Deception detection research: Some lessons for the epistemology of testimony

Peter J. Graham

**Abstract:**

According to our folk theory of lying, liars leak observable cues of their insincerity, observable cues that make it easy to catch a liar in real time. Various prominent social epistemologists rely on the correctness of our folk theory as empirically well-confirmed when building their normative accounts of the epistemology of testimony. Deception detection research in communication studies, however, has shown that our folk-theory is mistaken. It is not empirically well-confirmed but empirically refuted. Michaelian (2010) and Shieber (2012) have already discussed some of this literature and its relevance for epistemology, especially for the most worked out reliance on our folk theory by Elizabeth Fricker (1994, 2016, 2017a, 2024). Fricker (2016) raises a reasonable objection to their presentations of the research: is the research ecologically valid? Do the experiments in the lab carry over to real life? This chapter conveys the methodology of the research, defends its ecological validity, and addresses further research on the nature and frequency of lies in ordinary life. Social epistemologists stand to gain from understanding the nuts and bolts of deception detection research and its findings. The chapter concludes with a detailed examination of Fricker’s relilance on folk theory in her “local reductionist” epistemology of testimony. Further areas of research relevant to social epistemology are listed.

# Introduction

The central case of knowledge through testimony is knowledge through face-to-face conversation. There are many tasks for the social epistemology of conversation. One is to explain why it is we know and justifiably believe as much as we do through conversation. Another is to provide useful recommendations for how to do better.

Since whether we learn from another person through conversation turns, for the most part, on whether their message is sincere and competent, social epistemologists stand to learn a great deal from what social scientists have learned about the sincerity and competence of senders, on the one hand, and the abilities of receivers to judge the sincerity and competence of senders, on the other. If the extent of our knowledge through conversation and how we might do better are both empirical questions, one ought to know the relevant empirical science.

In this chapter I review some of the major discoveries from the extensive literature on *deception* and *deception detection* in the field of communication studies. I shall focus on sincerity, tabling competence for another occasion. I begin with our folk theory of deception and deception detection before showing that a few well-known social epistemologists seem to assume that our folk theory is correct and well confirmed. It turns out that it’s neither. Or at least that is what the science shows.

I am not the first epistemologist to investigate this literature. Indeed, since Kourken Michealian’s (2010; 2013) and Joseph Shieber’s (2012) papers, findings from this literature have become well-known. Though I admire Michaelian and Shieber’s papers, I have found that readers can come away without an appreciation of the nuts and bolts of the experiments, of their strengths and their limitations. I also find that they do not do as much as they could to show that the results of the science are ecologically valid, that what the science discovers in lab experiments really does carry over to what

happens when we talk to another person outside of the lab. On both dimensions, I hope to do better.

And so, my goal in this chapter is to look closely inside some of the studies on deception detection to convey how they work and why they show what they show, with an eye towards persuading the reader that the results in the lab carry over to real life.

I then take the opportunity to apply some of the lessons learned from the literature to Elizabeth Fricker’s influential work in social epistemology (see Fricker 1994; 1995; 2004; 2006a; 2006b; 2016b; 2017a; 2017b; 2024). If anyone has

turned our folk theory of deception into a sophisticated social epistemology of conversation, it’s Elizabeth Fricker. Again, I’m not the first to apply the science to Fricker’s theory. But I have both a novel interpretation of her work to present, as well as what I take to be more compelling criticisms than others have offered. Though I may not be the first to apply the science to her theory, I may be the last.

The lessons learned apply not only to Fricker’s work, but to any social epistemologist who relies on our folk theory. It’s time for every social epistemologist to not only know but understand the major findings of the last fifty years of deception detection research.

# What is the folk theory of lying?

What is our folk theory of how senders behave when lying? And what is our folk theory of how we catch a liar?

Charles Bond led a team called The Global Research Team to answer these questions. The team surveyed 4,840 subjects in 43 languages across 75 countries. The results were published in “A World of Lies” (Bond et al. 2006). The team conducted two surveys. In the first, the team asked the open-ended question “How can you tell when people are lying?” Here are the most common answers:

* + Liars avert their gaze. (63.7%)
  + Liars are nervous. (28%)
  + Liars display incoherent speech, body movements, facial expressions, speech errors, logical inconsistencies, blushing, pauses and delayed speech. (15%-25%)

Notably, fewer than 1% mentioned motivational factors by the sender (“I can tell they are lying because I know they have a motive to lie”) or sender confessions of dishonesty (“I know they lied because they later confessed”).

