

## Opinion

## Can Ordinary People Detect Deception After All?

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The tipping point framework of lie detection posits that people can, and do, accurately detect deception. This framework pinpoints three circumstances that aid accuracy: (i) using methods of measurement that circumvent controlled, conscious cognition; (ii) when individual differences or situational factors portend potent risks to lie detection failure, such as in high-stakes or threatening settings; and (iii) when factors diminish concern over the relationship or reputation costs of asserting that someone has lied. We thus depict a psychological system that registers lie detection consistently in nonconscious reactions (e.g., brain based, bodily, indirect social evaluations) and that allows information into consciousness to inform overt assessments of lies when the costs of failing to detect deception exceed those of signaling distrust.

**Detecting Lies: Accuracy and Social Costs**

People communicate to cooperate, persuade, solve problems, and socially bond, as well as to compete, exploit, and deceive. To create lasting bonds and achieve collective goals, people's communications should be honest, faithful, and worthy of trust. Honest communications are paramount when people are motivated to benefit the group, whereas self-interest motives can stimulate the desire to misrepresent reality to benefit the self above others. From an evolutionary perspective, the presence of deceit should give rise to the ability to detect deceit due to the need to determine whom and what to trust [1,2]. Despite the importance of detecting lies, people consistently fall short of being able to accurately detect deception [3].

This Opinion article offers a fresh look at an old question: can people detect lies? By lies, we mean intentional attempts to convince others of information that the communicator believes to be untrue (i.e., lies of commission [4]). Hundreds of investigations have asked people to make an explicit assessment of veracity in response to the question 'Is that person lying or telling the truth?' Meta-analyses put average accuracy at 54% [3,5]. For a dichotomous outcome, this rate is statistically, although not impressively, greater than chance. What is more, overall accuracy is driven by better-than-chance accuracy for detecting truths (61%), but not lies (48%) [3]. Accuracy rates are consistent with the truth bias [6–8], which is the tendency to report that people are more likely to be telling the truth than lying. The truth bias is pervasive and likely to be due to the propensity to trust communications from others and to signal that trust [9–11]. As we argue next, the truth bias also is consistent with the notion that there are social costs to claiming to have witnessed a lie.

Consider the typical paradigm used in lie detection studies. People witness others' statements and then explicitly report whether what they heard was a lie. Now consider the same situation outside the context of a laboratory experiment. Immediate assertions of having witnessed a lie, particularly if mistaken, could be costly to the declarer. First, there are potential reputation costs. Catching someone in a lie often takes time and the possession of third-party information or objective evidence [12], which means that claiming to have witnessed a lie in the immediate

## Trends

When explicitly asked whether a speaker is lying or telling the truth, people perform poorly. Any above-chance accuracy is generally attributable to correct detection of truths, not lies, thus showing a truth bias.

Implicit and indirect methods suggest that the nonconscious mind may accurately detect deception.

Emerging research highlights contexts that improve explicit lie detection accuracy. These conditions center on increasing the cost of being deceived – often by implied threats to perceivers' safety or well-being – and social conditions that license lie detection, which decrease the cost of signaling distrust.

The tipping point framework of lie detection suggests that nonconscious (accurate) information about having witnessed a lie can enter into consciousness when the costs of being deceived outweigh the cost of signaling distrust.

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aftermath of hearing it entails the risk of being wrong. Claims to have seen someone tell a lie are tantamount to branding the person a liar [13] and hastily made moral judgments are seen as especially strong reflections of the judge's moral character [14]. Taken together, these ideas raise the possibility that quick declarations that someone has lied (viz., is a liar) could lead the perceiver to be labeled as someone who impulsively impugns others' moral character and therefore is not to be trusted.

Second, there are potential costs to the communicator–receiver's relationship to asserting that the communicator has lied. Claiming that one has been lied to intimates suspicion and a lack of trust. Trust is an integral component of both exchange and communal relationships and conveying a lack of trust in one's partner can damage relationship quality or dissolve the relationship altogether [15–17].

