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Statements about true and false intentions:

Using the Cognitive Interview to magnify the differences

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## **Abstract**

This study investigates the combined effect of the Cognitive Interview (CI) and the unanticipated questions approach on the magnitude of the elicited cues to true and false intentions. The participants ( $N = 125$ ) planned for either a mock crime or a non-criminal event, half of them were interviewed with a standard interview (SI) and half with the CI. All participants were asked one set of questions targeting their intentions (anticipated questions) and one set of questions targeting the phase in which they planned their stated intentions (unanticipated questions). As predicted, the questions about the planning phase were perceived as unanticipated by both liars and truth-tellers. Furthermore, and as predicted, the truth-tellers' (vs. the liars') answers to the unanticipated questions were significantly more detailed. Importantly, and in line with our predictions, for the answers given to questions about the planning-phase, liars and truth-tellers differed more clearly in the CI-condition than in the SI-condition, indicating that the CI indeed magnified the differences between liars and truth-tellers. In addition, and as predicted, the truth-tellers' (vs. the liars') descriptions of their intentions were more characterized by information related to *how* to attain the stated goal.

Keywords: deception detection, true and false intentions, Cognitive Interview

**True and false intentions:**

## **Using the Cognitive Interview to magnify the differences**

With over thirty years of systematic research, deception detection marks one of the largest sub-genres of forensic psychology (Vrij 2008; Granhag, Vrij & Verscheure, 2015). Yet, notable omissions in this field are evident. The current study addresses two of such neglected areas. First, the focus of this paper is on statements about future actions, whereas previous research dealt almost exclusively with past actions (Vrij & Granhag, 2012). Second, the study revolves around the idea of interviewing strategically in order to actively elicit cues that will discriminate between true and false intentions, whereas previous research is dominated by a passive approach, often assessing veracity on the basis of brief video-clips (Vrij & Granhag, 2012).

The question of intent has importance for many investigative, security and human intelligence contexts (Vrij & Granhag, 2014). Hence, it is crucial to develop interview protocols that can assist interrogators and/or analysts to determine whether the information elicited is a truthful or deceptive description of future plans and actions. By intention we refer to an agent's mental state preceding his or her corresponding action (Malle, Moses & Baldwin, 2001). Furthermore, intentions are directed at the intender's own action, they typically come with a strong commitment, and are often based on some amount of planning (Schacter, Addis & Buckner, 2008). For example, a person inclined for a future criminal act will plan for the illegal event, as well as what to say if being questioned about his or her intentions before executing the planned actions. Specifically, in our study the definition refers to planned acts to be performed in the near future.

The existing studies on true and false intentions have provided important ground laying work (Granhag & Mac Giolla, 2014). The first study, conducted by Vrij and his colleagues was carried out at an international airport in the UK (Vrij, Granhag, Mann & Leal, 2011). The study showed

that passengers who lied about their intentions (activities at their final destination) gave statements that were less plausible than, but equally detailed as, statements from passengers who told the truth. In a second study, the same researchers had serving military and police officers acting as undercover agents, each of which met both hostile and friendly agents (Vrij, Leal, Mann & Granhag, 2011). The study showed that false intentions and lies about past actions were less plausible than their truthful counterparts. There was no difference in terms of details comparing truthful and deceptive intentions.

Furthermore, to this date, two types of strategic interviewing methods have been applied to true and false intentions: the Strategic Use of Evidence (SUE) technique (e.g., Clemens, Granhag & Strömwall, 2011) and the unanticipated questions approach (e.g., Sooniste, Granhag, Knieps, & Vrij, 2013). The current study draws on the unanticipated questions approach. The core of this approach is that liars prepare themselves for a possible interview by constructing ready-made answers to anticipated questions (Clemens, 2013). This strategy makes sense as prepared lies contain fewer cues to deceit than spontaneous lies (DePaulo et al., 2003). Previous research has shown that a criminally inclined individual will anticipate questions on his or her intentions but not questions on the planning of the stated (false) intentions (Sooniste et al., 2013; Sooniste, Granhag, Strömwall & Vrij, 2014). Therefore, a criminally inclined individual can provide his or her prepared answers when responding to anticipated questions, but *cannot* rely on his or her ready-made answers when responding to unanticipated questions, and is thus forced to lie spontaneously while answering these questions. As a result, differences between truth tellers and liars are most likely to occur in response to unanticipated questions.

The unanticipated questions approach has been shown to be effective in enhancing the differences between liars and truth-tellers. Sooniste et al. (2013) compared truth-tellers' and liars' responses for both anticipated (questions about intentions) and unanticipated questions (questions

about the planning phase of the stated intentions) and found that truth-tellers provided longer, more detailed and clearer answers to the unanticipated questions.

