



## IT'S THE INTENTION THAT COUNTS. A REVIEW ON DECEPTION DETECTION FOCUSED ON INTENTIONS

María Carmen Feijoo Fernández<sup>1</sup> and Lucía Halty<sup>2</sup>

<sup>1</sup>Guardia Civil. <sup>2</sup>Universidad Pontificia Comillas

*Durante años la investigación sobre detección del engaño ha estado guiada por las teorías clásicas que sustentaban la idea de que el mentiroso emitía indicadores conductuales que lo delataban. Dentro de las nuevas líneas de investigación, ha surgido la detección del engaño focalizado en intenciones. Haremos un repaso de los estudios sobre la detección del engaño localizados en intenciones futuras. Explicaremos brevemente el pensamiento episódico futuro (EFT), a continuación las primeras aproximaciones en este campo a través de la comparativa entre el engaño sobre hechos pasados vs futuros. Veremos además aquellos estudios que utilizan las preguntas inesperadas en un dominio no anticipado (fase de planificación de un viaje, calidad de esa planificación y sobre el pensamiento episódico futuro), y finalizaremos por los que manejan la evidencia de manera estratégica.*

**Palabras clave:** Detección engaño, Intenciones, Pensamiento episódico futuro.

*For years the research on deception detection has been guided by classical theories that support the idea that the liar gives out behavioral indicators which betray him/her. Within the new lines of research, deception detection focused on intentions has emerged. In this paper we review the studies on deception detection focused on intentions. We briefly explain episodic future thought (EFT) and the first approaches in this field through the comparison of deception detection in past and future events. Additionally, we take a look at the studies that use unexpected questions in a non anticipated domain (trip planning phase, quality of the planning, and EFT), and we finish by discussing the ones that use evidence strategically.*

**Key words:** Deception detection, Intentions, Episodic Future Thought, EFT.

**F**or decades the research on deception detection was based on the fact that the liar could be detected because he/she gives out behavioral indicators that reveal the falseness of his/her story. There have been several theories that tried to support and explain this statement: nonverbal leakage theory (Ekman & Friesen, 1969), multi-factor theory (Zuckerman, DePaulo, & Rosenthal, 1981), self-presentational theory (DePaulo, 1992; DePaulo et al., 2003) and interpersonal deception theory (Buller & Burgoon, 1994). In the forensic field, different techniques were developed to help establish the credibility of victims and witnesses, as well as to detect possible deception in the statements of delinquents and criminals. One example is the SVA (Statement Validity Analysis), the central part of which, the CBCA (Criteria Based Content Analysis, Steller & Köhnken, 1989), has been extended for use in fields other than the initial one, despite the criticisms made in this regard (Köhnken, Manzanero, & Scott, 2015). Other

examples are reality monitoring (RM, Johnson & Raye, 1981), or the Reid technique (Inbau, Reid, Buckley, & Jayne, 2011). The latter is taught regularly in training courses for police forces around the world, despite lacking scientific basis (for a recent review, Masip & Herrero, 2015a).

The results found in recent meta-analyses have revealed, on the one hand, the weakness of the behavioral indicators and their scarce relationship with deception, and on the other hand that the indicators of a verbal nature are related more to deception than those of a non-verbal character (DePaulo et al., 2003). Furthermore, we are not good at classifying truth-tellers and liars since our ability is very similar to choosing at random (Aamodt & Custer, 2006; Bond & DePaulo, 2008). Those belonging to groups, such as the police, judges, or doctors, for whom the detection of deception is fundamental, are no better either (Bond & DePaulo, 2006).

All this has led to the search for new methods to maximize the differences between liars and truth-tellers. Consequently, techniques based on the increase of the cognitive load have emerged, where, in addition, the interviewer plays an active role. An example of this kind of technique is found in interviews where the interviewer

Received: 10 abril 2017 - Accepted: 27 septiembre 2017

Correspondence: María Carmen Feijoo Fernández. Cabo 1º de la Guardia Civil, Unidad Fiscal y Aeroportuaria de Comandancia, Aeropuerto Adolfo Suárez Madrid Barajas, Frente Terminal 3. 28042 Madrid. España. E-mail: carmenfeijoo@guardiacivil.es



requests the story in reverse chronological order (Vrij et al., 2008). Others include techniques where the interviewee is asked to perform two tasks simultaneously or when the interviewer raises unexpected questions (Vrij et al., 2009).

