revealing the true intention (e.g., involvement in a bomb plot). In this thesis, the terms *cover story* and *false intention* are used interchangeably.

Planning a future act

As mentioned, intentions often involve some amount of planning. As the focus of the thesis is the planning phase of future acts, it is essential to discuss the planning process. The ability to plan, or think ahead, which is a central component of many aspects of complex behavior, is a basic requirement of many cognitive and motor tasks (Owen, 1997). Problem-solving tasks (e.g., Tower of London and Tower of Hanoi) are commonly used to examine the planning process (Burgess, Simons, Coates, & Channon, 2005). Research in this field has focused mainly on (a) executive control and working memory processes in complex problem-solving tasks (Shallice, 1982), (b) the relation between various kinds of planning (Burgess et al., 2005), and (c) the role of top-down and bottom-up processes in formulating and executing plans (Hayes-Roth & Hayes-Roth, 1979). However, future acts and their related planning processes have received relatively little attention from scholars (Burgess et al., 2005).

Developmental psychologists refer to planning as a process in which an individual contemplates the consequences of implementing different alternatives. This process also involves evaluating and organizing the required acts for achieving a desired goal (Haith, 2009). Hayes-Roth and Hayes-Roth (1979) describe two dimensions of the planning process: time and abstraction. Acts are often planned for various points in the plan's temporal sequence (i.e., actions with different levels of abstraction can be planned at any point in the plan's temporal sequence).

In addition, the planning process can operate on various levels of abstraction (e.g., specific vs. general). According to this conception of planning, one's daily acts involve a variety of goals and sub-goals (e.g., attending a meeting, having lunch with a friend, preparing a lecture, etc.), prioritizing these goals (e.g., "I definitely have to attend this meeting" or "If I don't have time today, I will prepare the lecture tomorrow"), monitoring one's progress, reevaluating the original plan, and so on. In terms of levels of abstraction, one may have both general thoughts (e.g., "I have to remember to prepare my lecture for tomorrow") and specific thoughts (e.g., "I will prepare my lecture in my office after the meeting and make sure to lock my door to avoid distractions") about various goals that one wishes to accomplish (Hayes-Roth & Hayes-Roth, 1979).

Goal-directed behavior

In order to shed light on true and false intentions, it is important to understand the processes of forming an intention to achieve the desired goal. Ac-

According to the Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975), intention is the only factor that determines human behavior. In other words, a specific behavior is caused by a person's intention to engage in that behavior. However, according to the TRA, the formation of intentions also depends on a person's attitudes and social normative pressures toward achievement of the desired goal. The weakness of TRA is that it does not consider the fact that non-motivational factors exist in reality. Not all behavior is under an individual's volitional control (Ajzen, 1985; van Hooft, Born, Taris, van der Flier, & Blonk, 2005). Therefore, the Theory of Planned Behavior (Ajzen, 1985) was introduced as an extension of the TRA. The Theory of Planned Behavior adds perceived control of an individual's behavior as a further determinant.

However, these two theories fail to explain the psychological processes that turn intentions into actions. Gollwitzer (1993) filled this gap by introducing the theory of implementation intentions. According to Gollwitzer, the theory draws on the idea that the formation of intentions plays an important role in relevant behavior intended to achieve a desired goal.

Gollwitzer (1993) suggests that four phases are crucial in goal pursuit. In the first phase, the *pre-decisional* phase, people deliberate about wishes and select the most desirable and feasible ones. In the second phase, the *post-decisional* phase, the focus is on effective planning that promotes the initiation of relevant actions intended to achieve the desired goal. During this phase, intentions are formed although they are still pre-actional. In the third phase, the *actional* phase, people actively focus on effectively achieving the desired goal. In the fourth phase, the post-actional *evaluative* phase, actions aimed at achieving the goal are completed. In this phase, people evaluate whether the desired goal was achieved by comparing the achieved goal to the intended goal. The claim is that intentions enter the process in the movement through both pre-actional phases. During those phases, one may meet several obstacles that might interfere with achieving the desired goal. The formation of intentions at this point helps overcome these obstacles and increases the likelihood of achieving the desired goal.

Implementation intentions

As this thesis concerns the differences between true intentions and false intentions, it is important to discuss the characteristics of true intentions (Granhag, 2010). The research described in this thesis draws on the theory of implementation intentions (Gollwitzer, 1993). This theory illuminates the processes involved in true intentions and how true and false intentions may differ.

Gollwitzer (1993) distinguishes between goal intentions and implementation intentions: goal intention identifies a goal (e.g., ‘I intend to visit London’) whereas implementation intentions identifies the behavior needed to achieve a goal if certain conditions are present (e.g., ‘I need to finish my work in time in order to be able to visit my friend in London next weekend’). Implementation intentions serve goal intentions by helping people achieve their desired goals.

Goal intentions play a part in the pre-decisional phase where many wishes or desires compete, or even conflict, because of various restrictions (e.g., time or resource restrictions). This situation can change when an intention is formed (e.g., ‘I intend to do x’). The process of forming an intention is followed by a further commitment to achieve the initial wish or desire (Gollwitzer, 1993). In brief, forming goal intentions converts desires and wishes into more binding intentions. This explanation is consistent with Malle et al.’s (2001) definition of intention as an agent’s mental state preceding a corresponding action that is often accompanied by a strong commitment.

Competing wishes and desires mainly dominate in the pre-decisional phase in which the commitment to attain the desired goal is lacking. The post-decisional phase is, to a greater extent, characterized by intention accompanied by the commitment to engage in the action that eventually can lead to achieving the desired goal.

However, forming a goal intention does not guarantee achieving that goal. People may be uncertain of when, where, and how to implement the necessary behavior. As the research suggests, applying implementation intentions is an effective way of solving these uncertainties and increasing the likelihood of achieving the intended goal (Gollwitzer, 1993). In essence, the argument is that implementation intentions are *if-then* plans that link the opportunity to act with the behavior that is effective in accomplishing the intended goal (Sheeran, Milne, Webb, & Gollwitzer, 2005).

Implementation intentions and if-then plans involve specifications in terms of when, where, and how for someone who intends to achieve an intended goal. Research has shown that people with no intention of pursuing a goal are unlikely to form an implementation intention that specifies the behavior needed to achieve a goal (Sheeran et al., 2005). In other words, people who state a true intention are more likely to explain how they plan to pursue their goal than people who state a false intention. This observation is central to this thesis.

Furthermore, liars have been shown to be generally less likely than truth-tellers to assume others will believe them (Vrij, Fisher, Mann, & Leal, 2008). Therefore, if liars anticipate questions about their intentions, they are more likely than truth-tellers to think they need to justify *why* it is necessary to

attain their stated goal. In other words, liars may think such justifications will help them convince interviewers of their innocence.

Recent research on suspects' counter-interrogation strategies shows that when criminally inclined individuals anticipate questions about their future actions, they will prepare ready-made answers to such questions (Clemens, Granhag, & Strömwall, 2013). Therefore, one can reasonably conclude that truth-tellers, when asked about their intentions, will offer more information than liars on *how* they plan to achieve the stated goals. The ready-made lies that liars tell will focus more on *why* as they need to convince the interviewer. Criminally inclined individuals, who are not expected to have implementation intentions about their false intentions, compensate by offering more information on *why* they need to achieve their stated goals. The conclusion is that liars strive to appear convincing.

Towards interviewing strategically

Researchers have suggested that strategic interviewing is a promising way forward in deception detection (Vrij & Granhag, 2012; Granhag, Hartwig, Mac Giolla, & Clemens, 2015). Understanding how truth-tellers and liars prepare for interviews is the central aim of strategic interviewing. This means the interviewer tries to understand which strategies people use and how these strategies moderate their cognitive processes when lying or telling truth. Strategic interviewing also focuses on how liars and truth-tellers inherent differences can be magnified during an interview in order to elicit more and stronger cues to deception and truth.

The unanticipated questions approach

The unanticipated questions approach belongs within the strategic interviewing framework. As mentioned above, most intentions, whether criminal or non-criminal, require planning (Schacter et al., 2008). Therefore, criminally inclined people will likely have prepared answers in the event they are apprehended before the opportunity to commit the crimes. A consistent finding is that liars prepare their responses in advance when they expect to be interviewed (Hartwig, Granhag, & Strömwall, 2007).

Planned lies, which are cognitively less demanding, typically contain fewer cues to deception than spontaneous lies (DePaulo et al., 2003). Nevertheless, liars only benefit from their planning if they correctly anticipate the questions they will be asked in interviews. Clever investigators can thus ask

questions that criminally inclined individuals do not anticipate. When liars are surprised by questions, they must invent answers on the spot. Such answers may offer cues to deception.

The unanticipated questions approach assumes that, if apprehended, criminally inclined individuals anticipate questions about their intentions (e.g., the purpose of a trip). However, such individuals may not anticipate questions on the planning phase (e.g., “How did you plan your trip?”) of their stated (false) intentions. The reasoning is that if people do not intend to act on their stated intentions, they have not planned for the stated goal. Furthermore, liars’ planning focus on different elements than truth-tellers’ planning. A liar’s focus is on planning the criminal action and creating a convincing cover story if apprehended. Hence, a truth-teller’s planning may contain elements that a liar’s planning does not. The conclusion that criminally inclined people do not anticipate questions on the planning phase is also true for innocent people. However, innocent people can use memories of the planning phase when they are asked unanticipated questions.