The potential costs of accusing someone of having lied are set against the evolutionary importance of spotting lies. Being on the receiving end of a lie is a tacit sign of disrespect. Lies rob the receiver of the chance to act to achieve personally optimal outcomes. Acting on lies can threaten receivers' health, safety, and well-being and accordingly should incite responses consistent with a threat response [18]. As mentioned, the risks of acting on a lie are great enough that the psychological system should have developed sensitivities to deception cues [1].

We therefore posit that there are two competing forces at work when there is the chance of having been lied to: the danger of believing and acting on lies, which should have produced an ability to detect lies, versus the social harms that can follow from claiming to have witnessed a lie, which should have produced hesitation to overtly declare someone a liar. We propose that the psychological system dealt with these forces by allowing the nonconscious system to detect deception through activating threat responses when cues to deception are present and perceptible (e.g., lack of detail, vocal uncertainty, equivocal language, lip presses, perceived uncooperativeness, inappropriate emotional expression [19–21]) while largely keeping that information out of consciousness until the costs of claiming that one has been deceived outweigh the cost of signaling distrust.

Such a system would have several advantages. First, nonconscious processes can change behavior without having to go through consciousness [22]. Hence, nonconscious processes could steer people away from liars and toward truth-tellers, which would help protect people from the dangers of following lies and liars while minimizing harm to perceivers' reputations and relationships.

Second, if cues to deception enter into consciousness, they could impel the perceiver to confront the liar since one of the key functions of consciousness is to facilitate verbal communication [23]. Even correct assertions of having witnessed a lie are likely to incite negative reactions or angry denials by the accused, which may explain why people wait for further evidence to support their suspicion before claiming they witnessed a lie [12]. Hence, registering lies in nonconsciousness – in neurological responses, physiological reactions, and social evaluations – while keeping that information largely out of explicit, conscious awareness (unless or until the costs of being deceived are high) would have the advantage of avoiding future contact with the liar as well as offsetting potential blowback to the perceiver.

### The Tipping Point Framework of Lie Detection

We propose the tipping point framework of lie detection, which contends that people can and do accurately detect deception at nonconscious levels, and sometimes consciously. Lie detection is revealed in implicit, nonconscious patterns and in explicit judgments when the costs of failing to detect deception ( $\epsilon_{\text{failed.detection}}$ ) are higher than the costs of asserting having seen a lie ( $\epsilon_{\text{social.cost}}$ ),

where  $\epsilon$ , or epsilon, represents error. This framework therefore specifies two circumstances in which veridical lie detection should be observed: indirect social evaluations that circumvent the requirement of binary explicit assertions of veracity and circumstances that tip the costs away from  $\epsilon_{\text{social.cost}}$  and toward  $\epsilon_{\text{failed.detection}}$ .

This theory suggests several hypotheses. One, implicit measures should show that people are sensitive to lies, especially as revealed by processes related to threat detection. Two, when the social costs of claiming to have witnessed a lie are relatively high, conditions that dampen conscious processing should enhance lie detection accuracy whereas conditions that encourage deep conscious processing should impair lie detection accuracy. Three, where the costs of failed detection are high, such as threats to personal health and safety, explicit reports should be more accurate than otherwise. Four, conditions that insulate people from the potential social costs of claiming to have witnessed a lie should improve explicit accuracy.

To the extent that cues to deception are present and perceptible [19,20], the tipping point framework predicts that nonconscious reactions will reveal sensitivity to liars (versus truth-tellers) and that this sensitivity will become manifest in explicit lie detection judgments when the cost of being deceived overcomes that of signaling distrust. Shifting costs of calling someone a liar and of being deceived are also likely to shift response biases (i.e., the tendency to label an actor a liar or truth-teller regardless of how the actor behaved). Both of these shifts are likely to affect accuracy and should be a focus of future research [24].

Although research efforts have primarily studied laboratory lies and lie catchers, where the social costs of being deceived and labeling someone a liar are low, the literature nonetheless offers supportive evidence for these hypotheses. The empirical fact of a pervasive truth bias, even in laboratory tasks, suggests that – despite using settings devoid of others' physical presence (e.g., as in when research participants make judgments after observing video footage of actors) – people nonetheless behave as though they are in a live social interaction.

We next describe findings relevant to the tipping point framework. We supplement the existing evidence with recommendations for future investigations (Table 1, Key Table).