In addition to the specific techniques cited, there are specific interview models that incorporate a tool to elevate the cognitive load of the interviewee. The two most advanced are, on the one hand, the TRI-Con (Time Restricted Integrity Confirmation, Walczyk et al., 2005) in which rapid responses are requested, and on the other, the SUE (Strategic Use of Evidence; Hartwig, Granhag, Strömwall, & Vrij, 2005) in which the evidence is treated strategically.

On the other hand, and as a criticism of the techniques of deception detection based on behavioral clues, there is another approach that looks for another type of indicators called contextual or situational ones (Park, Levine, McCornack, Morrison, & Ferrara, 2002) (for a recent review, Masip & Herrero, 2015b). Finally, and as a third line emerge investigations focused on future intentions, the subject on which this article focuses.

First, we will see how this new line arises, we will explain the concept of episodic future thought, and we will detail the first approaches that study general characteristics of true and false intentions (Vrij, Granhag, Mann, & Leal, 2011; Vrij, Leal, Mann, & Granhag, 2011). Then we will go into studies that raise unexpected questions related to travel and focused on an unanticipated aspect (the planning phase of a trip, the quality of the plans and episodic future thought) (Knieps, Granhag, & Vrij, 2013; Mac Giolla, Granhag, & Liu-Jönsson, 2013; Sooniste, Granhag, Knieps, & Vrij, 2013; Warmelink, Vrij, Mann, Jundi, & Granhag, 2012). We will finish with the studies that handle the evidence in a strategic way (Clemens, Granhag, & Strömwall, 2011).

### STARTING POINT

Derived from events related to terrorist attacks, both those carried out and those planned, there is a new wave of deception studies focused on intentions (Granhag, 2010). The ability to detect false intentions becomes fundamental in areas such as the airport, where thousands of passengers cross border and security controls. It is also crucial in areas where open or covert interviews are used such as the intelligence services. Therefore, it is necessary to design an interview protocol

(Granhag & Mac Giolla, 2014; Vrij & Granhag, 2014).

A young field of study, the definition of the word *intention* is taken from the studies on social cognition that describe it as the mental state of an individual that precedes an action that will take place in the future (Malle, Moses, & Baldwin, 2001).

Precisely because it is such a recent field, it is important to highlight several issues. In the first place, as Granhag (2010) points out, the correct establishment of the appropriate questions in the investigation. If we ask about the *intention* in the committing of a crime, we refer to the prospective memory and implementation of that intention. If we focus on how these criminal intentions are formed, we are talking about objectives (what), and planning processes (how) (Szpunar & Tulving, 2011).

A second issue raised by Granhag (2010) points to the difficulty of establishing the veracity of a statement in forensic investigations. As with past events, suspects tend to anticipate possible questions and prepare their stories in advance (Hartwig, Granhag, & Strömwall, 2007).

The third and final caution from Granhag (2010) emphasizes how to design an investigation in the experimental field. The keys provided by Granhag point to a design in which participants have a certain amount of time to plan an event, which for half of the sample consists of a simulated crime and they must produce a cover story (false intention), and the other half must tell a real story (true intention). All are intercepted before the intentions are carried out and both groups are interviewed (Granhag, 2010). Even though this has become the new design from which deception in intentions has been studied, it is necessary to delve more deeply into the characteristics of these intentions.

As pointed out by Schacter and colleagues (2008), generally when the intentions are relevant to the individual they are accompanied by a certain degree of planning. In addition, it requires a commitment to implementation in order to reach the objective set (for example, we may think about enrolling in a gym when September arrives because in summer we have gained weight –desire to implement– but when the time comes, we do not do it –the necessary commitment does not exist–), in other words, it is not a true intention but, perhaps, simply a desire (Schacter et al., 2008).

During the planning process of an intention, the individual uses his mental capacity to pre-experience the events that may occur in the future (Szpunar, 2010).



Although this is not a new concept, this skill has been given a name for the first time, “Episodic Future Thought” (EFT, Atance & O’Neill, 2001), and has become an essential part of the process of generation of intentions.

Before progressing with the development of this article, we will explain the concept of EFT and some of the research related to this type of mental image (Jeunehomme & D’Argembeau, 2017; Lehner & D’Argembeau, 2016). This will facilitate the understanding of the following sections where we will go into more detail on the studies on deception focused on intentions.