In the second study, the team then asked closed-ended questions, using some of the answers provided by the open-ended survey. Here are the most common answers:

* + Liars avert their gaze. (71.5%)
  + Liars shift posture more than usual, touch and scratch themselves, talk too much (66%)
  + Liars act nervous (50%)

According to the results, the folk believe liars have an easily detectable dishonest demeanor. Folk wisdom then includes the idea that we reliably catch liars by observing their demeanor.

Why do people believe that liars (senders with the intent to deceive or mislead) behave like this? Because we have a folk theory of the liar’s state of mind. We believe that liars know it is wrong to lie, and they fear detection (Bond et al. 2006, 70). That is why they avert their gaze. Their fear also means they will be more physiologically aroused, which causes nervous behavior. That’s why they will act unusually, shift more than usual, or talk too much. Our folk theory so far then has at least these three elements:

* + Lying is emotionally arousing.
  + These emotions produce observable cues that the sender is lying; lying leaks and so lying well is difficult.
  + Receivers use these cues to detect that the sender is lying; we reliably catch liars by detecting their deceptive demeanor.

# Social epistemologists agree

Various social epistemologists agree with our folk theory. Jennifer Lackey (2008, 183) says that ordinary adults possess “ample inductive evidene” that nerviousness, lack of eye contact, and confused behavior are signs of “incompetence, insincerity, and unreliability.”1 Miranda Fricker (2007, 41) says:

…a hearer responsibly judges a speaker to be…insincere…owing to the fact that the speaker avoids looking her in the eye, frequently looks askance, and pauses self-consciously in mid-sentence as if to work out his story. The speaker’s behavior justifies the hearer’s judgement…as it fits an empirically reliably stereotype of testimony…an empirically reliable rule.

Sanford Goldberg tells a story about Ralph who offers about as much false testimony about the New York Yankees as true testimony. When he asserts false beliefs, his…

… assertions are reliably associated with characteristics, which (in other speakers) are highly correlated with false (or at least unreliable) testimony: there is a certain lack of confidence exhibited in his speech on those occasions, he can’t look you in the eyes, etc. But it is also true that his assertions expressing [true] beliefs…are reliably associated with characteristics which (in other speakers) are highly correlated with true (and reliable) testimony: on these occasions he expresses himself with a good deal of confidence, he can look you in the eyes, and so forth. (Goldberg 2007, 322-323)

1 Lackey (2008, 89-90, 181).

Goldberg (2007, 323) then imagines Mary who “can and does discriminate the relevant features of Ralph’s…testimony, and that she correctly takes them for what they are, namely, indications of the (likely) truth or falsity of his testimony”. Goldberg accepts the folk theory.

Stephen Reynolds (2002, 156) says lying effectively is hard; that’s how we know someone is lying: “… we can reliably tell whether someone believes what they are saying by their manner of speaking and by their facial expression. A convincingly told lie is a difficult achievement.”

Elizabeth Fricker (1994, 150) agrees:

Expert dissimulators amongst us are few, the insincerity of an utterance is very frequently betrayed in the speaker’s manner, and so is susceptible of detection by [our] quasi-perceptual [deception monitoring] capacity.

How does such monitoring work? The hearer perceptually represents various behavioral cues. Certain cues are “betraying signs that…the speaker is insincere.” Other cues are signs of sincerity. The perception of these cues then leads the hearer to form concious judgments about the sincerity of the speaker, e.g. “I didn’t like the look of him” or “Well, she seemed perfectly normal.” Such monitoring allows individuals to recognize and respond to potential signs of dishonesty or insincerity during conversations. Fricker thinks this capacity for monitoring is “usually found in ordinary hearers, at least to some extent” (cf. Fricker 1994, 150; 2006a, 624). For Fricker, as for the Folk, we detect deception by observing signs of deceit in real-time.