### Brain, Mind, and Body Evidence

While decades of research shows that explicit judgments are not sensitive to lies and truths [3,25], there is evidence that the nonconscious system does distinguish between lies and truths in low-level cognitive patterns. One investigation had people view actors lie or tell the truth. Later, without knowing the statements' veracity, people saw brief subliminal flashes of actors' faces, immediately after which they classified words as belonging to the semantic categories of lies or truths. People were faster at classifying words as being in the category of lies (e.g., lies, deception) after seeing liars' faces and words as being in the category of honesty (e.g., honesty, truths) after seeing truth-tellers' faces [26]. While some have argued, and we agree, that the effects are modest in size, these results are cause for further investigation of low-level cognitive patterns in response to lies (versus truths) and are consistent with a growing body of research using alternative measures of nonconscious reactivity [27,28] (see also [29]).

Being lied to is a threat to one's social standing, relationships, and well-being. Hence, lies should produce bodily responses that alert people to potential social threats. The amygdala, one such key area [30], increases in activity when people watch someone lie versus tell the truth [31,32]. In line with our contention that personal threats sensitize people to lies, amygdala activation is greater when people watch a video of themselves being lied to versus told the truth. By contrast, amygdala activity does not change while watching others being deceived (versus told the truth) [33]. Physiological responses also provide evidence of implicit lie detection. When people

## Key Table

Table 1. Novel Hypotheses Following from the Tipping Point Framework of Lie Detection

Methodological Approach	Example Hypothesis in Each Domain	Articles Testing Related Hypotheses
<i>Indirect Sources of Lie Detection Accuracy</i>		
fMRI	Different brain regions will be recruited to process truths versus lies; more amygdala activation to lying murderers or rapists (versus those telling the truth)	[31–33]
Cognitive response time paradigms	Stronger association between liars and deception-related concepts and truth-tellers and honesty-related concepts (relative to the inverse)	[26]
Subliminal paradigms	Faster reaction times to concepts consistent with lies versus truths following subliminal presentation of a liar versus a truth-teller	[26]
Physiological reactions	More physiological threat while observing liars versus truth-tellers; more physiological engagement while observing truth-tellers versus liars	–
Nonverbal reactions	More nonverbal expressions of fear when observing liars (versus truth-tellers)	–
Judgment/behavior to hire	Increased likelihood of hiring truth-tellers (versus liars)	–
Judgment/behavior to become romantically involved	Increased likelihood of flirting with, attraction toward, interest in, or choosing to date truth-tellers (versus liars)	–
Judgment/behavior to befriend	Increased likelihood of desire to interact with or confide in, choosing to have coffee with, or reports of having fun with truth-tellers (versus liars)	–
Judgment/behavior to invest (\$)	Increased likelihood of investing in a small venture pitched by a truth-teller (versus liar)	–
Positive/negative trait attributions	Liars seen as more negative than truth-tellers in non-deception-related attributes such as smart, funny, kind, or interesting	–
Presence of cues to deception	Cues to deception are hypothesized to elicit nonconscious and implicit reactions to lies (versus truths); lies that include few cues to deception should produce weaker nonconscious reactions than lies including robust cues to deception	–
Origins: nonhuman primates	Nonhuman primates can detect deception at higher rates than humans using the same (explicit) experimental paradigm	[53]
Origins: canine detection	Canine behavior will reveal a preference for approaching truth-tellers and avoiding liars	[54]
Conscious access: interoception	Individuals reporting high trait interoceptivity will be more sensitive to implicit threat signals occurring in their own bodies and detect deception at higher rates than those reporting low interoceptivity	–

Table 1. (continued)