### EPISODIC FUTURE THOUGHT (EFT)

The human being has the ability to pre-experience events in which he sees himself in the future. This capacity is considered essential in the decision-making process, and the planning and achievement of objectives (Suddendorf & Corballis, 2007). Specifically, it provides flexibility in the preparation of plans aimed at achieving the proposed objectives (Schacter et al., 2008). To a large extent, this ability to imagine oneself in a future scene lies in the ability to recreate past scenes. These imagined scenes are closely linked to episodic memory, which favors the vividness and quality of the details that are recreated (Addis, Wong, & Schacter, 2008; Szpunar, 2010). Furthermore, the inability to recover from past experiences is associated with the same inability to imagine oneself in the future, and therefore, makes it impossible to generate images (for a recent review, Szpunar & Radvansky, 2016).

The evidence indicates that in order to construct these future mental representations, a first access to semantic memory is produced, and then the data are extracted from the episodic memory that help to complete the scene (D’Argembeau & Mathy, 2011). Not only is the importance of both types of memory emphasized, but when it comes to a personal objective, the construction of episodic future thought is favored (D’Argembeau & Mathy, 2011; Lehner & D’Argembeau, 2016). Other findings show that the familiarity of the place, of the people and of the imagined objects appear as strong predictors of the brightness of the recreated mental images. The subjective closeness and the conviction that the scene will really happen in the future increase the feeling of pre-experiencing the imagined scene (D’Argembeau & Van der Linden, 2012).

Further studies related to the simulation of future events show that the details of an imagined scene, the plausibility of it happening and the familiarity of the people imagined, are all important predictors in memory storage and subsequent retrieval (McLelland, Devitt, Schacter, & Addis, 2015). An essential part in the memorization and retrieval of a future simulation are people, places and emotions (Barsics, Van der Linden, & D’Argembeau, 2016; McLelland et al., 2015; Robin, Wynn, & Moscovitch, 2015; Szpunar, Addis, & Schacter, 2012), above objects or actions (Jeunehomme & D’Argembeau, 2017).

Now we have outlined some of the characteristics of EFT, we will go on to break down the different approaches in the investigations related to deception detection in intentions.

### FIRST APPROACHES TO DECEPTION DETECTION IN INTENTIONS

The initial studies in this field are from this very decade. In the first one, carried out in a London international airport, passengers were asked about what they were going to do in their place of destination (future intentions). In the answers the following were measured: the amount of detail, plausibility, contradictions and spontaneous corrections. The results showed that the statements of the liars were less plausible, had more contradictions and fewer spontaneous corrections than the declarations of the truth-tellers. On the other hand, no differences were found in the details provided by truth-tellers and liars (Vrij et al., 2011a).

The same researchers carried out a second study (Vrij et al., 2011b), in which they compared true and false stories referring to past and future actions. The participants were assigned a mission as undercover agents (to deliver a package to an agent located in a specific building, following a specific route). At the beginning of the mission, two agents (one friendly and the other enemy) intercepted all the participants. According to a previously agreed code, they told the truth to the friendly agent and they lied to the enemy agent. After the delivery, two new agents (one friendly and the other enemy) intercepted all the participants following the same procedure. In total, each participant was intercepted on four occasions, which meant telling the truth twice (once regarding intentions and once regarding past events) and lying twice. In the accounts of past events, it was found that the liars



provided less details and their statements were less plausible than those of the truth-tellers. In the stories about intentions, no differences were found in the amount of detail between the truth-tellers and liars, although the statements of the liars were less plausible. The recordings of these stories were used to evaluate the accuracy for the correct classification of the stories, with the result that regarding the past events an accuracy of 55% was achieved and 70% accuracy was reached regarding intentions (Vrij et al., 2011b).

### EXPECTED AND UNEXPECTED QUESTIONS IN AN UNEXPECTED DOMAIN

Among the innovative techniques of increasing cognitive load is the use of unexpected questions (Vrij et al., 2009). As it has already been done in studies on deception detection focused on past events, this technique has also been used to evaluate the accounts of future intentions (Mac Giolla & Granhag, 2015; Warmelink et al., 2012).

A first approximation was found in a study carried out on people who were selected between those who were going to make a trip in the near future, and others who were not planning to travel. Those who were not planning to travel were asked to prepare a story about a fictional trip (Warmelink et al., 2012). They were asked questions divided into four categories: a) general topics about the trip (for example, the purpose of the trip), b) data considered essential (detailed description of a main event planned for that trip), c) means of transport (in which specific means were they going to travel), and d) planning (which part of the trip was easiest to plan). All of them considered the general category of questions to be the most predictable, it being in this category where those who lied about their intentions mentioned more details. On the other hand, in the other categories the liars cited fewer details (visual and spatial), this being significant in the case of transport. The authors considered that the results could be motivated by the preparation that was expressly requested of the liars, together with the foreseeable anticipation of the questions of the general category. Therefore, they warned that caution should be exercised when evaluating the details given in the stories, since the mere quantification may not be correct (Warmelink et al., 2012).