Some unanticipated questions do not have the power to discriminate between true and false intentions. For example, an individual who claims to visit a friend may be asked: “What are your friend’s grandparents’ names?”. Even truth-tellers may be unable to answer such a question from memory or may simply not know the answer. Therefore, in using the unanticipated questions approach, only questions that both truth-tellers and liars can reasonably be expected to answer should be asked. However, liars should find it more difficult to answer these questions than truth-tellers.

Suspects’ counter-interrogation strategies

Research has shown that liars may attempt to control their behavior when they realize that someone is assessing their veracity (e.g., Burgoon, Buller, Floyd, & Grandpre, 1996; Burgoon, Buller, White, Afifi, & Buslig, 1999). As mentioned above, the unanticipated questions approach is part of the strategic interviewing approach to detect deception. Therefore, it is essential to understand how truth-tellers and liars approach the interview situation and how they control their verbal behavior in order to appear truthful. The unanticipated questions approach is based on empirical findings from studies on suspects’ counter-interrogation strategies (Hartwig et al., 2007).

Counter-interrogation strategies are defined as suspects’ attempts to appear convincing in investigative interviews (Clemens, 2013; Granhag et al., 2015; Alison, Alison, Elntib, Noone, & Christiansen, 2013). These strategies are either self-created (see below for commentary on Anders Breivik) or pre-

pared by an organized group (e.g., The Green Book or The Manchester Manual) (Alison et al., 2014).

The research on counter-interrogation strategies is quite meager (Granhag et al., 2015). Of the studies available, most are based on analyses of suspects' self-reports (Granhag & Strömwall, 2002; Strömwall, Hartwig, & Granhag, 2006). These studies suggest that liars prepare for interviews in ways that they hope will convince the interrogators to believe them.

In their study of suspects' counter-interrogation strategies, Clemens et al. (2013) found that liars often anticipate questions and prepare ready-made answers to those questions. Their findings show that the strategy most used by liars is 'to stick to a cover story' that relates directly to their intentions. The main strategy of truth-tellers is 'to be honest'. These findings are in line with the unanticipated questions approach that shows that truth-tellers can be honest and rely on their memory whereas liars have to invent answers on the spot.

Clemens et al.'s (2013) findings on counter-interrogation strategies are consistent with the counter-interrogation strategies prepared by the Norwegian terrorist, Anders Behring Breivik, who murdered 77 persons in Oslo in July of 2011. Specifically, Breivik's Manifesto (a document of over 1500 pages in which Breivik presented his far-right militant ideology) revealed that he had prepared ready-made answers in the expectation he would be asked questions on his intentions if he were apprehended before executing his plans. As Clemens et al. discusses, guilty suspects' main counter-interrogation strategy is preparation for anticipated questions. Thus, unanticipated questions on the planning phases pose greater challenges for guilty suspects.

In their study of counter-interrogation strategies used by groups of suspects, Granhag, Mac Giolla, Strömwall, and Rangmar (2013) found truth-tellers' main counter-interrogation strategy is 'to be honest'. This finding agrees with the research on truth-tellers who plan to act alone. These researchers also found liars' most commonly used counter-interrogation strategy is 'to be restrictive', closely followed by 'to be consistent'.

Cognitive load approach

The cognitive load approach used in deception detection is related to the cognitive load theory. This is a theory based on the assumption that working memory has limited capacity, particularly for recalling novel information (van Merriënboer & Sweller, 2005). The term *cognitive load* refers to a multidimensional construct that describes the load that performing a particular

task imposes on the learner's cognitive system (Paas, Tuovinen, Tabbers, & Van Gerven, 2003; Paas & van Merriënboer, 1994).

Cognitive load theory distinguishes between three types of cognitive load, however only two are relevant for this thesis: *intrinsic* load and *extraneous* load. (For an overview of the theory, see Paas et al., 2003). Intrinsic cognitive load refers to the inherent demands on the cognitive resources that affect the limited capacity of working memory (e.g., the act of lying imposes a cognitive load). In contrast, extraneous cognitive load, which is an extra load beyond intrinsic cognitive load, results from external tasks or factors (e.g. means for making lying more difficult). The interviewer, who controls the level of extraneous cognitive load, can either increase or decrease the load by strategic interviewing (e.g., by asking unanticipated questions).

The unanticipated questions approach relies on the assumption that lying often is more cognitively demanding than telling the truth (Zuckerman, DePaulo, & Rosenthal, 1981; Vrij et al., 2008). Therefore, when interviewers use an interviewing strategy based on this assumption, they may elicit more and stronger diagnostic cues to true and false intentions.

There are many reasons that may explain why liars experience relatively more cognitive load than truth-tellers (Vrij, 2015). First, lying requires the fabrication of a plausible story. Liars must also remember what they have said in order to maintain consistency, for example, in repeated interviews. Second, in interviews liars generally do not tend to take their credibility for granted (DePaulo et al., 2003; Kassin, 2005; Kassin & Gudjonsson, 2004). The reason is that the stakes for liars are often higher than for truth-tellers. Truth-tellers, in contrast, may fear interviewers may not learn to know the truth. Therefore, truth-tellers are more willing than liars to offer all the information; liars are less forthcoming because they do not want to reveal their criminal intentions (Hartwig et al., 2007). Third, lying is cognitively more demanding than telling the truth because liars are forced to monitor both their own and the interviewer's behavior, in order to make sure that they are perceived as honest (Vrij, Granhag, Mann, & Leal, 2011c). Fourth, liars may be preoccupied with role-playing when taking care to hide the truth (DePaulo, et al., 2003; Verschuere, Spruyt, Meijer, & Otgaar, 2011). Fifth, while truth-telling is more or less automatic and often requires little effort, lying is intentional and therefore creates more cognitive load (Walczyk, et al. 2005).

Yet, lying is not always cognitively demanding. Lying is more difficult than telling the truth only when the liar truly wants to be believed and thus more inclined to monitor both their behavior and the interviewers' reactions. For example, ordinary 'white' lies usually create a relatively low cognitive load. However, extraordinary and more serious lies, which are likely to have greater personal consequences, create a much higher cognitive load

(Walczyk, Igou, Dixon, & Tcholakian, 2013; De Paulo et al. 1996; De Paulo, Ansfield, Kirkendol, & Boden, 2004).

Furthermore, liars must be able to retrieve the information related to their intended actions with ease (i.e., planning the criminal act). Having in mind a clear image of the planning for their criminal intentions will make suppressing the truth more difficult for them. Importantly, truth-tellers also need to retrieve the information related to their truthful intentions if they are to experience lower cognitive loads than liars (Vrij, 2015). For this reason, in some situations telling the truth can be more cognitively demanding than lying. For example, Walczyk et al. (2005) found that college students took a longer time to recall their test scores than to lie about them.

Thus, the use of specific interventions that create cognitive loads may make interview situations more difficult (e.g., asking reverse order questions or asking unanticipated questions). Increasing suspects' cognitive load in interviews may cause liars to use more cognitive resources as they fabricate convincing lies. For a recent discussion on this approach, which will be discussed more in depth below, see Blandon-Gitlin, Fenn, Masip, and Yoo (2014). When the interview approach increases the cognitive load, liars may not cope as well as truth-tellers with the additional demand (Vrij, 2015).

There are several ways to increase the cognitive load in interviews, for example, the devil's advocate tactic and the reverse order answer tactic (Vrij et al., 2011c). In the unanticipated questions approach, interviewers ask questions that are expected to increase the cognitive load for both truth-tellers and liars. However, truth-tellers are expected to cope better with these questions because as they have an actual memory of the target event. Notably, this reasoning is valid only for questions about the past (e.g., the planning phase). In summary, anticipated questions reduce cognitive load whereas unanticipated questions increase cognitive load.

Moderating factors

Many factors may moderate the answer pattern of liars and truth-tellers in interviews when the unanticipated questions approach is used. In this thesis, the focus is primarily on two of these factors: the number of suspects and the type of interview. In brief, interviewing individual members belonging to groups is common in legal and intelligence settings. Thus, it is motivated to examine the extent to which unique cues to truth and deception can be elicited in such contexts. The unanticipated questions approach can also be used in combination with other interview techniques. The thesis examines whether

the use of an additional interview technique (the Cognitive Interview) will elicit cues to true and false intentions.

Multiple suspects

Many crimes are planned and performed by groups rather than individuals, so called *co-offending* (Carrington, 2002; Van Mastrigt & Farrington, 2009). Most research on deception detection focuses on individual suspects. However, interviews with group members may offer a unique cue to deception: within-group consistency (Vredevelt, van Koppen, & Granhag, 2014). Within-group consistency refers to the level of consistency between the statements made by different suspects who operate as a group.

However, as a diagnostic cue, within-group consistency should be treated cautiously. Research on multiple suspects reveals that consistency is not always a reliable cue because liars in a group can be as consistent, or even more consistent, than truth-tellers (Granhag, Strömwall, & Jonsson, 2003; Strömwall, Granhag, & Jonsson, 2003). However, this cue pattern seems only tested in situations where the suspects are asked specific questions about past event (e.g., Granhag et al., 2003; Strömwall et al., 2003). This thesis tests the extent to which within-group consistency is a useful cue to separate true and false intentions when unanticipated questions are asked.

It is normal that criminally inclined group members have jointly prepared a cover story so that they ‘get their story right’. In this way, they hope to convince their interviewers of their credibility. In brief, liars know that inconsistencies in their story will be noted. By contrast, it is thought that truth-tellers assume they will be believed (Kassin, 2005; Kassin & Norwick, 2004). Thus, it is not expected that truth-tellers in a group will jointly prepare a story (Vrij et al., 2009). Truth-tellers can simply tell what they remember.