Elizabeth Fricker, Miranda Fricker, Sanford Goldberg, Jennifer Lackey and Steven Reynolds all accept the folk theory. And that’s just a sample. I’m sure I could find many other philosophers saying the same things. Even David Hume in his essay “On Miracles” notes how we doubt testimony when delivered “with hesitation, or on the contrary, with too violent asservations” (Hume 2007, § 7). The folk and philosophers agree. Though lying is commonplace, we reliably detect deception and thereby defeat its destructive force on testimonial uptake.

Or do we? The social psychology of lying and lie detection tells a very different

story.

# How do psychologists study deception detection?

Social psychologists have conducted lab experiments designed to answer the following two questions:

1. Are there nonverbal and paraverbal behavioral cues to deception? Are there observable things humans do when lying that they don’t do when telling the truth?
2. Can we reliably tell in real time when someone is lying or telling the truth by observing their nonverbal and paraverbal behavior? Are we good at detecting deception through observation in real time?

How do social psychologists investigate these questions? Most of the research in this area relies on controlled lab experiments. In the typical experimental paradigm, senders tell truths and lies, often to a second party (receivers). Most often the senders are college students, but not always. In most such experiments senders tell 50% truths and 50% lies–the base rate of honesty over lying in the experiments is typically 50/50– where the experimenters know when the sender was honest or lying. The senders’ messages are recorded, either in writing, by audio, or by audio and video. A third group of perceivers (judges) then read, listen, or watch the sender’s messages. Perceivers are told that some of the senders’ messages are honest and some dishonest, but not the percentage. The perceivers then judge which are honest and which are dishonest, like taking a true/false test. Sometimes the receivers (the sender’s audience) and the perceivers (the judges of honesty) are the same person. Many studies recruit professionals tasked with detecting deception, like police detectives, federal agents, or fraud investigators as judges.

When it comes to the types of lies being told, the experiments vary in several ways. Senders may tell truths and lies about their beliefs, opinions, or about personal facts. They may tell truths and lies about their personality. They may tell truths and lies about personal traumatic experiences. They may tell truths and lies about whether they are currently experiencing some physical pain. They may tell truths and lies about a movie they have just watched. They may observe a group of strangers and then tell truths and lies when describing these people. Senders may look at art they like and dislike. They may tell artists whose art they liked that they liked it, and then tell artists whose art they did not like that they liked it. They may tell truths and lies when simulating a job interview. They may participate in mock crimes and then tell truths and lies about what they did. Sometimes senders have time to plan their lies, sometimes they do not. Any number of other possible variations are possible, depending on the resources and creativity of the experimenter.

These experiments differ on whether the lie was sanctioned or motivated. In a sanctioned lie, the experiment instructs the sender to lie; the lie was “sanctioned” by the experimenter, even if not sanctioned by the receiver. In a motivated lie, the sender has a special motivation to succeed at deceiving the receiver; they want the receiver to believe their lie.

These two features (sanctioned, unmotivated) are often present or absent together in these kinds of experiments, but not always. An experimenter may sanction a lie but provide a motivation for the sender to convince their receiver. For example, an experimenter might provide the sender an additional reward for successfully deceiving the receiver.

There are also experiments without experimental subjects as senders. Instead, these studies rely on video footage of unsanctioned lies outside of experimental contexts. The videos are then shown to perceivers to judge in experimental settings. For example, perceivers watch interrogations of crime suspects, where the experimenters know from later discovered evidence whether the subject was lying or telling the truth. Or perceivers watch videos of public figures–celebrities, politicians, or even people are in the news for just a brief period–who make honest and dishonest reports, where again the

experimenters know which was which. All these lies are unsanctioned and involve high stakes where the speakers are often motivated to cover up their transgressions, produced outside of the lab in “ecologically valid” conditions.

To answer the first question, social psychologists observe the ways honest and dishonest senders behave in their experiments. They then code many of the various aspects of their behavior. These aspects of their behavior are called *cues*. Some commonly studied cues include eye gaze, foot and leg movements, friendliness, head movements, involvement, nervousness, plausibility, posture shift, pupil dilation, response latency, speech errors, speech hesitations, speech rate, vocal pitch, vocal tension, and smiling. Researchers then look for correlations between these cues and honest and dishonest messages, where the cues are largely studied one at a time. Does this que or that que co-vary with honesty or deception? Just as snoring reliably correlates with being asleep, and yelping reliably correlates with being in pain, are there ways humans behave when lying but not when telling the truth?