Based on the use of unexpected questions, three different lines of research about intentions emerge, each one focusing the questions on a specific domain: planning,

quality of plans and episodic future thought (Vrij & Granhag, 2014).

### *Planning phase*

To address the planning phase, Sooniste and collaborators (2013) conducted a study within the simulated crime paradigm in which they posed questions about intentions (expected) and other specific ones about the planning phase (unexpected). Half of the sample had to plan a visit to a shopping center to buy gifts. The other half had to plan a visit to the same place but to leave a memory card containing illegal material on a shelf inside a specific store. All were intercepted before carrying out the plans, the first group having to tell the truth, and the second one having to give a cover story. Although both truth-tellers and liars considered the questions about the planning phase as less anticipated (less expected), the latter did so to a greater extent. Truth-tellers and liars perceived it less difficult to answer the questions about intentions, and therefore, more anticipated than those related to the planning phase. Truth-tellers and liars' responses to questions about intentions were equally detailed, coinciding with results found in previous research (Vrij et al., 2011a, Vrij et al., 2011b). Truth-tellers' answers to unanticipated questions were longer than those of liars, but there were no differences between truth-tellers and liars when responding to anticipated questions (Sooniste et al., 2013).

Similar results were found in two subsequent studies in which participants were divided into groups. Sooniste and colleagues (2016) designed an experiment in which a sample was divided into groups of two and four people. They were all provided maps of a large shopping center as well as various websites where they could consult details. The legitimate task was to plan a typical Swedish dinner for which they had to make a purchase at the mall. The liars had to collect four objects located in four different stores, so they also needed a cover story. Before carrying out the missions, all were intercepted in order to interrogate them separately about their intentions and planning. The quartets were divided into groups of two people each, and first one group was interrogated while the other waited, and then vice versa. The dyads were divided, and each participant was interrogated separately. The results showed that the truth-telling groups were more consistent in their responses than the liars in response to unexpected questions, but in the answers to



expected questions there were no differences between truth-tellers and liars. The answers to questions about the planning phase and about intentions were less detailed in the case of the liars (Sooniste, Granhag, Strömwall, & Vrij, 2016).

With the same design, Mac Giolla and Granhag (2015) proposed a study in which they divided the sample into groups of three, also making a comparison between single and repeated interviews (three successive times and minimum time between them). The results showed that the truth-telling groups gave longer and more detailed answers than the liars, both for questions about intentions and about planning. The authors affirmed that the repeated interviews did not provide benefits since they did not observe intra-group differences in the degree of consistency of the statements, or in the length of their statements (Mac Giolla & Granhag, 2015).

### **Quality of the plans**

Although with intentions a certain degree of planning is assumed for both true and false ones, these plans are expected to be qualitatively different in their construction (Sooniste, Granhag, Strömwall, & Vrij, 2015). This second approach focuses on the quality of the plans, assuming that the true stories will be characterized by markers indicative of good planning. An example of a marker would be to have anticipated any possible complication for the task (if they have ten minutes to drive from one place to another, taking into account a possible traffic jam). Effective time management is also considered to be a marker (if they have ten minutes and must perform several tasks, dividing and assigning each person a different one).

In a similar design, Mac Giolla et al. (2013) conducted a study with a sample that they distributed in groups of three. They assigned the planning of a neutral task to truth-tellers and of a simulated crime to the liars, intercepting all of them before the task to interrogate them. They found results in line with those described, since the truth-tellers mentioned on more occasions the markers assigned to good planning: the intention of dividing up when arriving at the commercial center and having anticipated some possible setback. However, the authors cautioned that these specific behaviors were closely linked to the context of this research, so their results could not be generalized to other situations (Mac Giolla et al., 2013).

Similar results were found by Granhag et al. (2016),

who tested the consistency in interviews repeated three times with intervals of ten minutes. They asked questions about both intentions and planning. Markers of good planning were examined, such as the anticipation of possible complications and having alternative plans. The results showed that truth-tellers and liars perceived the questions related to the planning phase as more unexpected and more difficult to answer than those related to the intentions. However, liars perceived greater difficulty in answering questions about intentions, contrary to the authors' expectations. The consistency in the interviews was similar although the answers to questions about the planning were less consistent than those regarding intentions (Granhag, Mac Giolla, Sooniste, Strömwall, & Liu-Jonsson, 2016).

