



## Deception detection: State of the art and future prospects

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### Abstract

**Background:** Deception detection has been a longstanding concern throughout human history. It has also interested scientists, who have explored psychological and behavioral differences between liars and truth tellers, as well as ways to improve detection accuracy. **Method:** In recent years, substantial advances have been made in the field. Some of these advances are briefly reviewed in the current article. **Results:** A description is provided of (a) research and contemporary theories on how people (try to) detect deception; (b) recent advances on strategic interviewing to detect deception; (c) the integrative findings of recent meta-analyses on systematic verbal lie detection approaches; and (d) several important aspects concerning psychophysiological detection of deception. Also, some emerging trends and research needs for the future are outlined at the end of the article. **Conclusions:** Deception detection research is a lively and dynamic area of applied psychology that has experienced substantial developments in recent times. Much (though not all) of these research efforts have focused on developing empirically-based lie-detection procedures to be used by practitioners (e.g., the police) in applied settings. A number of new topics are just starting to be examined. These novel research avenues will surely yield interesting new findings in the future.

**Keywords:** Deception, lie detection, interviewing, CBCA, reality monitoring, polygraph.

### Resumen

**Detección de mentiras: estado de la cuestión y perspectivas de futuro.** Antecedentes: la detección de mentiras ha interesado a la humanidad a lo largo de la historia. También a los científicos, quienes han explorado diferencias psicológicas y conductuales al mentir vs. decir la verdad, así como modos de aumentar la precisión de la detección. Método: recientemente se han hecho avances sustanciales en esta área. En el presente artículo se revisan algunos de ellos. Resultados: se describen (a) las investigaciones y teorías contemporáneas sobre cómo la gente (intenta) detecta(s) mentiras; (b) los avances en procedimientos estratégicos de entrevista para detectar mentiras; (c) los hallazgos de meta-análisis recientes sobre aproximaciones sistemáticas para la detección verbal del engaño; y (d) algunos aspectos importantes de la detección psicofisiológica de la mentira. Al final del artículo se esbozan algunas tendencias emergentes y necesidades de investigación de cara al futuro. Conclusiones: el área de investigación de la detección de mentiras ha experimentado grandes desarrollos en tiempos recientes. A menudo (aunque no siempre) se ha centrado en desarrollar procedimientos de detección de mentiras de base empírica para su utilización en contextos aplicados (p. ej., por la policía). Algunas vías de indagación novedosas están empezando a explorar temas nuevos y, seguramente, darán lugar a futuros hallazgos nuevos e interesantes.

**Palabras clave:** engaño, detección de mentiras, entrevistas, CBCA, control de la realidad, polígrafo.

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# Aim

- Deception detection has also interested psychology and communication scholars, who have explored, among other topics, the liars' behavior, the detectors' strategies, and how to improve detection accuracy. In recent years, substantial advances have been made in the field. The goal of the current article is to briefly summarize some of these contributions, thus providing an updated (though necessarily incomplete because of space limitations) description of the state of the art in deception research. In the final section, some avenues for future research are outlined.

# How people (try to) detect deception

- Three millennia ago people already believed that behavioral cues reveal deception. This belief has persisted throughout history, not only among lay people worldwide (Global Deception Research Team, 2006) but also among scientists, who have spent several decades trying to identify valid behavioral cues to deception
- However, recent meta-analyses have indisputably revealed
  - that people can hardly detect deception from the observation of behavior (Bond & DePaulo, 2006)
  - that the connection between lying and nonverbal cues is weak
  - that cue training to detect deception hardly improves accuracy
- In short, people are poor judges of veracity

# Judgmental biases and the adaptive lie detector theory (ALIED)

- A well-established finding in deception research is that lay people display a truth bias—that is, they tend to believe others are telling the truth rather than lying (Bond & DePaulo, 2006; Levine, Park, & McCornack, 1999).
- A major conceptual contribution of ALIED is that the common view that truth- and lie-biases are irrational tendencies that limit judgmental accuracy is replaced with the alternative notion that receivers with no access to specific diagnostic cues make the rational decision to focus on the general context to make the best possible guess.
- ALIED has been empirically supported in experimental research where cue diagnosticity has been manipulated. The findings revealed that the less diagnostic the cues, the more the participants used context-general information (specifically, the base-rates of lying) to assess veracity (Street, Bischof, Vadillo, & Kingstone, 2016).