Importantly, remembering is a reconstructive process in which omitting and committing some information is likely (e.g., Baddeley, 1997). People forget details as well as re-remember details they thought they had forgotten. Therefore, when two or more people talk about the same event, their stories often vary; each person will omit and commit different details. Logically, it is expected that larger groups will create more inconsistencies in telling a story than smaller groups.

Inconsistencies (i.e., omission and commission errors) are not necessarily indications of deception. It is even possible that truth-tellers are more inconsistent than liars. The research on the counter-interrogation strategies used by small cells of suspects supports this conclusion (Granhag et al., 2013). Specifically, cells of liars choose the strategy ‘be consistent’ more than truth-tellers. The reason may be that liars’ deliberately try to maintain a high level

of consistency. In contrast, due to the illusion of transparency, truth-tellers do not have this goal. As a result, liars and truth-tellers may not be equally consistent as they tell their stories. This tendency may also apply to future related events.

There are at least three types of consistencies, depending on the interview situation. First, the within-statement consistency can be analyzed in a single interview with a single suspect. In this situation, a suspect may contradict him or herself within a single interview. Second, between-statements consistency can be analyzed when a single suspect is interviewed repeatedly. Third, the within-group consistency (see above) can be analyzed when groups of suspects are either interviewed collectively or individually. These three types of consistencies may sometimes be relevant at the same time, for example, when a group of suspects is interviewed repeatedly (e.g., Mac Giolla & Granhag, 2014). However, this thesis only concerns within-group consistency in situations when small groups of suspects are interviewed individually.

Type of interview

One objective of this thesis is to examine whether an additional interview technique may magnify the differences between deceptive and truthful statements when unanticipated questions are asked in combination with the Cognitive Interview (CI). The CI is a memory enhancing technique that Ron Fisher and Ed Geiselman (Fisher & Geiselman, 1992) developed in the mid-1980s. The CI is organized around three main psychological components: social dynamics, memory and cognition, and communication (for a complete list of components, see Fisher, Ross, & Cahill, 2010).

First, social dynamics (the interviewer - suspect interaction) play an important role in the success of an investigative interview. The success of the interview is highly dependent on how well the investigator can establish contact and trust with the suspect or witness. Second, in social dynamics both the investigator and the suspect are involved in a cognitively demanding situation; therefore, cognitive resources should be used strategically. The CI provides different mnemonics to help to recall more details about the core event. Third, effective communication between the investigator and the suspect is essential in order to acquire as much valuable information about the event as possible (Fisher et al., 2010).

However, the CI should not be seen as a fixed set of instructions. Rather, the CI is a toolbox of techniques. Furthermore, the selection of the CI components depends largely on the demands of the particular interview (Fisher et al., 2010). For example, if there is insufficient time in the interview to use all

the CI components, then the interviewer can abbreviate the CI without losing too much information (Davis, McMahon, & Greenwood, 2005).

Study III uses three components of the CI: *rapport building*, *mental reinstatement*, and *report everything*. *Rapport building* encourages the interviewer to explore links that connect the interviewer and the interviewee on a personal level (e.g., by the use of shared experiences and emotions related to the core event). *Mental reinstatement* encourages interviewees to reconstruct the physical (the environment) and personal (how they felt at the time) setting at the time of the event. *Report everything* encourages interviewees to report everything they remember about the event, even seemingly unimportant details.

A large body of research shows that the CI is an effective tool for interviewing witnesses (Memon, Meissner, & Fraser, 2010). Respondents typically provide considerably more information when interviewed with the CI than with conventional police protocols (Memon et al., 2010). This thesis explores a new avenue by examining the extent to which the CI components further magnify the differences between lying suspects and truth-telling suspects when they are asked about the planning of their intentions. The CI is both a speech and a memory enhancement tool. Therefore, *building rapport* will encourage truth-tellers to tell more about their planning. Use of the *mental reinstatement* and the *report everything* components will help truth-tellers remember more details about their planning.

This thesis proposes that the CI will result in enhanced memory performance by the truth-telling suspects (as they actually have been engaged in planning of their stated intentions, and thus have a memory about their planning and can describe it. However, the thesis proposes that the CI will not result in such positive effects with the lying suspects (as they have not conducted any planning that they can tell about). The liars have been involved in planning their criminal activities and the cover story, but cannot talk about this without revealing the illegal intentions. In short, liars can only talk about their ready-made cover stories but not about how they planned them.

Research on detection of true and false Intentions

Granhag and Mac Giolla (2014) categorized the extant research on detecting true and false intentions into three strands: physiological measures (e.g., thermal imaging and eye-tracking), implicit measures (e.g., the autobiographical Implicit Associations Test, Evaluative priming tasks, and the Sheffield

Lie Test), and strategic interviewing. This thesis focuses on strategic interviewing.

The arguments in favor of strategic interviewing are found in the research that suggests behavioral cues are rather weak and often-unreliable indicators of deception (e.g., DePaulo et al., 2003; Hartwig & Bond, 2011). Strategic interviewing, therefore, focuses on actively increasing the strength of these weak cues to deception and/or eliciting new cues to deception (Vrij & Granhag, 2012). To date, three types of strategic interviewing methods have been applied to the detection of true and false intentions: the Strategic Use of Evidence (SUE) technique (Clemens, Granhag, & Strömwall, 2011), research on good planning behavior (Mac Giolla, Granhag, & Ask, 2015; Mac Giolla, Granhag, & Liu Jönsson, 2013), and the unanticipated questions approach (Warmelink, Vrij, Mann, Jundi, & Granhag, 2012).

Early studies on true and false intentions

In recent years, a number of studies have examined the characteristics of true and false intentions. Two early experimental studies compared liars' and truth-tellers' statements in terms of plausibility, length, and detail (Vrij, Granhag, Mann, & Leal, 2011a; Vrij, Leal, Mann, & Granhag, 2011b). In both studies, the researchers collected one set of statements in which the participants lied about their intentions (false intentions), and one set of the statements in which the participants told the truth about their intentions (true intentions). These two sets of statements were compared for possible differences.

The first study (Vrij et al., 2011a) was conducted at an international airport in the U.K. The study showed that passengers who lied about their intentions (i.e., acts at their final destination) provided statements that were less plausible, although equally detailed, as statements from passengers who told the truth. The study also revealed that the two interviewers who elicited these statements could discriminate between lies and truths with about 70% accuracy.

In the second study (Vrij et al., 2011b), the same researchers asked serving military and police officers to complete an undercover mission; each of the participants was intercepted by either a hostile or a friendly agent during their mission. The officers were instructed to tell the truth about their mission to the friendly agents and to tell a cover story to the hostile agents. The study revealed that statements about false intentions and lies about past actions were less plausible than their truthful counterparts. There was no difference in terms of the details comparing true and false intentions.

Strategic interviewing

The Strategic Use of Evidence technique

The use of strategic interviewing, which is a relatively new concept in deception detection research, emerged in the last decade from the Strategic Use of Evidence (SUE) technique (Hartwig, 2005; Vrij & Granhag, 2012; for a conceptual overview of the SUE technique, see Granhag and Hartwig, 2015). Basically, the SUE technique is based on the theoretical assumption that because liars and truth-tellers enter an interview in different mental states, they therefore use different counter-interrogation strategies. Furthermore, as these strategies guide actions, liars and truth-tellers are assumed to act differently with respect to critical information that might reveal their guilt (Granhag, & Hartwig, 2008; Hartwig, Granhag, & Luke, 2014). In short, lying suspects use more aversive strategies with respect to the critical information (evidence), whereas truth-telling suspects use more forthcoming strategies (e.g. Hartwig et al., 2007; Kassin, 2005; Strömwall et al., 2006).

The SUE technique has proven successful in eliciting cues to deception in various interviews with single suspects, multiple suspects, and children (Hartwig, Granhag, Strömwall, & Kronkvist, 2006; Granhag et al., 2013; Clemens, Granhag et al., 2010).

Clemens et al. (2011) used the SUE technique to detect deception in an intention context. In their experimental set-up that captured the main features of intentions, they introduced a number of salient comparisons that reflect the complexity of a particular situation. They also compared two versions of the SUE technique (late evidence disclosure) with a control group (early evidence disclosure). They found that liars' statements on planning and intention were more inconsistent with the evidence at hand (evidence on planning) than the truth-tellers' statements. Furthermore, the late evidence condition elicited more inconsistencies in liars' statements than the early evidence disclosure condition. Overall, these researchers found the SUE technique was successful in eliciting cues to deception and truth when suspects were asked about their intentions and about their planning related to those intentions. However, the use of the SUE technique is limited to situations where there is critical background information (evidence) to be used in the interview.

Good planning behavior and implementation intentions

In a recent study, Mac Giolla et al. (2015) established that truth-tellers use more task-related spontaneous thought than liars. In a previous study, Mac Giolla et al. (2013) examined to what extent markers of good planning behav-

ior could be used as cues for distinguishing between true and false intentions. In their study, the mock-crime suspects worked in triads; half the triads planned a mock crime and a cover story to mask their criminal intention. The other half planned a non-criminal event. The findings showed the truth-telling suspects made statements that were significantly more indicative of effective time allocation and that revealed more potential problems with respect to attaining the stated intentions.