### **Episodic Future Thought**

A third and final line focused on an unexpected domain is the one that deals with episodic future thought (Atance & O'Neill, 2001). This ability to imagine oneself in the future is characterized by presenting mental images of great sensory-perceptual vividness. The recreation of these images takes place during the planning phase of true intentions, and thus it is an essential part of them (Szpunar, 2010). It is assumed that people with true intentions will tend to plan them in a more detailed way and will resort more to EFT. On the contrary, those who fabricate a cover story will evoke mental images to a lesser extent and their characteristics will differ from those related to real intentions (Granhag & Knieps, 2011).

Based on the new research design, Granhag and Knieps (2011) conducted the first study on these mental images related to future actions. During the interview, participants were asked several questions related to the imagined mental images: a) to what extent they had evoked them, b) could they make as detailed as possible a description of the image, and c) any other question they wished to add. The results showed that those who related true intentions confirmed evoking the images to a greater extent (97%) than the liars (66%). In addition, qualitative differences were found, characterizing the false stories with less richness in the descriptions (fewer words used) (Granhag & Knieps, 2011). On the other hand, the participants were asked to fill in a questionnaire which included, among others, questions from the MCQ (Memory Characteristics Questionnaire, Johnson, Foley, Suengas, & Raye, 1988). They were asked to what



degree they had experienced certain details in the mental image evoked (auditory, visual or taste/smell type sensory details, spatial type situation of a person or object, and temporary details). The only differences were found in the temporal, and spatial details related to the situation of objects, which the truth-tellers expressed to a greater extent (Granhag & Knieps, 2011).

Later, Knieps, Granhag and Vrij (2013) carried out a study in which they tried to replicate the results obtained by Granhag and Knieps (2011). They also wanted to test the consistency of the descriptions in EFT in truth-tellers and liars, interviewing twice in the interval of a week. They analyzed the data of the transcribed and coded interviews (objective measurement), and those corresponding to a questionnaire completed by the participants after the interview (subjective measure). The results of the interviews showed that truth-tellers reported having evoked EFTs (93%) more than liars (71%), which showed the link between the creation of the intentions and the activation of the images, thus replicating the work of Granhag and Knieps (2011). No differences were found between truth-tellers and liars in the number of words used. In the subjective measures (questionnaires) and objective (transcriptions) ones, no clear differences were found in the details (sensory, spatial and temporal) (Knieps et al., 2013).

In a similar study, Knieps and Granhag (2013), again analyzed to what extent the participants evoked EFT, as well as differences in the details used in the description of the images. They interviewed the participants twice on the same day. The results showed that the truth-tellers to a greater extent than the liars evoked EFT in the planning phase: 96.7% and 100% in the truth-tellers (first and second interview respectively), compared to 76.7% and 83.3% in the liars. In line with what was found by (Knieps et al., 2013), no differences were found between truth-tellers and liars in the details analyzed either objectively (transcriptions) or subjectively (answers to the post-interview questionnaire) (Knieps & Granhag, 2013).

### STRATEGIC USE OF EVIDENCE IN INTENTIONS

Given the need to establish credibility and detect deception in forensic contexts, various interview protocols appeared. Among them, María Hartwig designed the technique known as SUE, which, unlike others, requires the interviewer to have evidence that he handles strategically during the interview (Hartwig et al., 2005).

The main assumption of this technique lies in the different mental states with which truth-tellers and liars face the interrogations.

Using this methodology, Clemens et al. (2011), put it to the test to detect false intentions. The participants were asked to prepare a task that on this occasion also included a series of requirements that had to be carried out, which left traces as evidence (tracking on a website, fingerprints on an envelope and collection of a memory card). Although both truth-tellers and liars performed all these tasks, each group had a different purpose. The liars had to tell a convincing cover story so as not to reveal their true intentions. All were intercepted before performing the final task, and all underwent three types of interviews. In the first interview they were confronted with the existing evidence at the beginning. In the following two interviews, the evidence was used strategically and was not presented until the end: SUE 1: a) free narrative/specific questions about planning, b) free narrative/specific questions about intentions; SUE 2, reverse order. In the interviews that used the evidence in a strategic way (SUE 1 and SUE 2), the results showed that the liars' statements were more inconsistent both in intentions and in the planning of the task (in free narrative and in specific questions). No differences were found when the evidence was exposed at the beginning of the interview. The authors concluded that SUE interviews turned out to be good for obtaining deception cues when evaluating intentions (Clemens et al., 2011), as had been found in the case of past events (Hartwig et al., 2005).