Clemens, Granhag and Strömwall (2013) conducted the first study examining the counter-interrogation strategies used by suspects who either lied or told the truth about their intentions. The result showed that the guilty suspects' most commonly used strategy was to "Stick to the cover story about the intentions", whereas the innocent suspects' most common strategy was to "Be honest". Hence, the guilty suspects' main counter-interrogation strategy was directly linked to their stated intentions, whereas this was not the case for the innocent suspects. Furthermore, the finding that the guilty suspects' main counter-interrogation strategy is geared towards preparing answers to anticipated questions explains why they perceived the questions on the planning-phase as relatively more difficult to answer compared to the innocent suspects (Clemens et al., 2013). The fact that liars (compared to truth-tellers) find it more difficult to answer unanticipated questions is the key to the current study.

In addition to the approach of asking unanticipated questions, the current study introduces an intervention as a mean to magnify the inherent differences between liars' and truth-tellers' responses. The Cognitive Interview (CI) is a memory enhancing technique developed in the mid 1980's by Ron Fisher and Ed Geiselman (e.g., Fisher & Geiselman, 1992). Broadly speaking, the core elements of the CI are organized around three psychological processes: social dynamics, memory and cognition, and communication (Fisher, Ross & Cahill, 2010). The current study draws on three components linked to these three processes respectively: *rappport building*, *mental reinstatement*, *report everything*. According to Fisher, et al., (2010) the CI should not be thought of as a recipe with a fixed set of questions and instructions, but rather as a toolbox of techniques, only some of which will be used in any specific interview.

Today there is a large corpus of research showing that the CI is an effective tool for interviewing witnesses. Typically, respondents generate considerably more information (between 25–100%) when interviewed with the CI than with a conventional police interview (Memon, Meissner, & Fraser, 2010). The current study is the first to examine to what extent the CI will enhance the differences between lying and truth-telling suspects when being asked about their planning of their stated intentions. The CI is both a speech and memory enhancement tool. Therefore, using *rapport building* will encourage truth-tellers to tell more about their planning. Furthermore, using the *report everything* and *mental reinstatement* component will help truth-tellers to remember more details about their planning. In other words, we expect the CI to result in an enhanced memory performance for the truth-telling suspects (as they actually have been engaged in extensive planning of their stated intentions, and thus have a memory of this), whereas no such positive effects are expected for the lying suspects (as they did not engage in any planning activities which they can tell about). Furthermore, the unanticipated questions approach has shown to be effective for increasing the differences between deceptive and truthful statements when using a standard interview (SI) (e.g. Sooniste, et al., 2013, Sooniste et al., 2014). Specifically, the SI is a structured interview, and it does not include any additional or memory enhancing components.

Furthermore, the current study will focus on the questions posed on the stated intentions and how to analyze answers given to these anticipated questions. Hence, the work by Gollwitzer and his colleagues on *implementation intentions* is relevant (Gollwitzer, 1990). Implementation intentions can be seen as more specific forms of a general plan (a goal intention). Goal intentions refer to a desired endpoint (i.e., the *what*). Implementation intentions are more specific and consist of *if-then* plans designed to aid goal attainment (e.g., I will take a bus to town but if it is full, I will then take a cab instead). In essence, such plans specify when, where and how the goal

will be attained. Importantly, individuals having no intention of pursuing a certain goal are unlikely to form an intention implementation that spells out how that goal will be pursued (Sheeran et al., 2005). Translated to the current context, truth-tellers' answers will be comparatively more characterized by information about *how* the stated intentions will be reached (e. g., I will first buy the tickets to the show, and then find a place for dinner). Liars, on the other hand, can be assumed to adopt goal directed behavior of a different kind. In essence, they are not concerned about how to attain the goal that they state in the interview; as this is a false intention, only serving the purpose of masking their real intentions (the criminal acts). Importantly, liars do not take their credibility for granted and anticipate that their stated intentions might be questioned, and they may therefore feel a stronger need to motivate *why* the stated goal is necessary to attain (e.g., I am going to visit my friend because I have not met her since high school and it is important to stay in touch with old friends). This reasoning is supported by recent empirical work on suspects' counter-interrogation strategies showing that liars' ready-made answers are directly linked to their stated intentions (Clemens, et. al., 2013). In sum, based on theory and previous empirical work we expect those committed to the stated intention (truth tellers) to address *how* the intention should be reached, and those who are not committed to the stated intention (liars) to address *why* the intention must be reached.