To answer the second question, experiments score the accuracy rate of perceivers in their experiments when the perceivers judge the messages of senders as honest or dishonest. If we are reliable judges, based on observing the behavior, both verbal and non-verbal, of whether a sender’s message is honest or dishonest, then we will judge most honest messages as honest and most dishonest messages as dishonest.

Experiments along these lines began in the 1940s and continue to this day. Sternglanz et al. (2019, 303) report over 1,250 peer-reviewed articles on deception or deception detection. Fortunately, several meta-analyses of studies have been published. Meta-analyses not only summarize a larger literature—just like a literature review—but they have increased statistical power over individual studies and do not rely on a particular research team or an experimental paradigm, unlike individual studies.

# Are we good at detecting deception in real time?

What does the experimental literature tell us about the second question? Can we reliably detect deception in real time by observing verbal and non-verbal behavior, at least in experimental settings? The answer is no.

The most discussed meta-analysis supporting this conclusion comes from Charles Bond and Bella DePaulo (Bond & DePaulo 2006). According to Google Scholar as of February 2024, this paper has been cited 2,686 times. Their meta-analysis covered 206 studies from 1941 to 2006. It included 6,651 messages from 4,435 senders judged by 24,483 perceivers. In over 75% of the studies, perceivers classified messages as lies or truths. Bond and DePaulo (2006, 230) report that the perceivers performed slightly better than chance. “Across hundreds of experiments,” they conclude, “typical rates of lie-truth discriminations are slightly above 50%. For the grand mean, 54% is a reasonable estimate.” Their results confirm the results of earlier meta-analyses (e.g., DePaulo 1980; Kraut 1980). The larger the number of participants in a study, the more likely it approaches the 54% mark, with standard deviations across studies usually being very small: overall performance for most people ranges around 54%. When classifying messages in real time in experimental settings as honest or dishonest, where perceivers are informed in advance that some of the messages are honest and others are not, where half of the messages are truths and half are lies, average accuracy is consistently slightly better than chance.

If that’s the average, are there some cases where there are important exceptions? Not really. Bond and DePaulo find that the medium or modality (written, audio only, audio-visual) does not make a major difference, that sender motivation to be believed does not make a major difference, that planned versus spontaneous lies does not make a major difference, and that professional experts like police officers, detectives, secret service agents, parole officers or judges were not significantly any better than college students. The slightly better than chance result was the same result, within a percentage point or two, for all of these variables in sender, medium, and perceiver. This result even holds up when adults judge deceptive messages from children (Gongola et al. 2017).

Bond and DePaulo’s conclusion has held up over time. Surveying all the meta- analyses up to 2017 in his 2020 book, Timothy Levine (2020, 40-41) finds that the 54% accuracy rate is a robust finding across variables across meta-analyses (see also Sternglanz et. al. 2019). Levine (2010, 41) even remarks that “the slightly-better-than- chance accuracy finding appears to be among the most reliable, consistent, and robust findings in all of social science.”

Are you confident of your own ability to detect deception in real-time? Are you sure you possess an effective monitor that would pick up on reliable cues and issue the judgment that the speaker can’t be trusted on the occasion? Can you just look someone in the eye and know whether they are lying? In an earlier meta-analysis, DePaulo et al. (1996) reviewed 2972 perceivers, including college students and law enforcement personnel, and found that there is no correlation between confidence and accuracy of deception judgments.

The results provide rather strong grounds to believe that outside of an experimental setting, were a speaker to lie to you, you would not be able to reliably tell in real time based on observing their nonverbal and paraverbal behavior that they were.

Perhaps you are unconvinced. People sometimes pushback as follows:

Sure, in the experiments the judges cannot tell who is lying and who is not. But your experiments don’t reflect real life. All you have done is instructed a bunch of college students to utter sentences they don’t believe (so the lies are sanctioned) in a context where there’s no cost for saying something false (so the stakes are very low) where the students don’t care if they are believed (so their lies are unmotivated). Indeed, the students are probably just acting, not really telling lies. You’ve then asked total strangers to judge whether these amateur actors are trying to mislead. How is that ecologically valid? How does that tell us anything about deception detection in real life? Just because we’re no good in lab conditions like these doesn’t show that we are no good in real life.2

As Elizabeth Fricker (2016) puts it, just because a massively deceived brain-in-a-vat never gets anything right through perception doesn’t mean that you and I never get anything right when relying on perception in normal conditions; so just because we are bad in the lab doesn’t show that we aren’t highly effective at detecting deception in real time through observing non-verbal and paraverbal cues in normal social environments.