In this article we have presented the beginnings of new lines of research in the field of deception detection: lying about intentions. We began by exposing the problem, since this is a new field, as well as the first approaches. Next we specified the three main lines of study: unexpected versus anticipated questions, regarding an unexpected domain (planning, quality of plans and EFT), and finally we presented the studies that use the strategic use of evidence.

### CONCLUSIONS

The interest that deception detection has always provoked, together with the poor results obtained in the classification of truth-tellers and liars from the classical perspective, have guided the constant search for new detection methods. However, currently a new line of study has appeared whose focus of interest is focused on future events.



Although it has been in the area of forensic psychology where this new line has emerged, we can say that there are many potential areas where the psychologist must assess whether intentions are true or false. The following are examples of these situations: the clinical psychologist must detect the possible concealment of a suicidal idea or evaluate the true intention of adherence to a treatment; in the field of work and organizations, during interviews prior to hiring, the psychologist must delve into the real intentions of a potential candidate; and the educational psychologist must detect possible intentions of harassment before they materialize.

After all of the above, we can conclude that the results that are emerging in this new field will provide key tools that will be useful in multiple areas of psychology.

#### CONFLICT OF INTERESTS

There is no conflict of interest.

#### REFERENCES

- Aamodt, M. G., & Custer, H. (2006). Who can best catch a liar?: A meta-analysis of individual differences in detecting deception. *Forensic Examiner, 15*(1), 6.
- Addis, D. R., Wong, A. T., & Schacter, D. L. (2008). Age-related changes in the episodic simulation of future events. *Psychological Science, 19*(1), 33-41. doi:10.1111/j.1467-9280.2008.02043.x
- Atance, C. M., & O'Neill, D. K. (2001). Episodic future thinking. *Trends in Cognitive Sciences, 5*(12), 533-539. doi://dx.doi.org/10.1016/S1364-6613(00)01804-0
- Barsics, C., Van der Linden, M., & D'Argembeau, A. (2016). Frequency, characteristics, and perceived functions of emotional future thinking in daily life. *The Quarterly Journal of Experimental Psychology, 69*(2), 217-233. doi://dx.doi.org/10.1080/17470218.2015.1051560
- Bond, C. F., & DePaulo, B. M. (2006). Accuracy of deception judgments. *Personality and Social Psychology Review, 10*(3), 214-234. doi:10.1207/s15327957pspr1003\_2
- Bond, C. F., & Depaulo, B. M. (2008). Individual differences in judging deception: Accuracy and bias. *Psychological Bulletin, 134*(4), 477-92. doi://psycnet.apa.org/doi/10.1037/0033-2909.134.4.477
- Buller, D. B., & Burgoon, J. K. (1994). Deception: Strategic and nonstrategic communication. En J. A. Daly & J. M. Wiemann (Eds.), *LEA's communication series. Strategic interpersonal communication* (pp. 191-223). Hillsdale, NJ: Lawrence Erlbaum
- Clemens, F., Granhag, P. A., & Strömwall, L. A. (2011). Eliciting cues to false intent: A new application of strategic interviewing. *Law and Human Behavior, 35*(6), 512-522. doi:10.1007/s10979-010-9258-9
- D'Argembeau, A., & Van der Linden, M. (2012). Predicting the phenomenology of episodic future thoughts. *Consciousness and Cognition, 21*(3), 1198-1206. doi://dx.doi.org/10.1016/j.concog.2012.05.004
- D'Argembeau, A., & Mathy, A. (2011). Tracking the construction of episodic future thoughts. *Journal of Experimental Psychology: General, 140*(2), 258. doi://dx.doi.org/10.1037/a0022581
- DePaulo, B. M. (1992). Nonverbal behavior and selfpresentation. *Psychological Bulletin, 111*(2), 203-243. doi:10.1037/0033-2909.111.2.203
- DePaulo, B. M., Lindsay, J. J., Malone, B. E., Muhlenbruck, L., Charlton, K., & Cooper, H. (2003). Cues to deception. *Psychological Bulletin, 129*(1), 74. doi://psycnet.apa.org/doi/10.1037/0033-2909.129.1.74
- Ekman, P., & Friesen, W. V. (1969). Nonverbal leakage and clues to deception. *Psychiatry, 32*(1), 88-106. doi:10.1080/00332747.1969.11023575
- Granhag, P. A., & Knieps, M. (2011). Episodic future thought: Illuminating the trademarks of forming true and false intentions. *Applied Cognitive Psychology, 25*(2), 274-280. doi:10.1002/acp.1674
- Granhag, P. A. (2010). On the psycho-legal study of true and false intentions: Dangerous waters and some stepping stones. *The Open Criminology Journal, 3*, 37-43. doi://dx.doi.org/10.2174/1874917801003010037
- Granhag, P. A., & Mac Giolla, E. (2014). Preventing future crimes. *European Psychologist, 19*(3), 195-206. doi://dx.doi.org/10.1027/1016-9040/a000202
- Granhag, P. A., Mac Giolla, E., Sooniste, T., Strömwall, L., & Liu-Jonsson, M. (2016). Discriminating between statements of true and false intent: The impact of repeated interviews and strategic questioning. *Journal of Applied Security Research, 11*(1), 1-17. doi://dx.doi.org/10.1080/19361610.2016.1104230
- Hartwig, M., Granhag, A., & Strömwall, L. A. (2007). Guilty and innocent suspects' strategies during police interrogations. *Psychology, Crime & Law, 13*(2), 213-227. doi:10.1080/10683160600750264