Mac Giolla et al. (2013) utilized the work by Gollwitzer and colleagues (Gollwitzer, 1999; Sheeran et al., 2005) on implementation intentions, showing that people who lack goal intention (i.e., the *what*) are unlikely to form implementation intentions (i.e., the *when*, *where*, and *how*). Mac Giolla et al. (2013) showed that truth-tellers' statements are, more than liars' statements, marked by *how*-related utterings. In contrast, liars' statements are more than truth-tellers' statements, marked by *why*-related utterings. Furthermore, these researchers claim that liars may be more motivated to explain *why* they intend to perform a future task. Specifically, liars, who assume others will not find them credible, may strive to convince interviewers of the importance of completing their stated intention.

Unanticipated questions

The *unanticipated questions approach* can be used in situations where there is very limited or no relevant background information. The two principal research streams in the area of true and false intentions differ in terms of the object of the unanticipated questions. The first stream deals with unanticipated questions that target a theme that the suspect either (a) expected or (b) did not expect. In this stream, questions about the expected theme (e.g., a planned trip) can be unanticipated if they are outside the set of anticipated questions (e.g., about airport transportation). Or the unanticipated questions may directly target an unexpected theme (e.g., the planning phase of the stated intention). The second stream deals with questions on the suspect's mental image of the stated intention. This thesis mainly contributes to the first stream: the unanticipated questions that target the planning of the stated intentions (the unexpected theme).

Unanticipated questions on expected and unexpected themes. Warmelink et al. (2012) examined the effect of unanticipated questions on an expected theme (i.e., the stated intention). To elicit cues to deception, these researchers compared the efficacy of a number of different unanticipated questions on the core event (the stated intention) and the planning of the core event. They asked suspects general questions about an upcoming trip (i.e., the expected

theme) as well as questions on the transportation and planning of the trip (i.e., the unexpected theme). They found general support for the unanticipated questions approach. However, only the transportation questions resulted in significant differences between the truth tellers and the liars. The truth-tellers gave comparatively more details on transportation than the liars. Warmelink et al. concluded that if interviewers wish to use the intuitive reasoning that ‘less detail indicates deceit’, they should focus on the answers to unanticipated questions.

Mac Giolla and Granhag (2014) examined the benefit of unanticipated questions in interviews with small groups of suspects (triads). Half the triads planned a mock-criminal act (‘the liars’); the other half planned a non-criminal act (the ‘truth-tellers’). In the investigative interviews, the liars told the cover story they had prepared to hide their criminal intentions. The truth-tellers told the truth. The researchers found that the truth-telling triads gave more consistent answers to both the anticipated questions (about their intentions) and the unanticipated questions (about their planning). However, the interaction was not significant. Therefore, the unanticipated questions approach received only partial support in terms of the consistency of the answers. However, they found the truth-tellers (vs. liars) gave significantly longer and more detailed answers to both the anticipated and the unanticipated questions. Thus, the effects were larger for the unanticipated questions, therefore supporting the unanticipated questions approach.

Episodic future thought. The second line of research in the unanticipated questions approach concerns the concept of episodic future thought. Episodic future thought (EFT), which refers to the ability to pre-experience future events through mental simulation, focuses strongly on visual imagery (Szpunar, 2010). Like planning, which is a typical feature of intentions, EFT is a typical and often-automatic feature of planning. Thus, because truth-tellers are more likely to engage in detailed planning, their EFTs are more likely related to their intentions than liars’ EFTs (Knieps, 2013).

This assumption about EFTs was examined by instructing truth-tellers to plan a shopping trip to a mall (Granhag & Knieps, 2011; Knieps et al., 2013a; Knieps, Granhag, & Vrij, 2013b). The liars were told to plan a criminal act at the same mall and to prepare a cover story to mask their intention. All participants were intercepted and interviewed before they could perform their acts.

In the next step, these researchers compared the truth tellers’ accounts to the liars’ cover stories (about the shopping trip). Overall, the findings support the basic assumption that the truth-tellers were more likely than the liars to have EFTs. Moreover, more truth-tellers than liars said they had pre-

experienced a mental image in the planning stage. Thus, if suspects did *not* report experiencing a mental image in the planning phase, they were most likely lying about their intentions.

Warmelink, Vrij, Mann, and Granhag (2013) conducted a related study in which they examined whether participants lied or told the truth about their planned trips. They asked specific questions aimed at learning about the suspects' mental images. If the participants reported they had pre-experienced a mental image in the planning phase, the researchers asked both general and specific questions. The study revealed that the truth-tellers used more spatial and temporal details than the liars in descriptions of their mental images.

Chapter 2

Summary of the empirical studies

The general objective of this thesis was to propose and test interview strategies for eliciting diagnostic cues to true and false intentions. Specifically, the objective was to examine how useful unanticipated questions (which target the planning phase) are in discriminating between people who lie or people who tell the truth about their future acts. A second objective was to examine to what extent drawing on the theory of implementation intentions, and findings on suspects' counter-interrogation strategies, can be useful for analyzing the content of the answers to anticipated questions.

Study I examined to what extent unanticipated questions can elicit cues that discriminate between true and false intentions. This study represents the first attempt to capture the possible differences between truthful and deceptive statements about future actions when using the unanticipated questions approach. Study II examined the assumption that unanticipated questions may magnify the differences between true and false intentions among individuals who are members of small groups. This study focused on groups of suspects because many crimes are planned and committed in groups. Study III examined the effects of certain elements of the CI when combined with the unanticipated questions approach. Although the experimental procedure was similar in the three studies, variations were used that were appropriate for the particular research questions. See Table 1 for an overview of the three studies.

Table 1. Overview of the three empirical studies

Interview	Dependent variables		Independent variables	Suspects	Stated intention	Retention intervall
	Anticipated questions	Unanticipated questions				
Study I	Level of detail, clarity, length of the answer	Level of detail, clarity, length of the answer	Veracity status (truth-teller/liar)	Single suspect	Shopping in the mall	-
Study II	Level of detail, consistency + how and why related utterings	Level of detail, consistency	Veracity status (truth-teller/liar), Size of the group (dyad/quartet)	Multiple suspects	Preparing traditional Swedish lunch	-
Study III	Level of detail + how and why related utterings	Level of detail	Veracity status (truth-teller/liar), Type of interview (SI/CI)	Single suspects	Protesting against fur project	~1 week

Study I

The main aim of the Study I was to learn to what extent interviewing strategically might be effective in eliciting diagnostic cues to true and false intentions. Specifically, the objective was to examine how useful unanticipated questions are in discriminating between people who tell the truth about their intentions (true intent) and people who lie about their planned future acts by using a cover story (false intent). This study was the first to examine the use of the unanticipated questions targeting the planning of the stated intentions.

Method

A between-subject experimental design (Veracity: Truth-tellers vs. Liars) was used. The procedure consisted of three phases.

Phase 1. *Planning*: Half the participants ($n = 35$) were instructed to plan a mock criminal act that required them to place a memory stick with ‘illegal’ material on a particular shelf in a store in a shopping mall. In addition, they were asked to prepare a cover story they could use to mask their criminal intentions. These participants were identified as the liars. In order to achieve sufficient internal validity and comparability between the events, the liars were given a frame for their cover story that was structurally similar to the non-criminal act. The other participants ($n = 35$) were instructed to plan a non-criminal act: shopping for gifts for a friend. These participants were

identified as the truth-tellers. All participants, both liars and truth-tellers, were given sufficient time and information to plan their acts.

The study imposed two specific constraints in the planning phase: (1) the participants had only one opportunity to perform the task, and (2) the participants had a limited amount of time to complete the task. The participants were informed of these constraints. At the end of the planning phase, a manipulation check was used to ensure that all participants believed that they were actually going to perform the assigned task.

Phase 2. *Interview*: After the planning phase, all participants were intercepted before they had the chance to outperform their planned tasks. The truth-tellers were instructed to tell the truth, and the liars were asked to tell the cover story they had prepared in order to hide their criminal intentions. All participants were interviewed individually according to a structured interview protocol. One set of questions pertained to their stated intentions; the other set pertained to the planning phase of their stated intentions. The assumption was that the planning phase questions (the unanticipated questions) would highlight differences between the liars and the truth-tellers, whereas questions on their intentions (the anticipated questions) would not.

Phase 3. *Post-Interview ratings*: To map how they experienced the planning phase and the questions asked in the interview, the participants were asked to complete a rather extensive Post-Interview Questionnaire (PIQ). The first part of the questionnaire contained questions about their perception of the planning phase; the second part addressed how difficult/anticipated the participants perceived the interview questions.

Results

The subjective ratings showed that the participants who planned an illegal act lied in the interview to a significantly higher extent than the participants who planned a non-criminal act. Thus, all participants followed instructions. The results showed that the truth-tellers and the liars found the planning phase equally difficult, satisfying and stimulating. The liars found the time allocated for the planning phase significantly more sufficient than the truth-tellers.

Both groups found the questions on the planning phase significantly more unanticipated than the questions on intentions. The liars found all questions (on intentions and on the planning phase) significantly more unanticipated than the truth-tellers. Both liars and truth-tellers found the questions on the planning phase significantly more difficult than the questions on intentions. The liars and the truth-tellers found all questions (on the planning phase and the intentions) equally difficult. The truth-tellers' answers to the main ques-

tion on the planning phase were significantly longer than the liars' answers. The liars and the truth-tellers gave equally long answers to the main question on intentions.

The truth-tellers' answers to the main question on the planning phase were perceived significantly more detailed than the liars' answers. In contrast, the truth-tellers' and the liars' answers to the main question on intentions were perceived equally detailed. The truth-tellers' answers were significantly clearer than the liars' answers when the participants answered the main question on the planning phase and when they answered the main question on intentions.