2 See Frank & Feeley, 2003; O’Sullivan 2008; O’Sullivan et. al. 2009; Burgoon 2015.

But many of the experiments included in the meta-analyses pass such demands for ecological validity, as I’ve already noted. The Bond and DePaulo meta-analysis included studies for all kinds of lies. It included studies of murders’ lies and lies that could harm children (Vrij & Mann 2001); lies to lovers and deceit during criminal interrogations (Anderson et al. 1999; Davis et al. 2005); and lies in naturalistic deceptive interactions and jurors’ credibility judgments (Bond and DePaulo 2006, 232). For a more recent meta-analysis that reaches the same conclusion, see Hartwig & Bond (2014).

There’s also a folk theory case against this defense of folk theory. We all know the story of Desdemona who was so nervous she would not be believed when she honestly told Othello she was not having an affair with Cassio that she looked like a liar. The story rings true because it is a common experience. Evidence from the literature backs it up. Honest people who are afraid of being disbelieved often come to resemble the stereotypical liar. “The accumulated evidence suggests that people who are motivated to be believed look deceptive whether or not they are lying.” (Bond & DePaulo 2006, 231). If motivation to be believed doesn’t correlate strongly with lying, motivation doesn’t ground a reliable cue for lying.

Bond and DePaulo (2006, 231) then conclude:

Despite decades of research effort to maximize the accuracy of deception judgments, detection rates barely budge. Professionals’ judgments, interactants’ judgments, judgments of high-stakes lies, judgments of unsanctioned lies, judgments made by long-term acquaintances—all reveal detection rates within a few points of 50%.

Though surprising to common sense, we are just not any good at detecting lies in real- time by observing their non-verbal and paraverbal behavior.

Still not persuaded? Then read on, as I’ll provide further reasons for thinking these studies really do tell us how bad we are outside the lab.

But before I do that, I want to review whether there are any valid nonverbal or paraverbal cues, cues we could use to catch a liar, if we only knew what they were and how to track them.

# Are there observable cues to deception?

If we are not any good at distinguishing truths from lies in real-time by observing the nonverbal and paraverbal behavior of senders, is that because there are no such cues to lying that are reliable, or is that because we don’t pick up on the real cues? And if we don’t pick up on the real cues, would training make a difference? Could we learn to become reliable detectors of deception in real time by observing aspects of the verbal and non-verbal behavior of our interlocutors. The answer to these questions is no.

Recall the #1 cue to deception according to folk theory: liars avert their gaze. Across all types of lies, is this true? Do liars reliably avert their gaze? According to a meta-analysis of cue studies by DePaulo et al. published in 2003, the clear answer is negative. Citing DePaulo et al. (2003), Levine says:

… even though avoiding eye contact is the most widely held belief about deception, it holds no actual utility as a deception cue. Its validity is zero. The amount of eye contact is unrelated to actual lying. (Levine 2020, 24)

“The gaze aversion belief,” Levine (2017, 7) concludes, “appears to be a complete myth.” Similar results hold up for the other cues consistently cited by our folk theory (DePaulo et al. 2003).

Are there any reliable cues *not* mentioned by our folk theory? Are there some other cues that are the *real* cues? Levine’s review of four meta-analyses of cues leads him to think there might be two: higher vocal pitch and increased pupil dilation. They are, he thinks, small but real cues to deception. However, he also notes that the pupil dilation results are based on only four studies, and the pitch findings are based on twelve, but that the effects were heterogeneous across those twelve studies. So, we have some reason to think these are real cues, but not conclusive. And even then, the results are only a statistical trend across many different senders and many different lies. When it comes to pitch, for example, lies are slightly more highly pitched than honest statements, all else being equal (Levine 2020, 20, 306).

Perhaps the default explanation for our poor performance in detecting lies, consistent with our folk theory, is that we pay attention to the wrong cues (Miller & Stiff 1993). If we paid attention to these valid cues, would that solve our problem?