# Lie detection outside the laboratory

- Outside the laboratory lies are typically detected from contextual rather than behavioral information. Contextual information involves aspects such as physical evidence, third-party information, the liar's confession, and inconsistencies with prior knowledge.
- Furthermore, Park et al. found that outside the laboratory lies are typically detected in familiar others and long after they have been told.
- The superiority of contextual information compared to behavioral cues when it comes to judging veracity has also been demonstrated in experimental research.

*Table 1*  
Propositions of Levine's (2014) Truth-default Theory

01. Most people tell the truth most of the time.
02. Most lies are told by a few prolific liars.
03. Most people believe what others say most of the time (truth bias).
04. This is adaptive (because most communications people encounter are honest) and enables efficient communication. However, it makes people vulnerable to occasional deception.
05. Both truthful and deceptive messages are means to attain certain goals. Most people do not lie if their goals can be attained telling the truth.
06. When the truth is inconsistent with the sender's goals, people may doubt veracity.
07. Other "triggers" raising suspicion are a lack of coherence (internal logical consistency) in message content, discrepancies between the message and the known reality, and third-party information revealing deception.
08. If these triggers are strong enough, the person will scrutinize the message to assess veracity.
09. The person may judge the message as deceptive on the basis of communication context and motive, sender demeanor, third-party information, and degree of coherence and correspondence.
10. Deception triggers may not occur at the time of the deception.
11. Because (except for a few transparent liars) the relationship between veracity and behavior is poor, deception is not accurately detected by passively observing the senders' behavior at the time the lie is told.
12. Instead, whenever deception is detected, this occurs later in time via the liar's confession, external evidence, or correspondence.
13. Context-sensitive questioning of the sender can produce diagnostic information. The wrong questioning may hinder detection accuracy.
14. Deception detection expertise does not involve skill in passively detecting and interpreting behavior but in generating diagnostic information from senders.

# How to detect deception

- The evidence that behavioral cues to deception have little diagnostic value has led to a shift in deception research.
- Many researchers are interested in designing interview strategies oriented to produce behavioral differences between truth-tellers and liars.
- Vrij (UK) and Granhag (Sweden). The focus of this research is applied, as its ultimate goal is to provide the law enforcement with lie detection tools to be used when questioning crime suspects.
- These interview approaches need to be based on psychological differences between truth tellers and liars. For instance, Granhag, Hartwig, Mac Giolla, and Clemens (2015) argue that guilty suspects (liars) are unwilling to provide information to the police because this may expose them
  - avoidance strategies
  - escape strategy of denying that evidence



# How to detect deception

- Strategic Use of Evidence

- Guilty suspects are expected to carefully avoid mentioning any potentially incriminating information, which will elicit statement evidence inconsistencies.
- A metaanalysis showed that the difference between liars and truth tellers in terms of statement-evidence inconsistencies was substantially larger when the SUE technique was used

- Verificability approach

- Guilty suspects provide little detail the police can check
- Liars provide unverifiable details
- Conversely, truth tellers will provide more verifiable details than liars
- This approach is immune to countermeasures: even if liars are aware that they must provide verifiable details, only truth tellers are in a position to provide them
- Thus, the explicit request to include verifiable details in the account increases the difference (in terms of this kind of details) between liars and truth tellers, thus enhancing the differentiation power of this technique

# How to detect deception

- Cognitive load approaches
  - asking interviewees to describe the events in the reverse (instead of chronological)
  - conducting the interview in a foreign language
  - asking interviewees to stare at the interviewer's eyes
  - performing a secondary task during the interview (for an overview)
  - encouraging interviewees to say more
  - asking unexpected questions
- Systematic verbal lie detection approaches
  - Although behavioral cues are generally poor indicators of deception, meta-analyses show that verbal cues are more diagnostic than nonverbal cues
    - Reality Monitoring (RM)
    - Criteria-based Content Analysis (CBCA)
- Psychophysiological detection of deception
- Lie detection tests

# Future direction

- The Activation-Decision-Construction-Action-Theory (ADCAT, Walczyk et al., 2014) is a new approach that utilizes an adapted cost-benefit formula, put forward by Stanovich (2010), to reflect the **quasi-rational decision-making processes** involved when making a decision to tell a truth or lie.
- The Decision component of the ADCAT utilizes a cost-benefit formula to explain the **cognitive, motivational and social processes** involved in deception.