Methodological Approach	Example Hypothesis in Each Domain	Articles Testing Related Hypotheses
<i>Contexts, Conditions, and Individual Differences that Alter <math>\epsilon_{\text{social.cost}}</math> and <math>\epsilon_{\text{failed.detection}}</math></i>		
Decreasing $\epsilon_{\text{social.cost}}$		
Organization	Wall Street traders (i.e., competitive organizational climate) higher on accuracy than equally high-status nonprofit workers (i.e., cooperative climate)	–
Cultures	Explicit lie detection accuracy higher in countries reporting decreased interpersonal trust (e.g., Russia, Japan)	–
Professions	Secret service agents focused on accuracy more accurate than police officers focused on a conviction	[25]
Rules	If rules are explicit to suppress trust/cooperation norms, accuracy improves	–
Group pressure/conformity	If group norms suppress trust/cooperation, accuracy improves	[50]
High-status exemplar	If a high-status group member (e.g., CEO) professes a norm of competition, the accuracy of others in his/her organization will increase	–
Trait: low agreeableness	Individuals reporting low trait agreeableness will perceive less social cost in signaling distrust, making them more accurate lie detectors than agreeable individuals	–
Trait: behavioral avoidance	Individuals reporting high behavioral avoidance/inhibition will be more accurate lie detectors than individuals reporting low behavioral avoidance or high behavioral approach motivation	–
Increasing $\epsilon_{\text{failed.detection}}$		
Physical: hunger/thirst	Sufficient food/water deprivation will enhance accuracy	–
Physical: urinate/defecate	Being prevented from fecal/urinary evacuation will enhance accuracy	–
Physical: move body	Being physically bound and unable to move will enhance accuracy	–
Physical: sleep	Sufficient sleep deprivation will enhance accuracy	–
Physical: unsatisfied sexual arousal	Subliminal exposure to pornography coupled with the absence of ability to satisfy arousal will enhance accuracy	–
Emotional: safety/danger	Experiencing a gun pointed at one's face will enhance accuracy	–
Emotional: social exclusion	Experiencing social exclusion will enhance accuracy	–
Emotional: stress/well-being	Experiencing stress after the Trier Social Stress Test (versus a neutral condition) will enhance accuracy	–
Psychological: powerlessness	Feeling powerless (versus powerful) will enhance accuracy	–

Table 1. (continued)

Methodological Approach	Example Hypothesis in Each Domain	Articles Testing Related Hypotheses
Psychological: uncertainty	Feeling uncertain (versus certain) about one's future will enhance accuracy	–
Psychological: poverty	Feeling poor (versus rich) will enhance accuracy	–
Psychological: lack of meaning	Performing tasks without meaning (versus those with meaning) will enhance accuracy	–
Psychological: lack of self-esteem	Receiving false feedback about failing a self-relevant and important test (versus succeeding) will enhance accuracy	–
Trait: anxiety/threat sensitive	Highly threat-sensitive individuals will show greater lie detection accuracy than less threat-sensitive individuals	[47]

observe lies, their skin temperature drops from baseline [34], a physiological marker of feeling threatened [35].

#### Indirect Social Evaluations

Evaluations of liars versus truth-tellers on dimensions less morally charged than veracity also reveal signs of lie detection accuracy. Whereas some research has asked people to evaluate specific behaviors of communicators, which could differentiate liars from truth-tellers only to the extent that they direct observers toward valid cues to deception [36,37], more global, social evaluations may provide more latitude for nonconscious sensitivity to deception to emerge.

For instance, in studies that do not inform people whether a friend was experimentally assigned to tell a lie or the truth, people feel less comfortable and more suspicious following a face-to-face interaction in which their friend was instructed to lie, although their explicit lie detection reports were no better than chance [38]. Such reactions to interactions with liars may encourage avoidance of them. In economic games in which pairs of strangers exchanged messages to decide how to split a sum of money, people who had unknowingly been lied to by their partner reported being less interested in interacting with that person in the future [39]. Finding liars less compelling than truth-tellers for social interactions would reduce the likelihood of being told subsequent lies or becoming ensnared in relationships with untrustworthy partners without having to brand them liars.

#### Cognitive Processing Factors

The tipping point framework contends that many – if not most – of the instances in which people witness a lie are those with high costs of asserting the possibility and lower costs of the harms that follow from being deceived but that people nonetheless are likely to be nonconsciously sensitive to lies. Accordingly, manipulations that constrain conscious processing and therefore allow nonconsciousness to dominate are predicted to improve lie detection – which they do. Giving people less information – 15 s of video footage versus 3 min – improves the accuracy of explicit reports of lie detection by up to 15% [40]. Lie detection also is better when people view potentially deceptive statements while their minds are busy with a concurrent task compared with when people's minds are unencumbered [40]. Lacking the ability to deeply process oral statements can enhance lie detection accuracy too. Patients who have damage to speech comprehension areas of the brain and therefore are hampered in using oral cues bested healthy observers' lie detection accuracy (60% versus 47%, respectively) [41]. Related to this, an unconscious thought paradigm [42] where people are kept from consciously deliberating during

the time between them receiving others' communications and when they are instructed to make veracity judgments improves lie detection accuracy by 11% to 32% relative to actively deliberating about the lie detection decision [43].