No, for they are too weak. The effect size is just too small. Ask yourself this. Suppose you know that, on average, males are taller than females, which they are. And then you learn that two people are in a room, and one is taller than the other. Is that enough to know that the taller one is male and the shorter female? Not at all. So, suppose you learn that someone has told you something and their pupils are slightly dilated. Does that tell you they are lying? No, for the effect size for these “valid” cues is much lower than your information that males on average are taller than females. Learning that someone has dilated pupils, or a slightly higher vocal pitch doesn’t tell you whether they are lying or honest (Levine 2020, 21). It just tells you, out of a very large pool of speakers, that there is a slightly higher chance they are lying. Even when we in fact respond to “valid” cues, we still don’t perform within the slightly better than chance range. Our ability to detect lies in real time is limited by the fact that valid nonverbal and paraverbal cues to deception are not very reliable (Hartwig & Bond 2014).

What about training? Does that help? For gains in detecting deception by observing valid nonverbal and paraverbal cues in real time, the answer seems to be that the gains are moderate, at best. The results are still in slightly-better-than-chance territory.3

What about the ecological validity of these findings? As before, DePaulo et al. note that some of the studies involved real life criminal suspects and lies recorded in the news. It wasn’t all college students. Second, DePaulo et al. note (as we will see further along in the section about the prevalence of lying), that for most lies of everyday life the sender is not motivated to succeed, nor covering up a transgression, nor entirely free to say whatever they would like. Further, for most lies of everyday life, the receiver does not challenge the sender, but either accepts the lie as truth or ignores the lie and lets the moment pass (DePaulo et al. 2003, 100). And though DePaulo et al. found a slight

3 For meta-analyses on training studies, see Frank and Feeley (2003), Driskell (2012), and Hauch, Sporer, Michael, and Meissner (2016).

difference in gaze aversion for lies about transgressions from lies that were not about transgressions, so that he folk theory of lies about transgressions is not entirely in error, the effects were, in real terms, too small to make any real difference (DePaulo et al. 2003, 102, 104). Pupil dilation is a better cue. And that cue, we’ve just learned, won’t tell you what you want to know.

# Levine’s cheating experiments

“No, no, no” you say, “this only shows that there are no reliable cues to deception in the lab. Outside of the lab there are plenty of valid cues. None of this is ecologically valid. Outside the lab we do just fine detecting deception in real time.”

What kind of experiment would count as ecologically valid? At least for Elizabeth Fricker, it would have to involve attempts to deceive from a speaker who “deceives with bad faith, for her own gain, due to her own motives, with the attendant fear of discovery, and feelings of guilt” (Fricker 2016, 116). Fricker here echoes some researchers in the field (Zuckerman et al. 1981; Miller & Stiff 1993; Burgoon & Buller 1996). The liar would have to be motivated and the stakes for the liar would have to be high (Harwood 2014) for that is when cues to deception leak (Eckman & Friesen 1969).

But as I have already pointed out, many of the experiments already included in the meta-analyses have these features. Just think of the experiments where experimenters took video recordings of criminal suspects during police interviews. Of those who were lying, they certainly satisfied all these criteria. But even so, judges failed to reliably detect who was lying and who was not. When it comes to motivation, for example, in the Bond & DePaulo meta-analysis (Bond & DePaulo 2006; 2008), the average accuracy for motivated lies was 53.3% and 53.4% for unmotivated lies. Similarly for high stakes, Hartwig and Bond (2014) found no effect. Feeley and deTurk (1998) even found that sanctioned lies correlated with more speech errors and other folk cues than unsanctioned lies. It looks like ecologically valid experiments disconfirm the folk theory.

If all of this is not enough, reviewing Timothy Levine’s lab experiments should seal the deal. Levine is one of the leading researchers in this field. Concerned about the ecological validity of lying experiments (Levine 2018), he devised a sting operation that would strongly motivate the subjects to lie on their own accord to cover up a transgression (Levine, Kim & Blair 2010).

Levine had college students enter a lab for a study that they were told was federally funded, sanctioned by the university, and designed to learn about teamwork. The participant was then paired with a teammate that they were told was another student, but in fact the teammate was a confederate working for the experiment. An experimenter then entered the room, and she told the students they were going to play a challenging game of trivial pursuit. For each correct answer they would receive five or ten dollars.