### **The Present Study**

The current study draws on work by Granhag and Knieps (2011) and Clemens, and colleagues (2011), but advances previous research on two critical accounts. First, the set-up is refined to allow for examining the strength of the cues elicited when using unanticipated questions and different interviewing techniques (Cognitive Interview vs. standard interview). Second, we draw on the theory of implementation intentions (Sheeran, et. al. 2005), and examine the extent to

which predictions following this theory can be used to detect differences between true and false intentions.

In short, half of the participants planned a non-criminal event, whereas the remaining half planned a mock-crime. All participants were intercepted before having the chance to carry out their planned activities. Half of the participants were interviewed using elements of the Cognitive Interview and the other half according to a standard interview; the latter has been used in the previous studies on true and false intentions (e.g., Granhag & Knieps, 2011 & Sooniste, et.al. 2013). Importantly, all participants received two sets of questions, one on their stated intentions and one on the phase where they planned their stated intentions. Participants having planned a non-criminal act were instructed to tell the truth during the interview, whereas participants having planned a mock-criminal act were instructed to conceal their criminal intentions by presenting a cover story. The cover story used by the lying participants was structurally similar to the non-criminal intentions expressed by the truth-telling participants.

We predicted that both liars and truth-tellers would perceive the questions targeting their intentions as more anticipated compared to the questions targeting the planning of their stated intentions (Prediction 1). We further predicted that both liars and truth-tellers would perceive the questions on their intentions as less difficult to answer compared to the questions asked on the planning phase (Prediction 2).

We predicted that liars' answers to the unanticipated questions would be perceived as less detailed compared to the answers provided by truth-tellers (Prediction 3a). Importantly, we predicted that this difference would be qualified further for the unanticipated questions by the type of interview technique used. Specifically, we predicted an interaction effect showing a larger difference between liars' and truth-tellers' answers in terms of richness of detail to the questions



on planning phase for the Cognitive Interview condition than for the Standard Interview condition (Prediction 3b).

Finally, based on both theoretical (e.g., Gollwitzer, 1990) and empirical work (e.g., Sheeran et al, 2005) on goal directed behavior and implementation intentions we predicted that truth-tellers' answers to questions on intentions would be characterized by information relating to *how* to attain the stated goal to a higher degree than liars' answers (Prediction 4a). Furthermore, based on recent work on suspects' counter-interrogation strategies when anticipating questions on intentions (Clemens, et. al., 2012), we predicted that liars' answers to questions on their intentions would be comparatively more characterized by information related to *why* the stated goal needs to be pursued (Prediction 4b).

## **Method**

### **Participants and Design**

A total of 125 individuals participated in the experiment, both community members and undergraduate students in the University of Gothenburg, Sweden. The participants' age ranged between 20 and 59 years ( $M = 27.10$ ,  $SD = 6.77$ ); 51 were men and 71 women, three of the participants chose not to state their gender. Participants were recruited through adds at the university buildings and website, and snowball sampling. Possible future participants were asked to send an e-mail if interested in participating. After receiving an e-mail of interest a research assistant contacted all interested participants by phone and made an appointment for participation. As compensation participants received two movie tickets (total value approximately \$ 38). Prior to the study, all participants were informed that they could leave the experiment at any point in case of discomfort and that they would receive full compensation. The drop-out rate was 15% from the whole sample. However, it was rare that participants dropped out of the study

without notice. The main reasons for leaving the study were sickness, lack of time and motivation. Importantly, the drop-out rates were equal in both groups.

We employed a 2 (Veracity: truth teller vs. liar)  $\times$  2 (Interview type: CI vs. SI) between-group design, in which participants were randomly allocated to one of four conditions, the two veracity conditions; a true intention condition ( $n = 64$ , truth-tellers), in which a non-criminal activity was planned, and a false intention condition ( $n = 61$ , liars), in which a mock-criminal activity was planned. Half of the participants who planned a mock-criminal act ( $n = 31$ ), and half of the participants who planned a non-criminal event ( $n = 33$ ) were interviewed with a standard interview (SI). The remaining half of the liars ( $n = 30$ ) and the remaining half of the truth-tellers ( $n = 31$ ) were interviewed with an interview that used the main components of the Cognitive Interview (in the current study referred to as Cognitive Interview, although we acknowledge that it was not a full version of the CI).