Conclusions

Study I shows that the questions on planning phase were unanticipated, whereas the questions on the stated intentions were anticipated. This result, which supports the study's core assumption, leads to the conclusion that the elicited differences (between deceptive and truthful statements) are related to the type of questions asked. Truth-tellers' answers to the unanticipated question were longer, clearer, and more detailed than the liars' answers. Therefore, strategic interviewing is a useful technique for eliciting both subjective and objective cues to deception. Furthermore, the cues were stronger for answers to the unanticipated questions than answers to the anticipated questions.

Study II

The aim of Study II was to apply the unanticipated questions approach to small groups of suspects, rather than single suspects. Therefore, Study II is an ecologically valid extension of Study I in that it examined the assumption that, when interviewing groups of suspects, the unanticipated questions approach can be used to elicit cues to true and false intentions. Another aim was to examine how useful the theory of implementation intentions and of findings on suspects' counter-interrogation strategies are in the analysis of answers to anticipated questions

It was assumed that unanticipated questions would affect within-group consistency. Specifically, it was expected that groups of truth-tellers would be more consistent than liars in their answers to unanticipated questions. Furthermore, it was expected that consistency would be moderated by group size; smaller groups of liars and truth-tellers were expected to be more consistent than larger groups of liars and truth-tellers.

Method

A 2 (Veracity: Truth-tellers vs. Liars) \times 2 (Groups size: Dyads vs. Quartets) between-group experimental design was used. The study's participants were randomly allocated to one of two veracity conditions: a true intention condition (a non-criminal act) ($n = 116$), and a false intention condition (a criminal act) ($n = 116$). Each veracity condition was further divided into either groups of four members (quartets) or groups of two members (dyads). This experimental set-up was an extension of the set-up used in Study I. As in Study I, the procedure in Study II consisted of three phases.

Phase 1. *Planning*: The non-criminal act was the purchase of lunch ingredients at the shopping mall. The truth-tellers were asked to plan and prepare a typical Swedish lunch for two exchange students. The act required buying the ingredients and then preparing the lunch in the Psychology Department's kitchen. The criminal act was to carry out a secret mission to stop harmful experiments on animals.

The liars, who were asked to imagine themselves as animal lovers, were asked to plan the secret mission as part of a larger action that would crash the computer system of the organization conducting the animal experiments. The liars were asked to collect four items from the main shopping mall in Gothenburg (the mock-criminal act). They were also asked to prepare a cover story to mask their criminal intention.

To increase the comparability of the two acts, the liars were given a frame for their cover story that was structurally similar to the act that the truth-tellers planned. The liars were instructed to tell their cover story if apprehended.

Phase 2. *Interview*: All participants were intercepted before they could execute their planned acts. At this point, they were informed they would soon be interviewed. The liars who had planned the mock-criminal acts were instructed to use their cover story in order to avoid detection. The truth-tellers, who had planned the non-criminal acts, were instructed to tell the truth about their intentions. All participants were interviewed individually according to a structured interview protocol.

Phase 3. *Post-Interview Questionnaire (PIQ)*: After the interview, each participant was asked to rate (truthfully) their subjective perception of the planning phase, whether they had anticipated the interview questions, and how difficult they found answering these questions. The PIQ consisted of the two sets of questions. The first set focused on the participants' experiences in the planning phase; the second set focused on their experiences in the interview.

Results

To learn whether the participants followed the instructions, a number of different ratings from the PIQ were analyzed. Liars rated their degree of lying and their motivation to be believed significantly higher than the truth-tellers. However, the truth-tellers found it significantly easier to plan their future actions and were significantly more satisfied with the planning phase. Liars were less satisfied than the truth-tellers with the time allocated to the planning phase.

The questions on the planning phase were significantly more unanticipated than the questions on intentions. The liars rated both types of questions as significantly more unanticipated than the truth-tellers. Both liars and truth-tellers thought the questions on the planning phase were significantly more difficult to answer than the questions on the intentions.

The liars' answers to the main question on their intentions were significantly less detailed than the truth-tellers' answers. Similarly, the liars' answers to the main question on the planning phase were perceived significantly less detailed than the truth-tellers' answers. Furthermore, the quartet members' answers were less detailed than the dyad members' answers.

In terms of consistency, the quartet members' answers to the main question on the intentions were less consistent than the dyad members' answers. The liars' and the truth-tellers' answers to the main question on intentions were equally consistent. The liars' answers to the main question on the planning phase were significantly less consistent than the truth-tellers' answers. In addition, answers by the individuals in the quartets (both liars and truth-tellers) were significantly less consistent than the answers by the individuals in the dyads (both liars and truth-tellers).

As predicted, the liars' answers to the main question on intentions contained significantly less information related to *how* to achieve the stated intentions (this was true for both dyads and quartets). The truth-tellers gave more descriptions than the liars of the separate acts related to achieving the stated intentions. In contrast, the liars' answers to the main question on intentions revealed significantly more motivations to perform the acts (in both dyads and quartets). Thus, the liars offered more reasons for *why* they were motivated to achieve their stated intentions.

Conclusions

The results offer fairly strong support for the assumption that unanticipated questions elicit cues that can be used for discriminating between true and false intentions. The study shows that the difference between truthful and

deceptive statements is comparatively more pronounced in terms of consistency and level of detail when questions are asked on the planning of a stated future event. Furthermore, the level of within-group inconsistency seems to vary depending on the size of the group. Groups of lying suspects and truth-telling suspects are less likely to differ in terms of consistency when they answer anticipated questions. Therefore, if interviewers only ask small groups of suspects about their intentions, there is a risk that no diagnostic cues may emerge.

Study III

Study III examined the effects of certain components of the CI when combined with the unanticipated questions approach. The assumption was that use of these components with the unanticipated questions approach would magnify the differences between truthful and deceptive statements. The study also examined the extent to which the theory of implementation intentions can be useful for detecting differences between true and false intentions.

It was predicted that the liars' answers to the unanticipated questions would be less detailed than those of the truth-tellers, and that this difference would be further enhanced when components of the CI were used. Furthermore, it was expected that the truth-tellers' answers (vs. liars' answers) to the question on the intentions would – to a higher degree – be characterized by information on *how* to achieve the stated goal. Furthermore, it was expected that the liars' answers would provide more information than the truth-tellers' answers on *why* the stated goals needs to be pursued.

Method

A 2 (Veracity: Truth-tellers vs. Liars) \times 2 (Type of Interview: Standard Interview vs. Cognitive Interview) between-group experimental design was used. Each participant was randomly allocated to one of two veracity conditions: a true intention condition ($n = 64$), in which a non-criminal act was planned, and a false intention condition ($n = 61$), in which a mock-criminal act was planned. In the two conditions, the truth tellers and liars were split into two equal groups. In the interviews with these groups, either the Standard Interview (SI) or components of the CI were used. As in Studies I and II, the procedure in Study III consisted of three phases.

Phase 1. *Planning*: The participants were asked to protest against a planned fur clothing project initiated by a company selling winter clothes. Half the participants (the truth-tellers), who were asked to make a legal pro-

test against the company, chose one of the three protest letters presented to them. They then were asked to submit the chosen letter to the company's fur project manager (the non-criminal act). The other participants (the liars) were asked to make an illegal protest. This protest required them to install a virus on the fur company's main computer that would destroy important data needed for initiating the fur project (the criminal act). The liars were also asked to prepare a cover story that would mask their criminal intention. They were instructed to tell this cover story (false intention) if they were intercepted.

The participants had 20-25 minutes to plan their acts. Thereafter, the participants were informed that the planning phase was over. They were then told to return to the Department of Psychology in a week in order to carry out their plans. However, upon their return, all participants were intercepted and interviewed.

Phase 2. *Interviews*: The participants were interviewed according to the SI or the CI. The two trained interviewers who conducted the interviews had received a full day of CI training led by an expert in this interview technique. Both interview techniques contained one set of questions on the intentions and one set of questions on the planning of the stated intentions. For the questions on intentions in the CI condition, only the *build rapport* component was used. For the questions on the planning phase, the *build rapport*, *mental reinstatement*, and *report everything* components were used. Two independent evaluators rated the two open-ended questions, the main question on intentions, and the main question on the planning phase in terms of level of detail provided and utterings related to *why* and *how* to carry out the intended acts.

Phase 3. *Post-Interview Questionnaire (PIQ)*: After the interview, the participants were asked to evaluate their experience of the planning phase. In addition, participants were asked to rate each interview question in terms of to which extent they anticipated these questions and how difficult they thought the questions were.

Results

The results show that the questions on the planning phase were significantly more unanticipated than the questions on the stated intentions. Furthermore, the questions on the planning phase were significantly more difficult to answer than the questions on the stated intentions.

The truth-tellers' answers to the main questions on the planning phase were significantly more detailed than the liars' answers. The Veracity \times Type of Interview interaction was significant. The simple effects test showed that the truth-tellers' answers were significantly more detailed than the liars' answers, both in the CI and in the SI conditions. Critically, the difference be-

tween the liars' and the truth-tellers' answers was greater in the CI condition. For the main question on intentions, the truth-tellers' answers were significantly more detailed than the liars' answers.

For the main question on intentions, the truth tellers' answers had significantly more information related to *how* they were to carry out the stated intentions. However, the assumption that the liars' answers, compared to the truth-tellers' answers, would contain more information on *why* to carry out the stated intentions was not supported.