- Hartwig, M., Granhag, P. A., Strömwall, L. A., & Vrij, A. (2005). Detecting deception via strategic disclosure of evidence. *Law and Human Behavior, 29*(4), 469. doi:10.1007/s10979-005-5521-x
- Inbau, F. E., Reid, J. E., Buckley, J. P., & Jayne, B. C. (2011). *Criminal interrogation and confessions*. Burlington, MA: Jones & Bartlett Publishers.
- Jeunehomme, O., & D'Argembeau, A. (2017). Accessibility and characteristics of memories of the future. *Memory, 25*, 666-676. doi://dx.doi.org/10.1080/09658211.2016.1205096
- Johnson, M. K., Foley, M. A., Suengas, A. G., & Raye, C. L. (1988). Phenomenal characteristics of memories for perceived and imagined autobiographical events. *Journal of Experimental Psychology: General, 117*(4), 371.
- Johnson, M. K., & Raye, C. L. (1981). Reality monitoring. *Psychological Review, 88*(1), 67. doi://psycnet.apa.org/doi/10.1037/0033-295X.88.1.67
- Knieps, M., Granhag, P. A., & Vrij, A. (2013). Back to the future: Asking about mental images to discriminate between true and false intentions. *The Journal of Psychology, 147*(6), 619-640. doi://dx.doi.org/10.1080/00223980.2012.728542
- Knieps, M., & Granhag, P. (2013). Repeated visits to the future: Asking about mental images to discriminate between true and false intentions. *International Journal of Advances in Psychology, 2*(2), 93-102.
- Köhnken, G., Manzanero, A. L., & Scott, M. T. (2015). Análisis de la validez de las declaraciones: Mitos y limitaciones. *Anuario De Psicología Jurídica, 25*(1), 13-19. doi://dx.doi.org/10.1016/j.apj.2015.01.004
- Lehner, E., & D'Argembeau, A. (2016). The role of personal goals in autonoetic experience when imagining future events. *Consciousness and Cognition, 42*, 267-276. doi://dx.doi.org/10.1016/j.concog.2016.04.002
- Mac Giolla, E., & Granhag, P. A. (2015). Detecting false intent amongst small cells of suspects: Single versus repeated interviews. *Journal of Investigative Psychology and Offender Profiling, 12*(2), 142-157. doi:10.1002/jip.1419
- Mac Giolla, E., Granhag, P. A., & Liu-Jönsson, M. (2013). Markers of good planning behavior as a cue for separating true and false intent. *PsyCh Journal, 2*(3), 183-189. doi:10.1002/pchj.36
- Malle, B. F., Moses, L. J., & Baldwin, D. A. (2001). *Intentions and intentionality: Foundations of social cognition*. Cambridge, MA: MIT press.
- Masip, J., & Herrero, C. (2015a). Nuevas aproximaciones en detección de mentiras I: Antecedentes y marco teórico [New approaches in deception detection I: Background and theoretical framework]. *Papeles del Psicólogo, 36*(2), 83-95.
- Masip, J., & Herrero, C. (2015b). Nuevas aproximaciones en detección de mentiras II: Estrategias activas de entrevista e información contextual [New approaches in deception detection II: Active interviewing strategies and contextual information]. *Papeles del Psicólogo, 36*(2), 96-108.
- McLelland, V. C., Devitt, A. L., Schacter, D. L., & Addis, D. R. (2015). Making the future memorable: The phenomenology of remembered future events. *Memory, 23*(8), 1255-1263. doi://dx.doi.org/10.1080/09658211.2014.972960
- Park, H. S., Levine, T., McCornack, S., Morrison, K., & Ferrara, M. (2002). How people really detect lies. *Communication Monographs, 69*(2), 144-157. doi://dx.doi.org/10.1080/714041710
- Robin, J., Wynn, J., & Moscovitch, M. (2015). The spatial scaffold: The effects of spatial context on memory for events. *Journal of Experimental Psychology: Learning, Memory and Cognition, 42*(2), 308. doi://dx.doi.org/10.1037/xlm0000167
- Schacter, D. L., Addis, D. R., & Buckner, R. L. (2008). Episodic simulation of future events. *Annals of the New York Academy of Sciences, 1124*(1), 39-60. doi:10.1196/annals.1440.001
- 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*(8), 673-685. doi://dx.doi.org/10.1080/1068316X.2013.793333
- 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, 56*(4), 371-378. doi:10.1111/sjop.12216
- Sooniste, T., Granhag, P. A., Strömwall, L. A., & Vrij, A. (2016). Discriminating between true and false intent among small cells of suspects. *Legal and Criminological Psychology, 21*(2), 344-357. doi:10.1111/lcrp.12063
- Steller, M., & Köhnken, G. (1989). Criteria-based