## **Procedure**

*Planning Phase.* All participants started the experiment by reading a sheet of paper explaining the background story, and they were informed that the set-up of the study was a role game, which may include actions outside of the Psychology Department. The background information given was the company at approximately 20 minutes walking distance from the Department of Psychology that usually sells winter clothes was planning to start a fur project. The truth tellers were asked to make a legal protest and to choose one of three protest letters presented to them, and hand it over to the fur project leader. The protest letters focused on different strategies outlined to convince the project leader not to go ahead with the fur manufacturing. In addition, the truth tellers were asked to write down a short motivation of their choice of letter and to prepare a short verbal statement that they would present to the project leader when handing over

the protest letter. The liars were asked to make an illegal protest which involved installing a virus on the company's main computer – which was located in the IT support room in the basement of the same building – that would destroy all the data, in order to stop the fur project (the criminal intent). These participants were further asked to plan a cover story masking their criminal intent, which was to be used if they were intercepted. To achieve high comparability, we instructed the liars that the main theme for their cover story should be “I'm on my way to the company to hand over a protest....” That is, we provided a frame for the cover story, but we also made it very clear that it was up to each participant to complete this frame and to construct a convincing cover story. All participants were given 20-25 minutes to plan their activities. For liars this included planning for their criminal activity and the cover story. All participants were instructed to carefully plan their future actions. They were given access to the internet and the company's website to collect information in order to help the planning. The web site was designed for the experiment and was not real. After the planning was finished all participants were informed that the planning phase was over and they were asked to return to the Department of Psychology in a week in order to carry out their plans. Furthermore, the participants were told that they would then receive a key card to the office building; the liars were in addition told they would receive a memory stick containing a virus, and truth tellers were told they would receive their chosen protest letter. However, when returning one week after the planning phase, all participants were intercepted and interviewed.

The participants' planning was motivated by a number of explicit constraints to ensure that all would take the planning seriously. Participants were instructed that they had one, and only one, opportunity to carry out the task, and that they had a very limited amount of time for carrying out the task. In addition, initiatives were taken to make all participants believe that they in fact were going to execute their planned actions (e.g., providing them with bus tickets). An on-the-spot

manipulation check, consisting of asking each participant after returning to the Department “what are you to do next?” revealed that all participants were committed to depart for the company building.

*Interception.* All participants were intercepted after the planning phase. That is, before they had the chance to execute their planned actions, they were handed a sheet of instructions asking them to imagine that they had faced a security check at the entrance of the office building where the company resides, and when trying to pass this security check they had been selected for further questioning. Furthermore, they were brought to the interview room for an interview. The participants who had planned for the mock-criminal activities were asked to use their cover story in the interview. The participants who had planned for the non-criminal activities were asked to tell the truth about their intentions. Specifically, they were asked to talk about their intentions, which they had planned for, and not to mention that they participated in a study.

*Interviews.* Participants were interviewed either according to a standard interview (SI) or Cognitive Interview (CI). Two trained interviewers conducted the interviews; both interviewed an equal amount of truth-tellers and liars, and the same number of SIs and CIs. Both interviewers received a full day of CI training, carried out by an expert in the Cognitive Interview. The training included explaining and discussing the components and watching a training video on how to conduct the CI. In addition, both interviewers practiced both interview types on the experimenters, as well as on participants not included in the study. In the experiment both interviewers were blind to the participants’ veracity status and to the experimental hypotheses when conducting the interviews.

Both interview techniques contained one set of questions on the intention and one set of questions on the planning of the stated intention. For the questions on intention in the CI condition, we only used the *establish rapport* component as the answers to these questions

pertained to future and therefore were not predicted to be influenced by using memory enhancing components. For the questions on the planning phase, we applied the *establish rapport*, *mental reinstatement* and *report everything* components as these questions pertained to past and using memory enhancing techniques may help truth-tellers to answer these questions better.

The report everything component encouraged the interviewees to report everything they remembered without any editing, even unimportant and seemingly trivial details. The mental reinstatement of context component instructed interviewees to reconstruct the physical (environment) and personal (how they felt at the time) context in their minds. In the first part of the interview the suspects were asked questions about their intentions and thereafter questions about the planning of their stated intentions. The suspects received in total five questions on their intentions and six questions on their planning. However, the ratings were only done on two open ended questions, the main question on intentions (“I want you to tell me what you intend to do in this office building. Please tell me about each and every step – and try to be as detailed as possible”) and the main question on their planning (“Now, I want you to think back to when you planned your errand. I want you to tell me about your planning, and I want you to be as detailed as possible?”). The interview protocol contained the same questions for all participants.