The manipulation check confirmed that the participants followed the instructions on whether to lie or to tell the truth. The liars rated their degree of lying significantly higher than truth-tellers. The liars and truth-tellers did not differ in terms of how motivated they were to be believed by the interviewer. Furthermore, the truth-tellers perceived the planning phase as easier than the liars. The truth-tellers were also more satisfied with their planning than the liars. Furthermore, the truth-tellers were more satisfied with the time allocated for the planning phase. The ratings for both liars and truth-tellers were at the upper end of the scale, both in terms of the satisfaction with the planning phase, and in terms of time allocation.

Conclusions

Study III lends rather strong support to the unanticipated questions approach. Specifically, it successfully demonstrates enhanced differences between deceptive and truthful statements by combining certain components of the CI with the unanticipated questions approach. The study supports the assumption that unanticipated questions are an effective way to elicit diagnostic cues to deception. Moreover, the study shows that the answers to anticipated questions may contain cues to deception. However, as the traditional cues (e.g., the level of detail) to deception in the answers to the anticipated questions are unclear, it is necessary to learn how to analyze these answers.

Chapter 3

General discussion

The thesis examines attempts to elicit diagnostic cues in situations in which single suspects (Study I) and multiple suspects (Study II) are interviewed, and when additional interviewing tactics are used (Study III). The main objective of the thesis is to examine the extent to which the unanticipated questions approach can be used to elicit diagnostic cues that aid in detecting deceptive and truthful intentions. A second objective is to examine the extent to which the theory of implementation intentions, as well as the knowledge of suspects' counter-interrogation strategies, may be helpful in eliciting cues to true and false intentions. The studies establish that unanticipated questions can elicit cues that can be used to discriminate between true and false intentions. In addition, the studies establish that answers to anticipated questions may contain cues to deception and truthfulness if the answers are in a proper manner.

The anticipated and the unanticipated questions

The three studies support the core assumption of the thesis that the studies' participants would anticipate questions on intentions whereas they would not anticipate questions on the planning of their intentions. Without these findings, the support for the unanticipated questions approach would have been difficult to justify. It should be noted that other recent studies examining the unanticipated questions approach (e.g., Warmelink et al., 2012; Mac Gioi-la & Granhag, 2013) reveal a similar pattern with respect to how liars and truth-tellers perceive questions on their intentions (anticipated questions) and the planning of these intentions (unanticipated questions).

Furthermore, and consistent with the underlying framework of externally increased cognitive load, the three studies reveal that the questions on the planning phase are significantly more difficult to answer than the questions on the stated intentions. This is consistent with Clemens et al.'s (2013) finding that lying suspects found the questions on the planning phase as relatively more difficult and unanticipated than truth-telling suspects. The explanation of this finding is that liars use counter-interrogation strategies to prepare

ready-made answers to anticipated questions and stick to their cover story. Thus, answering unanticipated questions becomes comparatively more cognitively demanding for liars than for truth-tellers.

Cues elicited from anticipated and unanticipated questions

Level of detail

Anticipated questions. Some research on true and false intentions has demonstrated that truth-tellers and liars do not differ in terms of level of detail given when they describe their intentions (e.g., Vrij et al., 2011a). Study I supports these findings. In contrast, Studies II and III show that the truth-tellers' answers to the main question about their intentions were more detailed than the liars' answers. This finding, while unexpected, agrees with recent findings reported by Mac Giolla and Granhag (2014).

The reason for truth-tellers' more detailed answers in Study II may be explained by the most common counter-interrogation strategy used by the liars in small groups; being restrictive with the amount of information they divulge (Granhag et al., 2013). Because the participants in the study worked in small groups, they had to stick to the story agreed upon during the planning phase in order to maintain consistency. Furthermore, the dyads' and the quartets' answers to the anticipated questions (by liars and truth-tellers combined) did not differ in terms of level of detail. Thus, group size does not seem to have a clear effect on answers to anticipated questions.

Furthermore, each study used a different theme for the core events. This difference may have affected the level of detail in answers to the anticipated questions. The simple explanation is that some intentions allow more space for details; explaining the intention to travel to a foreign country may include more details than planning to have dinner in a restaurant. However, it is not entirely clear why the truth-tellers' answers in Study III were significantly more detailed than the liars' answers. However, what is clear is that the findings show that for anticipated questions, the level of detail is a rather weak cue to deception and truthfulness.

Unanticipated questions. As expected, the truth-tellers' answers to the question about the planning phase in the three studies were significantly more detailed than the liars' answers. This finding is consistent with findings from other research (Mac Giolla & Granhag, 2014) and the assumption that unanticipated questions may illuminate the differences between true and false intentions. A simple explanation is that truth-tellers are in a better position than liars to answer such unanticipated questions. This finding is indirectly

supported by the liars' main counter-interrogation strategies of being restrictive with information (Granhag et al., 2013), and sticking to their cover story (Clemens et al., 2013). Liars, who are only prepared to tell the cover story, are therefore unable to give detailed answers to unanticipated questions. Studies II and III, in which, the difference between liars' and truth-tellers' answers in terms of level of detail showed larger effect for the unanticipated questions, support this conclusion.

When interviewers use additional interviewing tactics, such as the components of the CI, also liars are able to provide more detailed answers. However, in Study III, this increase in detail was marginal compared to truth-tellers. The truth-tellers' answers provided significantly more detail than the liars' answers when an additional interviewing technique was used.

Factors moderating the answers to anticipated and unanticipated questions

Multiple suspects and consistency. One aim of Study II was to examine how group size moderated the consistency of answers from small groups of liars and truth-tellers (to anticipated and unanticipated questions). The results reveal that the answers from the quartets (both liars and truth-tellers) to the main question on intentions were significantly less consistent than the answers from the dyads. However, truth-tellers' and liars' answers to the main question on intentions were equally consistent. These results differ from recent findings by Mac Giolla and Granhag (2014) who found that cells of truth-tellers were more consistent in their answers to anticipated questions than cells of liars, but is in line with previous research on past events (Granhag et al., 2003; Strömwall et al., 2003).

Study II focused on dyads and quartets whereas Mac Giolla and Granhag's (2014) study focused on triads. Their findings should be treated cautiously because the difference they found between liars and truth-tellers only approached significance. As the quartets in Study II were less consistent than the dyads, it is possible that within-group consistency is affected by group size. The critical tipping point may occur when the group has more than two members. With groups of more than two members, the within-group consistency may decrease for answers to anticipated questions.

Furthermore, consistent with Mac Giolla and Granhag's (2014) findings, the answers to the unanticipated questions on the planning phase by liars in groups were significantly less consistent than the answers by truth-tellers in groups. Moreover, in line with the reconstructive nature of memory (e.g., Baddeley, 1997), Study II revealed that answers from the quartets were less consistent than the dyads' answers.

In sum, these findings demonstrate that consistency can be a diagnostic cue to true and false intentions when unanticipated questions are asked. In contrast, consistency should be treated cautiously with respect to anticipated questions because liars and truth-tellers seem equally consistent when answering such questions.

Multiple suspects and the level of detail. Study II established that group size moderated the level of detail in the answers to unanticipated question. The members in quartets gave less detailed answers than the members in dyads. This was true for both truth-tellers and liars. Two reasons considered both separately and jointly, may explain this finding. First, the liars may not have prepared and agreed upon answers to the unanticipated questions. Therefore, they needed to be very restrictive in their answers in order not to contradict other group members. Second, the experimental set-up may have been a factor. Some members in the larger groups may have been less involved in the planning phase than members in the smaller groups.

These explanations may also be valid in real life settings. Yet it may be difficult in larger groups to involve each member equally and to create a cover story that all members agree to and can remember. Given that larger groups are less consistent than smaller groups, it may be difficult for liars to prepare a cover story that is (a) detailed enough to be convincing and (b) not so detailed that the group members' versions become inconsistent.

Furthermore, research on decision-making may shed more light on this issue. According to the theory of bounded rationality, developed by Herbert Simon (Simon, 1978) there are, broadly speaking, two contrasting decision-making strategies: satisficing and optimising. These strategies may be seen as opposite ends of the same scale. For example, a satisficer evaluates various alternatives until satisfied with one alternative that exceeds an acceptability threshold. In other words, in satisficing, one chooses the good enough alternative rather than search for the optimal alternative. In optimizing, one searches for and selects the alternative with the highest expected utility (Gigerenzer & Goldstein, 1996; Schwartz et al., 2002). An argument can be made that liars satisfice to a higher extent than truth-tellers because liars have to plan two things: the criminal act and the cover story. Thus, truth-tellers may have more possibilities to strive for optimal solution in terms of how to achieve their intentions.

For at least two reasons, liars may decide to allocate more resources to the criminal act than to the cover story. First, liars have limited planning time. Second, liars must compromise when they invent and tell their cover story (e.g., to be consistent, liars may restrict the amount of detail in their cover story). Because committing the criminal act is the main goal of criminally

inclined people, it is reasonable to conclude they may satisfice in terms of the cover story. This is also in line with what has been stated in some texts written by terrorists to terrorists (e.g., Breivik's Manifesto).

The Cognitive Interview and the level of detail. The CI has been used successfully to elicit detailed and accurate recall by truthful interviewees (Fisher, 2010). Furthermore, previous research has revealed, with some exceptions (Bembibre & Higuera, 2011, 2012), that the CI is helpful in discriminating between truthful and deceptive accounts (Colwell et al., 2002; Hernandez-Fernaud & Alonso-Quecuty, 1997; Vrij, 2014). Study III confirms these findings in that components of the CI seem to moderate the level of detail given in interviews.