After the second question, another person would enter the room and tell the experimenter administering the questions that there was an emergency at home, and she needed to come right away to take a call in an office at the other side of the building. The experimenter would then run out and the students could hear three doors loudly closing in succession as the sounds of her footsteps faded away.

Once the experimenter was gone, the partner then suggested cheating. “Aren’t those the answers to the questions in that folder right there? Why don’t you take a look?

That way we could make a lot of money. I think that would be a great idea, but I’ll leave it up to you to decide. Either way I’m fine.”

After the students have had enough time to look up the answers, the experimenter returns and completes the game. Then after the game, the subject is interviewed by another experimenter and asked, among other things, if the subject cheated. During the interview, all their answers were being video recorded.

There are then four possible answers:

* *Honest denial*, where the subject denies cheating and did not cheat.
* *Dishonest denial*, where the subject denies cheating but did.
* *Honest confession*, where the subject confesses cheating and did cheat.
* *Dishonest confession*, where the subject confesses cheating but did not.

Levine ran 126 students through the first version of the experiment. 96 (76%) did not cheat. When asked, they all honestly said they did not cheat. There were no dishonest confessions. 30 (24%) did cheat. Of those, 18 (60%) lied about cheating—they gave dishonest denials. 12 (40%), on the other hand, confessed.

For those who gave dishonest denials, did they have a motive to cover-up their transgressions? Certainly. They had just cheated on a federally funded experiment. The cheaters knew they were “attempting to defraud a federally funded research project for their own financial gain.” (Levine, Serota, Shulman, Clare et al. 2011, 382) They knew they had broken the honor code. They also had their own self-image to protect. They had reasons to fear discovery. If they lied, it was in bad faith, for their own gain, due to their own motives, with the attendant fear of discovery.

After the experiment was over, Levine asked those who had not cheated if they would re-record their interviews and falsely confess to cheating. 7 agreed. The result was taped interviews of four kinds: students honestly denying cheating, lying that they did not cheat, honestly confessing that they did not cheat, and students lying when confessing to cheating.

Levine then recruited 127 students to watch 27 of the recordings that involved all four kinds of responses and then judge whether the sender lied or told the truth. How accurate were the judges? For the honest confessions, they were right 95% of the time. For the false confessions, they were right 12% of the time. In other words, when people confess to transgression, we believe them, for in fact there is little reason to confess to a wrong you didn’t do. So, if they are telling the truth, we get it right. But if they are lying, we get it wrong. The speaker’s behavior probably has very little to do with it.

How about the denials? For the honest denials, the judges were accurate 56% of the time, and for the dishonest denials, they were accurate only 53% of the time. When it comes to sorting honest denials from dishonest denials. Performance was only slightly better than chance.

Averaging across all four kinds of messages, average accuracy came in just over

54%.

All told, Levine has run approximately 500 subjects through the game.

Approximately two-thirds (approximately 335) did not cheat and honestly reported not

cheating. Approximately one-third (approximately 165) cheated. Of those who cheated, about one-third (55) confessed, and two-thirds (110) denied cheating. That means about 78% were honest and 22% dishonest. In follow-up studies, when judges are asked to simply watch the videos of the senders when they deny or confess cheating without any further contextual information, accuracy continues to hover around 54%. (Levine 2020, 266)

So much for our folk theory that when people are covering up a transgression, they will behave noticeably differently in ways that we can easily track than when they are honestly denying a transgression. If these studies get the same results as recorded by the meta-analyses, maybe our folk psychology of how liars behave really is mistaken.

A rare field study of criminal defendants interacting with police officers confirms lab results:

In the present study, observations of real-life police-citizen interactions found the display of the “suspicious” non-verbal behaviors of frequent smiles, speech disruptions, gaze aversion, and frequent hand gestures to be ineffective and erroneous indicators of involvement in crime. The present study supported the previous literature in suggesting that individuals vary greatly in the frequency with which they display the non-verbal behaviors that police officers and other criminal justice professionals perceive as indicators of criminal suspiciousness or deception. (Johnson 2009, 288)

Perhaps concerns about the ecological validity of the finding that we aren’t any good at detecting deception in real time should now be put to rest?