*Post-Interview Questionnaire.* After the interview each participant filled out a post-interview questionnaire. Lying suspects were told that the role-playing part of the study was over, and that all questions should be answered truthfully. We asked participants to evaluate their experiences of the planning phase. The questionnaire contained questions such as how difficult they perceived the planning, and how satisfied they were with their planning and how satisfied they were with the amount of time that was allocated for the planning. In addition, each participant was given a copy of the interview protocol, and for each question s/he was asked to rate on a 7-point Likert scale (a) how anticipated that particular question was and (b) how difficult that question had been

to answer. Their response to the 11 questions were averaged to create a separate measure for cognitive complexity/intention (Cronbach's  $\alpha = .70$ ), anticipation/intention ( $\alpha = .77$ ), cognitive complexity/planning ( $\alpha = .85$ ), and anticipation/planning ( $\alpha = .91$ ).

### **Ratings of the statements**

*Richness of detail.* Two research assistants scored the richness of detail in the answers on a 7–point scale for both the main questions on intent (“I want you to tell me what you intend to do in this office building. Please tell me about each and every step – and try to be as detailed as possible”) and the planning (“Now, I want you to think back to when you planned your goal I want you to tell me about your planning, and I want you to be as detailed as possible”). The scores ranged from (1) *very low in terms of detail* to (7) *very high in terms of detail*. One assistant rated 100% and the other assistant 50% of the statements. The Intra-class Correlation Coefficient (ICC) was .79, 95% CI [0.66, 0.87] for details/intention and .80, 95% CI [0.68, .88] for details/planning, showing good inter-rater reliabilities.

*Content-based analyses.* Two research assistants rated whether they perceived each answer to the main question on intent to be characterized by information related to the questions *why* and *how*, respectively, on a 7-point rating scale. The ratings were scored on separate scales for information related to *why* and information related to *how*. The scores ranged from (1) *very low in terms of information related to the questions how/why* to (7) *very high in terms of information related to the questions how/why*. One of the assistants rated 100% and the other 50% of the statements. The ICC were .75, 95% CI [0.59, 0.85] for why/intention and .74, 95% CI [0.57, 0.84] for information how/intention. In addition, for the statistical analysis conducted on the Level of Detail and the Content-based analysis the partial eta squared effect size was reported. Partial eta squared is an effect size measure which looks at the proportion of variance that the

variable explains and which is not explained by other variables in the analysis (Field, 2009). The interpretative ranges for partial eta squared can be specified as following: small < .01, medium < .06, and large < .14 (Richardson, 2010).

## Results

### Manipulation Check and Preliminary Analyses

*Veracity.* The liars rated their degree of lying significantly higher than truth-tellers  $t(124) = 14.82, p < .001, d = 2.61$ , indicating that the participants complied with our instructions to lie or to tell the truth. The finding that truth-tellers rated to have lied to some degree during the interview can be explained by current experimental set-up (see Table 1). That is, truth-tellers were instructed to not mention that they participated in a study during the interview. In addition, there was no difference between liars and truth tellers in terms of how motivated they were to be believed by the interviewer,  $t(124) = -1.06, p = .29, d = -0.19$ . Critically, the absolute values (close to 6 on a 7-point scale) indicate both lying and truth-telling suspects were highly motivated. See Table 1 for M's and SD's.

*Perception of the planning phase.* As the planning phase was at the heart of the study, the participants were asked a number of different questions relating to this phase. First, truth-tellers (vs. liars) found it significantly easier to plan for their future events,  $t(124) = 3.83, p < .001, d = 0.67$ . Second, liars (vs. truth-tellers) were less satisfied with the planning phase,  $t(124) = -3.26, p = .001, d = -0.57$ . Third, liars (vs truth-tellers) were less satisfied with the time allocated to the planning phase,  $t(124) = -2.17, p = .03, d = -0.38$ .

### Anticipation and Cognitive Complexity

*Anticipation.* The questions about the planning phase were perceived as significantly more unanticipated than the questions about the stated intentions,  $t(124) = -14.69, p < .001, d = 1.18$ . The Cohens'  $d$  indicates a large effect. Therefore, we found support for Prediction 1.

*Cognitive complexity.* The questions about the planning phase were perceived as significantly more difficult to answer compared to the questions about the stated intentions,  $t(124) = -9.44, p < .001, d = 0.82$ . Furthermore, the effect size shows a large effect. This outcome supports Prediction 2.