Complementing work on the benefits of curtailing conscious processing for lie detection tasks is a host of work showing that motivational and attentional exhortations hinder lie detection. Motivating people by telling them that accurately detecting lies is a sign of intelligence and that they will be rewarded for accuracy – both of which encourage conscious thinking about veracity judgments – decreases lie detection accuracy (46%) relative to a condition that depicts the task as unimportant and offers no reward for accuracy (60%) [44] (see also [45]).

In summary, instructing people to deliberate about making explicit reports of having witnessed lies or truths worsens lie detection, whereas mental busyness distractors and other methods that hamper conscious processing enhance lie detection. This research has focused primarily on lie detection in contexts in which the social costs of being deceived are low. According to the tipping point framework, accurate information in these settings is registered mainly in nonconsciousness.

#### Personal Cost of Being Deceived

People generally trust others, which partly underlies poor performance on explicit lie detection tasks [8]. People who trust more in the fairness of life's outcomes are worse at lie detection than others because they exhibit higher-than-normal rates of truth bias [46]. According to the tipping point framework, increasing the personal cost of being deceived should decrease the truth bias and allow nonconscious sensitivity to deception to improve explicit lie detection accuracy.

Factors that decrease the truth bias in explicit evaluations often imply social, physical, or psychological threats to the perceiver, congruent with the tipping point framework. For example, chronic dispositions toward threat vigilance are associated with lie detection accuracy. People with a high degree of relationship anxiety are more accurate detectors of lies than low-anxiety people [47]. Police officers – for whom undetected lies threaten personal and public safety – do not show the standard truth bias but rather evince a lie bias [48]. Repeatedly facing potentially dramatic costs of missing a lie may tip the scales so far that a lie bias prevails over accurate evaluations of behavior.

Psychological states associated with threat enhance lie detection ability. Conditions that make people feel distressed, as opposed to positive or neutral, raise the rates of correctly identifying lies [49]. Being reminded of one's own impending death – perhaps the ultimate threat – also improves lie detection relative to a neutral condition, particularly for highly trusting people (57.4% versus 51.6%, respectively) [46].

In summary, emerging research reveals manipulations and individual differences that predict explicit lie detection accuracy. Consistent with the tipping point framework, these contexts, conditions, and traits center on the experience of threat, which can alert people to the high costs of being deceived.

#### Social Costs of Signaling Distrust

Diminishing the social costs of signaling distrust helps lie detection. One clever study showed that, during a group activity, people were unaware of a traitor among them (with no one reporting suspicion that the study involved deception). After the group broke up and individuals learned that there had been a traitor present, accurate identification of who it was went up to 66% [50]. When the group task ended, thus weakening the social cost of signaling distrust, people could access veridical latent information to inform their judgments.

When everyone in a group is trying to assess who lied, the costs to any one individual's reputation are lower because others are performing the same assessments. In line with this idea, lie detection is better when performed in a group (experiment 2: 60%), an improvement beyond that gained from statistically combining individual assessments (54%) [51]. When social norms shift and license people to catch liars, thus attenuating the social costs of declaring someone a liar, accuracy improves.

One recent investigation manipulated key aspects of the tipping point model. It included a condition where people were reminded of dying and, independently, of the societal importance of honesty; that is, a condition that married personal threat with lowered cost of declaring to have witnessed a lie. This combination improved the detection of lies (58%) relative to a condition with the social cost message but no mortality reminder (49%). Another study contrasted the effect of mortality salience in combination with messages stressing the importance of honesty versus the importance of group solidarity (thus increasing the costs of signaling distrust). Lie detection was worse than when the death cue was paired with messages about group solidarity (34%) as opposed to honesty (48%) [52].