- statement analysis. In D.C. Raskin (ED), *Psychological methods in criminal investigation and evidence*, 20, 217-245.
- Suddendorf, T., & Corballis, M. C. (2007). The evolution of foresight: What is mental time travel, and is it unique to humans? *Behavioral and Brain Sciences*, 30(03), 299-313. doi://dx.doi.org/10.1017/S0140525X07001975
- Szpunar, K. K. (2010). Episodic future thought an emerging concept. *Perspectives on Psychological Science*, 5(2), 142-162. doi://doi.org/10.1177/1745691610362350
- Szpunar, K. K., Addis, D. R., & Schacter, D. L. (2012). Memory for emotional simulations remembering a rosy future. *Psychological Science*, 23(1), 24-29. doi://doi.org/10.1177/0956797611422237
- Szpunar, K. K., & Radvansky, G. A. (2016). Cognitive approaches to the study of episodic future thinking. *The Quarterly Journal of Experimental Psychology*, 69(2), 209-216. doi://dx.doi.org/10.1080/17470218.2015.1095213
- Szpunar, K. K., & Tulving, E. (2011). Varieties of future experience. In M. In Bar (Ed.), *Predictions in the brain: Using our past to generate a future* (pp. 3-12). New York: Oxford University Press.
- Vrij, A., Granhag, P. A., Mann, S., & Leal, S. (2011a). Lying about flying: The first experiment to detect false intent. *Psychology, Crime & Law*, 17(7), 611-620. doi://dx.doi.org/10.1080/10683160903418213
- Vrij, A., & Granhag, P. A. (2014). Eliciting information and detecting lies in intelligence interviewing: An overview of recent research. *Applied Cognitive Psychology*, 28(6), 936-944. doi:10.1002/acp.3071
- Vrij, A., Leal, S., Granhag, P. A., Mann, S., Fisher, R. P., Hillman, J., & Sperry, K. (2009). Outsmarting the liars: The benefit of asking unanticipated questions. *Law and Human Behavior*, 33(2), 159-166. doi:10.1007/s10979-008-9143-y
- Vrij, A., Leal, S., Mann, S. A., & Granhag, P. A. (2011b). A comparison between lying about intentions and past activities: Verbal cues and detection accuracy. *Applied Cognitive Psychology*, 25(2), 212-218. doi:10.1002/acp.1665
- Vrij, A., Mann, S. A., Fisher, R. P., Leal, S., Milne, R., & Bull, R. (2008). Increasing cognitive load to facilitate lie detection: The benefit of recalling an event in reverse order. *Law and Human Behavior*, 32(3), 253-265. doi:10.1007/s10979-007-9103-y
- Walczyk, J. J., Schwartz, J. P., Clifton, R., Adams, B., Wei, M., & Zha, P. (2005). Lying person to person about life events: A cognitive framework for lie detection. *Personnel Psychology*, 58(1), 141-170.
- Warmelink, L., Vrij, A., Mann, S., Jundi, S., & Granhag, P. A. (2012). The effect of question expectedness and experience on lying about intentions. *Acta Psychologica*, 141(2), 178-183. doi://dx.doi.org/10.1016%2Fj.actpsy.2012.07.011
- Zuckerman, M., DePaulo, B. M., & Rosenthal, R. (1981). Verbal and nonverbal communication of deception. *Advances in Experimental Social Psychology*, 14(1), 59. doi://dx.doi.org/10.1016/S0065-2601(08)60369-X