### **Richness of Detail**

*The Planning Phase.* A 2 (Veracity)  $\times$  2 (Interview type) ANOVA with richness of detail as dependent variable showed a main effect for Veracity. The truth-tellers' answers ( $M = 3.20, SD = 1.55$ ) were perceived as significantly more detailed than the liars' answers ( $M = 1.98, SD = 1.01$ ) to the main question on the planning phase,  $F(1,121) = 34.43, p < .001, \eta_p^2 = .22$ . This supports Prediction 3a. Furthermore, we found a main effect of Type of Interview. The CI interviewees ( $M = 3.15, SD = 1.62$ ) were perceived to be more detailed in their answers to the main question on the planning phase in comparison to SI interviewees ( $M = 2.09, SD = 1.02$ ),  $F(1,121) = 24.78, p < .001, \eta_p^2 = .17$ . In addition, main effect of Veracity and Type of Interview both, showed large size effects. The Veracity  $\times$  Type of Interview interaction was also significant (see Figure 1),  $F(1,121) = 5.48, p = .02, \eta_p^2 = .04$ . This was followed up with simple effects tests for the SI and the CI condition; which showed that the truth-tellers' answers were perceived as significantly more detailed than the liars' answers for both the CI interviews,  $F(1,121) = 32.91, p < .001, \eta_p^2 = .21$ , and the SI interviews,  $F(1,121) = 6.37, p = .01, \eta_p^2 = .05$ . Critically, the difference between liars and truth-tellers was more pronounced in CI condition. Importantly, the effect size was larger for CI interviews, thus we found support for Prediction 3c (see Figure1).

*Intentions.* A 2 (Veracity)  $\times$  2 (Interview type) ANOVA with richness of detail as dependent variable showed a main effect for Veracity. The truth-tellers' answers ( $M = 2.66, SD = 1.16$ ) were perceived as significantly more detailed than the liars' answers ( $M = 1.97, SD = 0.82$ ) for the



main question on intent,  $F(1,121) = 17.31, p < .001, \eta_p^2 = .13$ . Furthermore, we found a main effect of Type of Interview. The CI interviewees ( $M = 2.66, SD = 1.16$ ) were perceived to be more detailed in their answers to the main question on intention in comparison to the SI interviewees ( $M = 1.97, SD = 0.82$ ),  $F(1,121) = 15.00, p < .001, \eta_p^2 = .11$ . The effect size for both main effect of Veracity and Type of Interview was close to large. The Veracity  $\times$  Type of Interview interaction was not significant,  $F(1,121) = 0.06, p = .06, \eta_p^2 = .03$ , which means that we did not find support for Prediction 3b. See Table 2 for descriptive statistics.

### **Goal-directed Behavior**

*Information related to how.* A 2 (Veracity)  $\times$  2 (Interview type) ANOVA showed a main effect of Veracity. Truth-tellers' ( $M = 5.29, SD = 1.36$ ) answers to the main question about their intentions contained more information related to *how* they were going to carry out their stated intentions in comparison to liars ( $M = 4.72, SD = 1.50$ ),  $F(1,122) = 5.13, p = .03, \eta_p^2 = .04$ , which supports Prediction 4a. The main effect for Interview Type was not significant  $F(1,122) = 1.50, p = .22, \eta_p^2 = .01$ , neither was the Veracity  $\times$  Type of Interview interaction effect,  $F(1,122) = 0.76, p = .38, \eta_p^2 = .01$ .

*Information related to why.* A 2 (Veracity)  $\times$  2 (Interview type) ANOVA did not show a significant main effect for Veracity  $F(1,122) = 3.70, p = .06, \eta_p^2 = .03$ . Thus, we did not find support for Prediction 4b. The main effect for Interview was not significant either,  $F(1,122) = 0.001, p = .98, \eta_p^2 = .00$ , but we found a significant Veracity  $\times$  Type of Interview interaction,  $F(1,122) = 5.18, p = .03, \eta_p^2 = .04$ . However, simple effects tests showed no significant differences between truth tellers and liars within the CI and SI conditions, both  $p$ 's  $> .05$ .

## Discussion

This study set out to examine differences between truth-telling and lying suspects with respect to their answers to questions about their stated intentions and the forming of these intentions. A major aim was to use elements of Cognitive Interview in order to try to further magnify the differences between truthful and deceptive statements. Overall, we found support for our predictions.

As predicted both liars and truth-tellers reported that the questions on their intentions were more anticipated than the questions on the planning of their stated intentions. For the present study this finding is critical; had the two sets of questions been perceived as equally anticipated, the rest of our reasoning would have been groundless. Furthermore, our prediction that both liars and truth-tellers would perceive the questions on the planning-phase (vs. the questions on the intentions) as more difficult to answer, also found support.