Together these findings suggest that explicit lie detection accuracy is likely to be observed when the personal costs of being deceived are high and the social costs of signaling distrust are low. Group discussions about possible liars, making lie detection judgments after but not during cooperative tasks, and making salient the societal importance of rooting out liars all diminish the potential costs of making a lie detection assertion. As a result, information about the social threat of a lie can better enter into conscious awareness and improve explicit, direct assessments of veracity.

### Concluding Remarks and Future Directions

Detecting lies protects people from the problematic and dangerous outcomes that can result from acting on falsehoods and following people who are not to be trusted. Although there may be costs to believing falsehoods, there also may be costs to asserting that one has witnessed a lie. Claiming to have witnessed a lie is morally equivalent to branding someone a liar and if that assertion is in error – and sometimes even if not – the relationship with the putative liar can suffer, as can perceivers' social standing. According to the tipping point framework, the psychological system copes with these competing costs by enabling nonconscious reactions while mainly keeping lie detection information outside conscious awareness. These proposed processes have empirical support, as our review shows. Verbal reports indicate that people are fairly poor at consciously knowing who is a liar. Indeed, contexts that inspire deep thought about the lie detection judgment worsen accuracy whereas those that limit the amount of conscious deliberation aid overt assessments of lie detection.

Nonconscious recognition of lies is seen in brain, bodily, and behavioral changes that conform to threat patterns. Threat reactions are consistent with the notion that being lied to is a tacit sign of social exclusion and disrespect, because acting out of concern for others largely entails providing honest information. Threat is such an integral component of lie detection that it modifies the aforementioned claim that lie detection information often is best kept out of consciousness. Direct verbal reports of lie detection are more accurate than otherwise when people feel vulnerable or when failing to detect a lie implies forgoing crucial resources.

There is a second modification to the claim that consciousness does not have access to most nonconscious lie detection reactions. The tipping point model contends that there can be meaningful interpersonal and group-level costs to asserting that one witnessed a lie, which suggests that conditions that mollify the social ramifications of such assertions will improve the

### Outstanding Questions

How do people detect lies in live interactions? In testing tipping point propositions, researchers should take care to use paradigms that are or resemble ecologically natural interactions and relationships and that systematically vary the personal and social costs of explicitly reporting/declaring having observed a lie.

What are mechanisms by which people can become consciously aware of their reactions to lies that may reside below the reaches of consciousness? When the cost of being deceived is greater than that of signaling distrust, we propose that information about who is likely to be lying (versus telling the truth) will be accessed and made conscious. The manner in which this occurs remains unknown, although if nonconscious sensitivity to deception is reflected in physiological responses, interoception – awareness of one's physiological state – may facilitate this process.

What about other-serving deception? While our primary focus has been the detection of self-serving deception, not all lies are so pernicious. Many lies are other serving and prosocial, often intended to protect the receiver from an unfortunate or painful truth. Implicit indicators of lie detection in this context may be revealed in different physiological channels and social evaluations than those that enable implicit detection of lies that confer threats.

At what point are the costs of being deceived so great that a lie bias is observed? Police officers show a lie bias, which we interpreted as being due in part to the higher costs of being deceived in this context compared with the costs of signaling distrust. Theory and empirical findings testing more diverse samples and contexts would help shed light on when the cost of being deceived is so great that generalized distrust is preferred over attempts to be accurate.



accuracy of explicit judgments. In support of this expectation, evidence shows that group efforts to identify a liar and making salient the societal importance of spotting liars show this effect.

The tipping point framework offers suggestions for numerous lines of further research. First, research could be directed to identifying sources of implicit lie detection accuracy. In particular, physiological and nonverbal responses to lies (versus truths) may reveal implicit knowledge. Second, direct tests of what brings implicit knowledge to bear on explicit evaluations of veracity would be welcome. Threats to physical, emotional, and psychological domains, as well as diminishing the perceived social costs of asserting that one has witnessed a lie, are likely avenues. Third, choices and behaviors that would lead people away from liars and toward truth-tellers will be fertile ground for research (see Outstanding Questions) (Table 1).

Lie detection studies in which people are instructed to make explicit judgments of whether they have just witnessed a lie converge on the conclusion that people are fairly inept at judging who is lying. By contrast, research on nonconscious and indirect social evaluations show that ordinary people might be able to detect lies and liars after all.

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