Specifically, suspects who were asked unanticipated questions and were interviewed using components of the CI gave more detailed answers than others who did not receive any memory enhancing techniques. Furthermore, truth-telling suspects gave more detailed answers than lying suspects when asked unanticipated questions, both with and without the use of the CI components. However, when components of the CI were used, the level of detail given magnified the difference between the liars' and the truth-tellers' answers. This finding suggests that the use of additional strategic components with the unanticipated questions approach may be an effective way to reveal the differences between truthful and deceptive statements.

Additional cues: clarity and length of the answers

Clarity. Study I differed from Studies II and III in terms of the cues examined. In addition to the level of detail, Study I examined the clarity and the length of answers. The study found that truth-tellers' answers to unanticipated questions are clearer than liars' answers. Because liars are under pressure to invent answers to unanticipated questions on the spot, they seem to have a difficult time coming up with clear and detailed answers. This finding, which was expected, lends further support to the value of the unanticipated questions approach.

It may be surprising that the truth-tellers' answers to anticipated questions were also clearer than the liars' answers. It was assumed that the liars would prepare for the questions on intentions. Therefore the finding that their answers to anticipated questions were less clear than the truth-tellers' answers was unexpected. The level of detail in the statements may explain this finding. In truthful statements, clarity may increase as the level of detail increases. In deceptive statements, this relationship may be less straightforward; while liars may produce answers as detailed as the truth-tellers' answers, liars

may be unable to answer anticipated questions as clearly as truth-tellers. Liars may continue to offer a rather general level of detail (e.g., by interpreting “shopping” more broadly). Truth-tellers, however, may offer more specific statements that include much more precise detail (e.g. by describing the purchase of special gift coffee mugs).

Length of the answers. Study I shows that the truth-tellers’ and the liars’ answers to the anticipated questions were generally about the same length. Yet the truth-tellers used significantly more words when answering the main unanticipated questions on the planning phase. This finding supports the assumption that liars prepare for anticipated questions but not for unanticipated questions. These results replicate previous findings by Vrij et al. (2011a) and Mac Giolla and Granhag (2014).

The planning phase

The unanticipated questions focused on the planning phase. Therefore, in order to map the differences between truth-telling suspects and lying suspects, it is necessary to examine how the participants perceived this phase. Study I shows that the truth-tellers and the liars found the planning phase equally difficult. In comparison, Studies II and III show that the liars found the planning phase significantly more difficult than the truth-tellers. In Study II, because the participants worked in groups, the liars may have found the planning and the recall of their cover story a more complex task because each group member had to memorize (a) their own task, (b) the other group members’ tasks (a separate task for each group member was specified in the instructions), and (c) the agreed-on cover story.

Furthermore, in Study III the liars may have perceived the planning phase as comparatively more difficult because of the nature of the task: the virus installation in Study III may have been more challenging compared to the illegal act in the store in Study I and the computer crash mission in Study II. In addition, because one week elapsed between the actual planning and the interview in Study III, the suspects’ perception of the planning phase may have been affected.

Study I reveals no difference between the truth-tellers and the liars in terms of satisfaction with the planning phase. In contrast, in Studies II and III, the liars were significantly less satisfied with the planning phase. This dissatisfaction is consistent with the explanation that planning the tasks was relatively more complex for the liars than for the truth-tellers. The research on decision-making lends support to this observation. Tversky and Shafir (1992), for example, claim that conflict in decision-making can influence

satisfaction with decisions. Because each alternative has its advantages and disadvantages, people often feel conflicted when they make a selection. They may even be somewhat dissatisfied with their final selection.

Thus, liars have to decide how much of their resources to allocate (a) to the criminal act and (b) to the cover story. In line with this there might be two reasons that affected liars' perception about the planning phase. First, as argued above, because liars' criminal acts are their main goal, presumably, they prioritize the planning of these acts. This means they may have satisfied in terms of the cover story to a larger extent compared to the criminal act. Second, given that all study participants were intercepted and asked both anticipated and unanticipated questions, this procedure may have influenced the liars' satisfaction with their cover story and, ultimately, their satisfaction with the planning phase. If the liars had not been intercepted and questioned, they might have been more satisfied with their cover story as they would never have had to put it to a test. Therefore, it is unsurprising that the liars were generally less satisfied with their planning than the truth-tellers.

Finally, Study I shows that the truth-tellers thought the time allocated for planning was significantly less sufficient than the liars. In Studies II and III, the truth-tellers thought the time allocated was significantly more sufficient than the liars. However, the absolute values, for all studies, indicated that both liars and truth-tellers were quite satisfied with the time allocated.

The content-based cues to true and false intentions: Utilizing theory from social cognition

Studies II and III are the first studies in the field of deception detection in using theory of implementation intentions. Consistent with the theory of implementation intentions (Gollwitzer, 1990), the findings from these two studies show that the truth-tellers' answers to the main question on their intentions (compared to the liars' answers) had significantly more information on *how* they would perform their stated intentions. Both Studies II and III reached this conclusion, which supports other recent research (Mac Giolla et al., 2013; Mac Giolla, Granhag, Sooniste, & Liu Jönsson, 2015).

However, the liars offered comparatively more information than the truth-tellers on *why* they had to perform their stated intentions (Study II). This finding, which agrees with recent findings on suspects' counter-interrogation strategies, suggests that liars prepare ready-made answers to anticipated questions (Clemens et al., 2013). This finding is also consistent with results by Mac Giolla et al. (2013) and Mac Giolla et al. (2015).

However, Study III reveals a different pattern. The truth-tellers' and the liars' answers contained to the same extent information related to *why* they

intended to perform their stated intention. The explanation may be due to the difference in the experimental set-up. In Study III, the participants were asked to choose one of three protest letters to submit. They were also asked to write a short explanation of *why* they chose this particular letter.

Furthermore, because the participants in Study III expected a face-to-face meeting (with the fur project leader), their planning may have involved reasoning related to *why* they thought it was necessary to stop the activity they were to protest against. Therefore, truth-tellers may have been primed to focus on explanations on *why* they chose this protest letter and *why* it is necessary to achieve their stated intention (i.e., to stop the fur project). An additional reason for why the *how* related utterings reveal a more consistent pattern is that this is a theory-driven finding, whereas the *why* related utterings have a less clear theoretical connection.

Moreover, the findings on *how* and *why* related utterings can also be understood within the context of construal level theory (Rim, Uleman, & Trope, 2009; Stephan, Liberman, & Trope, 2010; Trope & Liberman, 2010; Wakslak & Trope, 2009). As intentions refer to acts that may happen in the future they can be represented as mental construals. It can be argued that false intentions have a low likelihood of occurring as the stated acts are not intended to be carried out, and should therefore be represented by high-level construals. True intentions, as defined in the current work, are followed by high degree of commitment and have therefore a high likelihood of actually taking place. Thus, true intentions may be represented by low-level construals. An action construed in concrete terms (e.g., a true intention) is linked with *how* the action is to be performed.

Because the planning phase may contain concrete procedural steps needed to achieve a goal, and it is assumed that the truth-tellers' answers reveal these steps (e.g., to visit a friend in London I need to save money for the tickets). In contrast, an action construed in more abstract terms (e.g., a false intention) is linked more to *why* the action should be performed. Hence, the liars' answers tend to reflect the superordinate purpose of the action (e.g., I will visit a friend in London because friends are important).

At this point, it should be acknowledged that the liars' and the truth-tellers' answers contained information on both *how* and *why*. Thus, information about one or the other of these aspects is not a clear indication of deception or truthfulness.

Limitations

The three studies for this thesis were conducted in a controlled laboratory environment. This research setting may limit the generalizability of the findings. First, the results can only be generalized to situations that involve a specific event in the near future and to situations where the event is well defined by time and space. This requires revisiting the definition of intention.

Because Granhag's (2010) guidelines influenced the research for this thesis, a rather strict working definition of an intention is used. This definition is applicable only to situations for which the what, how, when and where are planned. Thus, this research is relevant for situations in which suspects have decided on what act they plan, how they will perform this act, as well as where and when they will perform this act.

Second, the assumption that planning precedes intentions can be challenged. Many script-like routine acts may not require any planning. Shopping in the mall, which can be considered a scripted event, requires very little elaborate planning. However, when planning is more complicated, truth-tellers can provide more information about their planning. Liars may benefit from the complexity of their cover story only if they are asked anticipated questions but not when asked unanticipated questions. For example, when asked unanticipated questions about the planning phase, liars will gain little or nothing. Because they did not expect these questions, they are, of course, unprepared to provide the level of detail the complexity of the cover story seems to require. Unanticipated questions may therefore be more (not less) effective when the stated intention requires more complex planning.

Third, the majority of the participants in the three studies were university students. This raises the question of to what extent the results can be generalized to real-life settings. This research assumes liars will use counter-interrogation strategies and will prepare ready-made answers for anticipated questions. These assumptions may be more pronounced and valid in real-life settings, as real criminals can be assumed to be more motivated to be perceived as truthful than mock-suspects.

Fourth, the measures used to increase the internal validity in the three studies may be problematic. To achieve sufficient internal validity and comparability among the events, the liars were provided with a frame for their cover story. This frame was structurally similar to the non-criminal act. This procedure may limit the ecological validity of the findings because the natural variation in the event type was reduced. However, the focus of the analysis is on characteristics that are independent from the events' themes. Thus, the findings may not necessarily be limited to similar events. As mentioned above, the findings can only be generalized to situations in the near future

and for which the *what*, *when*, and *where* are planned. Therefore, future research should examine whether the findings of this research are valid for events at various levels of abstraction.