The planning phase is at the core of the unanticipated questions approach (as applied here) and we therefore asked our participants a number of questions relating to this phase. Truth-telling suspects perceived it as comparatively less difficult to plan for their future events. In addition, truth-telling suspects were comparatively more satisfied with the planning phase and the time allocated to the planning phase. However, as the ratings were done after the interview, it is reasonable to believe that the satisfaction with respect to planning is affected by the success of the interview. The finding that liars perceived the interview as comparatively more unanticipated and difficult might also explain why liars were less satisfied with their planning. Importantly, the absolute values indicated that both liars and truth-tellers perceived the planning phase as satisfying, and that the time allocated for planning was sufficient. In sum, we do not believe that liars' relatively lower satisfaction with their planning could be explained by having had too little time to plan.

In line with our prediction the truth-tellers' answers to the main question on the planning phase were perceived as significantly more detailed than the liars' answers. Furthermore, participants interviewed with CI gave more detailed answers than participants interviewed with the SI. Importantly, we also found an interaction effect, showing that truth-tellers gave more detailed answers to the main question on their planning than liars when interviewed with the CI. The same pattern emerged for SI interviews however, the difference between truth-tellers and liars was then less pronounced. This is an important finding as it demonstrates that using additional tactical components may be an effective way to magnify the differences between truthful and deceptive statements.

Somewhat unexpectedly, but in line with previous research (e.g., Sooniste et. al., 2013; Mac Giolla & Granhag, 2013), we found that truth-tellers' gave significantly more detailed answers to the anticipated question (i.e., liars mentioned less often facts about the company and the project leader with whom they claimed to plan to meet in order to protest against the fur project). Furthermore, participants in the CI condition gave more detailed answers to the question about their stated intentions compared to the participants in the SI.

Consistent with theoretical notions (Gollwitzer, 1990) and empirical research (e.g., Sheeran et al. 2005) on implementation intention, we found that truth-tellers' answers contained relatively more information about *how* the stated goal would be pursued. The significant interaction showed that liars and truth-tellers in the CI and SI interviews produced different results in terms of *how* to reach the goal. Liars and truth-tellers did not differ in terms of information related to *why* the stated goal had to be reached. This finding is not in line with previous results. Both Sooniste et. al., (2013) and Granhag, Mac Giolla and Liu Jönsson (2013) found that liars produced proportionately more *why* - related utterings. This inconsistency might be due to the differences in terms of experimental set-up. In the current study truth-tellers were asked to choose one of the

three protest letters which they preferred to hand over to the fur project leader, in addition they were asked to write a short motivation why they chose this particular letter. Furthermore, it is reasonable argue that planning for a protest may involve reasoning why it is necessary to stop the activity one wants to protest against (i.e., the fur-project). This might have primed truth-tellers to focus more on explanations why they picked this particular protest letter and why it is necessary to attain the stated goal.

Two further issues should be acknowledged. First, both deceptive and truthful statements contained information related to *how* and information related to *why*. Hence, based on information of either kind in a statement, one should not decide on the statement's veracity. Second, the implementation intentions theory specifies the *when*, *where* and *how* of what one will do, but for the current study we only focused on the *how* aspect. The reason for this was that the experimental set up was clearly situated in time and place (for both liars and truth-tellers). Therefore we had no reason to expect differences between liars and truth-tellers with respect to *when* and *where*. However, future studies in this domain, using a set-up where the *when* and *where* are up to the liar to decide, might profit from an analysis in which all aspects of implementation intentions are considered.

### **Limitations**

The current experiment was carried out in a controlled lab environment, which leads to some limitations with respect to generalizability. First, as noted above the study only dealt with situations in which the what, when and where was already decided. It is important to further examine the present approach for situations in which the participants are free to decide on the what, when or where.

Second, many of the participants were university students, which raise the question of to what extent our findings can be generalized to real-life settings. In connection to this we believe it is

important to acknowledge that our approach draws on liars' and truth-tellers' counter-interrogation strategies (Granhag & Hartwig, 2008; Mac Giolla, Granhag & Vrij, 2015). The counter-interrogation strategy most relevant for the current study is that liars will prepare ready-made answers to anticipated questions, and with this to make sure that the interviewer is convinced about why the stated goal is necessary to attain. Importantly, these assumption are not only derived from past research (e.g., Clemens et al, 2012; Granhag et al, 2013), but are also supported by so-called resistance-manuals (e.g., The Al Qaeda Handbook) and other texts written by terrorists for terrorists (e.g., Anders Behring Breivik's Manifesto). We speculate that some of the current differences might even be magnified in real-life settings, as real-life suspects will be relatively more motivated to act according to previously learned counter-interrogation strategies.

### **Implications and Conclusions**

With respect to the practical implications, we believe that any interview protocol that aims at discriminating between true and false intentions should target both the intentions as such, and the phase in which the stated intentions were planned. Keeping in mind that liars will prepare what to say, one should not ask anticipated questions only. Instead, one should concentrate on the answers given to unanticipated questions. Our paper shows that in order to decide whether a stated intention is true or false one need to know both (a) which questions to ask and (b) how to analyze the answers given. Importantly, the approach proposed in the current paper aims to improve the truth-tellers' performance during an interview in order to help the investigators to discriminate between truthful and deceptive statements about stated future acts. Finally, the current approach could be of value for situations such as detecting organized crimes and terrorist networks, where the investigators need to elicit information and/or assess the veracity of suspects' stated intentions. Notably, the approach taken here is fully in line with ethical guidelines on how to treat suspects in police interviews in countries such as Sweden and the UK.

The current paper is to be placed within the new wave of deception detection research characterized by asking questions strategically in order to elicit cues to deception and truth (Vrij & Granhag, 2012). Specifically, the current study represents a successful attempt to magnify the differences between deceptive and truthful answers. Furthermore, the current paper is one of the first to use the theory of implementation intentions to predict differences between statements expressing true and false intentions. The current attempt does not only add theoretical depth to past research, it also demonstrates that it is possible to differentiate between liars and truth-tellers by analyzing the answers given to questions targeting their intentions. Notably, there is a need for a theory-driven approach, which will illuminate differences with respect to liars' and truth-tellers' goal-directed behavior, and how these differences are manifested in how they communicate on goal pursuit.

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Table 1.

*Descriptive statistics for truth-tellers' and liars' perception of the planning phase and the questions*

Variable	Truth tellers		Liars	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Truth degree	1.64	1.17	5.06	1.44
Motivation	5.99	1.14	5.78	1.08
Difficult to plan	3.25	1.44	4.24	1.50
Planning satisfaction	5.16	1.26	4.38	1.48
Time satisfaction	5.57	1.58	4.90	1.89
Question anticipated	4.02	1.16	4.65	1.10
Question cognitive complex	3.17	0.94	3.78	0.98

*Note.* All variables range from 1 to 7.

Table 2.

*Descriptive statistics for truth tellers and liars by interview condition and question content for the dependent variables*

Question content	Interview	Truth tellers		Liars	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Richness of detail					
Intent	CI	3.16	0.17	2.18	0.16
	SI	2.13	0.72	1.81	0.17
Planning	CI	4.0	0.21	2.27	0.21
	SI	2.46	0.21	1.71	0.21
Goal-directed behavior					
Why	CI	1.50	0.19	1.94	0.19
	SI	2.30	0.20	1.87	0.19
How	CI	5.56	0.25	4.77	0.26
	SI	5.03	0.25	4.68	0.26

*Note.* All variables range from 1 to 7.

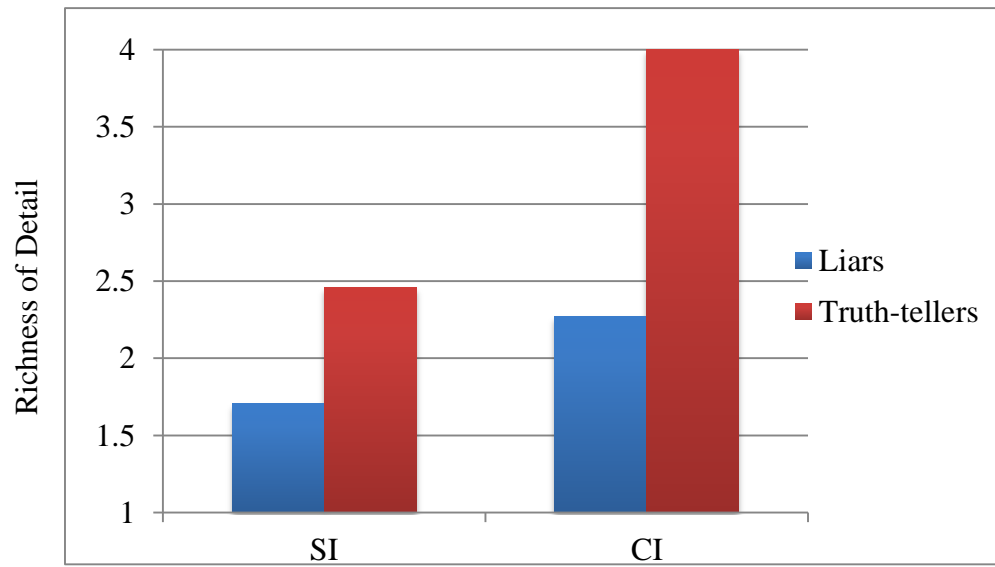


Figure 1. Interaction effect of Interview type by Veracity