The fifth limitation is more general in nature and concerns the cognitive load approach to deception detection. A number of recent studies using different methods (e.g., reverse order answering, fixed eye gaze, time pressure answering to closed-ended questions, etc.) to induce cognitive load have produced promising results (Vrij & Granhag, 2012; Vrij et al., 2011c; Walczyk et al., 2005). However, some researchers have raised concerns about the underlying cognitive mechanisms used when increasing cognitive load (Blandon-Gitlin et al., 2014; Walczyk et al., 2013).

Specifically, these scholars argue that there is a lack of knowledge on the cognitive processes activated when using interviewing strategies that increase the suspects' cognitive load. This may, for example, create situations where it is unknown whether the extra cognitive load is 'enough', too much, or too little. This may, in turn, lead to lower deception detection accuracy.

These researchers emphasize the importance of examining the cognitive mechanisms used in the operation of the cognitive load approach. This examination is necessary for providing a sounder empirical basis and a more robust theoretical foundation for the approach, and for avoiding possible errors in assessing veracity (Blandon-Gitlin et al., 2014). Therefore, for future research, it is essential to investigate these underlying mechanisms further; however, this investigation is beyond the scope of this thesis.

Future directions

Research on true and false intentions has progressed rapidly in recent years and there are now many ways to approach this topic. The unanticipated questions approach is based on suspects' verbal counter-interrogation strategies and the assumption that lying is often more cognitively demanding than telling the truth (Zuckerman et al., 1981; Vrij, 2008). However, it is possible that, as researchers better understand criminals' counter-interrogation strategies, liars may develop and apply new counter-strategies better adapted to answering unanticipated questions. For example, if liars become familiar with the unanticipated questions approach, they may expect questions on the planning phase. This expectation may reduce the liars' cognitive load, leading to situations in which the possibility of identifying cues to deception is reduced.

Furthermore, research shows that it is possible to reduce cognitive load by manipulating counter-strategies (Blandon-Gitlin et al., 2014). For example, introducing a design where half the liars are familiar with the basics of the

unanticipated questions approach could result in a better understanding of the strengths and weaknesses of the approach. This research on liars' possible counter-interrogation strategies may help to identify the limits of the unanticipated questions approach.

This thesis does not aim to examine situations in which the criminally inclined person engages in extensive planning of a cover story. However, situations in which criminals create new cover identities and live the roles of their cover stories are not uncommon. This observation agrees with the instructions in terrorist handbooks such as the Manchester Manual.

Liars sometimes create cover stories, which are mainly intended and only make small changes in order to mislead the interviewers (Leins, Fisher, & Ross, 2013). Such cover stories, in which the lies are nested in the truth, are called embedded or subtle lies (Mac Giolla, Granhag, & Vrij, 2015; DePaulo et al., 1996). Future research may profit from a deeper examination of such cover stories.

Following the suggestion by Mac Giolla, et al. (2015), there may be benefit in acknowledging the research on goals. Liars and truth-tellers may share more specific lower-order goals (e.g., going to work every day), but differ in their higher-order goals (e.g., long-term career plans). Therefore, questions on the more abstract, higher-order goals, which are less likely to be incorporated into liars' cover stories, may be a fruitful avenue for future research.

Last, future studies may profit from examining cues to true and false intentions in more ecologically valid settings. It is not uncommon to have intentions but not yet having defined the when, where, or how to attain them. In order to further explore cues to false intentions, it is important to examine liars' and truth-tellers' statements in situations where the future event is less defined with respect to time and space. The use of such empirical settings would facilitate deeper examination of the relevance of the theory of implementation intentions (Gollwitzer, 1990). This research would allow us to learn more about whether and how liars and truth-tellers differ in terms of the information they provide about *when* and *where* the intended act will take place. This research would thus allow us to learn more about the formation of true intentions as well as suggest possibilities for eliciting of new diagnostic cues. In summary, the more we know about true intentions, the more effectively we can distinguish between true and false intentions.

Ethical considerations

The subject and themes of the research for this thesis may raise some ethical concerns. A first general concern relates to intentions when an act is

planned but is not yet performed. The concern is whether research on true and false intentions may lead to arresting and even prosecuting people on the basis of having unlawful intentions but without having committed any crime. This is a difficult issue. Planning may involve concrete steps and decisions that, when identified, could be used as evidence. In fact, some countries have laws, which allow convicting people on the basis that their planning that would have resulted in a crime.

However, the unanticipated questions approach used in this research is designed for use in situations where no evidence exists. Moreover, this approach only aims to detect whether the stated intention is true or false, and not to reveal what the person actually will do (e.g. criminal act). If this approach is used, and cues to deception are found, the conclusion is not necessarily that individuals have criminal intentions. The conclusion may well be that the individuals are lying about their intentions for some other reason than hiding a criminal intention. Furthermore, the approach is relevant for police investigations but also for many other situations that require identifying whether the information provided is true or false (e.g., screening processes at airports or when gathering human intelligence).

A second concern is related to the use of psychological knowledge for imposing possible negative consequences on a person. According to the American Psychological Association's Ethical Principles (2003), such use is an abuse of the basic ethical practice of psychologists. However, in the research for this thesis, an intervention was used that was intended to produce a positive effect on truth-tellers' performance and no effect on liars' performance.

Specifically, the aim of the research was to use strategic interviewing in a way that truth-telling suspects' performance would improve, whereas lying suspects' performance would be unaffected. The research was not intended to produce either a negative or a positive effect on liars' performance. The approach used is in accordance with the guidelines of the Police and Criminal Evidence Act (PACE; Home Office, 1985) in England and Wales, and with ethical considerations related to police investigations in the Nordic Countries (Stridbeck & Granhag, 2010).

A third ethical concern relates to the experimental design used in the three studies. Half the participants were asked to plan and commit an unlawful task. To overcome this ethical problem, we informed the participants that the studies were based on role-play and that all parties involved are informed about the planned acts. In addition, we several constraints were used to encourage participants to remain committed to their intentions (e.g., limited time and opportunity to perform the acts, moral reasons to commit the acts, and additional compensation for successfully completing the acts). All partic-

ipants were told they could leave the experiment at any time, and would still receive full compensation.

The fourth ethical concern relates to the funding source for the research of this thesis. The High Value Detainee Interrogation Group (HIG), which is a small section in the U.S. Federal Bureau of Investigation (FBI), funded Studies II and III. A question arises whether accepting financial support from a foreign criminal investigative organization is consistent with research ethics.

There are several responses that may resolve this question. First, the funding source did not dictate the theme of the research. The principal investigator (Professor Pär Anders Granhag) proposed the research. The research questions examined in Studies II and III are similar to those examined in previous research conducted by the grant holder and the thesis author. Second, the funding was awarded to the principal investigator in open competition in the same way that other major research agencies (e.g., the Swedish Research Council) fund research. Third, a research committee evaluated and approved the research proposal. Fourth, prior to the research, a guarantee was made that all data in the studies were intended for publication in peer-reviewed, scientific journals.

Conclusions and practical implications

This thesis provides empirical support for the premise that strategic interviewing is a promising way for eliciting cues to deception (Vrij et al., 2011c). Furthermore, the thesis proposes and examines the efficacy of a theory from the field of social cognition used to discriminate between true and false intentions, which is rather rare in research on deception detection (Vrij & Granhag, 2012).

The overall results reveal that asking suspects about the planning phase of their stated intentions elicits more and stronger cues to true and false intentions than simply asking about their stated intentions. Furthermore, the thesis shows that the cues ‘consistency’, ‘level of detail’, ‘clarity’ and ‘length of the answers’ are useful in examining answers to unanticipated questions. This thesis suggests, however, that these cues should be treated with caution in the analysis of answers to anticipated questions. The findings indicate that, in analyzing answers to anticipated questions, one should concentrate on the specific content of the answers, such as information related to *why* and *how* to perform the stated intentions.

In terms of the practical implications, the thesis suggests that, in order to elicit diagnostic cues to deception and truth, it is important to ask *both* anticipated and unanticipated questions. In brief, such interview protocols are likely to be more successful for discriminating between truth-tellers and liars

than interview protocols with only anticipated questions. Sooniste, Granhag, and Strömwall (2015) addressed this conclusion in their development and testing of a training package based on the empirical findings from the use of the unanticipated questions approach.

In this test, trained and untrained investigators were compared in terms of the interview tactics used, detection accuracy, and cues for assessing veracity. Both the subjective measures (self-reported tactics) and the objective measures (interview analyses) revealed that the trained investigators followed the training received. A significantly larger proportion of trained investigators than untrained investigators asked unanticipated questions. It is of note that none of the untrained investigators said they had asked unanticipated questions for strategic purposes.

The combined evidence from this test revealed that the investigators who followed the training perceived it as novel and useful. In addition, the trained investigators achieved a higher detection accuracy level than the untrained investigators though this difference was not significant. Although the use of different tactics and cues did not result in superior accuracy by trained investigators, the findings offer a viable basis for future attempts to build an interview protocol using the unanticipated questions approach.

Although research on true and false intentions has increased rapidly in recent years, the area is still new. It is believed that the present thesis offers a step forward. It is important to remember that detecting deception and truth has never been (and will never be) an easy task. The same may be said for true and false intentions. This thesis offers no simple recipe for detecting true and false intentions, but it does suggest a consistent pattern exists in truth-tellers' and liars' verbal behaviors when the unanticipated questions approach is used. In this respect, this thesis contributes to the evolving research in the area of eliciting diagnostic cues to true and false intentions.

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