# What really explains honesty judgments?

While conducting various versions of his cheating experiment, Levine hit on a discovery anticipated first by Zuckerman et. al. (1979) and then again by Bond, Kalher, and Paolicelli (1985). Subject to an important qualification to be made below, Levine realized that some people come off as sincere, and others do not, because of their overall demeanor, *regardless* of actual honesty or dishonesty (Levine, Serota, Shulman, Clare et al. 2011).

To confirm this, Levine first ran a series of experiments where he first took his videotapes from his cheating experiments and recorded senders who were repeatedly judged honest by perceivers and those repeatedly judged dishonest by perceivers, regardless of the actual honesty of the sender’s messages. He then had another group of subjects watch these videos and code aspects of the behavior of the senders into two categories. He was looking to see whether there was an overall demeanor that led a perceiver to judge that a sender’s message was honest and another overall demeanor that led a perceiver to judge that the sender’s message was dishonest. And that is exactly what he found. It wasn’t individual nonverbal and paraverbal cues that drove judgments, but patterns of those cues: demeanors.

An honest, sincere demeanor has the following features:

* + Confidence and composure
  + Pleasant and friendly interaction style
  + Engaged and involved interaction style
  + Gives plausible explanations

And then a dishonest, insincere demeanor has the following features:

* + Avoids eye contact
  + Appears hesitant and slow in proving answers
  + Conveys uncertainty in tone of voice
  + Excessive fidgeting with hands or foot movements
  + Appears tense, nervous, and anxious
  + Portrays an inconsistent demeanor over the course of the interaction
  + And conveys uncertainty with words

Levine thereby made explicit our folk theory of how people behave when telling the truth and how people behave when lying. And so, when someone “seems suspiciously shifty” or when we “don’t like the look of him” that’s because we’re tracking the sender’s dishonest demeanor.

To prove that sender demeanor drives perceiver judgments of honesty when we suspect dishonesty (and not the actual honesty or dishonesty of the message), Levine created four categories of videotaped interviews from his cheating experiments:

* + Matched: senders who were honest and had an honest demeanor
  + Mismatched: senders who were honest and had a dishonest demeanor
  + Matched: senders who were dishonest and had a dishonest demeanor
  + Unmatched: senders who were dishonest but had an honest demeanor.

For “matched” senders their demeanor (sincere or insincere) matches their message (sincere or insincere). Matched senders are transparent; how they seem tracks how they are. For “mismatched” senders their demeanor does not match their message. Mismatched senders are opaque; how they seem does not track how they are.

What Levine discovered is that when we are suspicious of sincerity, our judgments are largely driven by our demeanor judgments, and further that demeanor is not always correlated with underlying honesty or dishonesty. Levine was able to create tapes of matched speakers that led to very high accuracy rates by judges, and tapes of unmatched speakers that led to very low accuracy rates by judges. What causes our judgments of honesty is demeanor. That should be obvious.

What is important is that though many of us are matched senders on various occasions, many of us are not. Someone with an honest demeanor can easily fool you, and you might easily judge that someone who is telling the truth but has a dishonest demeanor is lying. A gut reaction that someone is trustworthy doesn’t mean they are. And a gut reaction that someone can’t be trusted doesn’t mean they can’t. Reporting on Levine’s research in his book *Talking to Strangers*, Malcolm Gladwell (2019) tells the stories of Bernie Madoff and Amanda Knox. Bernie Madoff, who made billions in a Ponzi scheme only to eventually land in prison, had a trustworthy demeanor, and repeatedly fooled countless people, including professional investigators. Amanda Knox, on the other hand, did not have a trustworthy demeanor, especially when she was a suspect for murder, a murder with weak or no physical evidence pinning her for the murder. Because of her demeanor, the police just “knew” she was guilty. She spent over four years in prison before the Italian Supreme Court fully exonerated her.

Another interesting discovery in Levine’s experiments is that there are a few people in the population who are really bad liars. These are people who go well beyond a dishonest demeanor. They blush bright red; they can laugh uncontrollably. Sometimes they can’t even finish the sentence when they try to tell a lie; they can’t keep it together. You know people like these. You don’t simply suspect they are lying; you *know* they are lying. In Levine’s cheating experiments, all the judges rightly catch these people as lying.

As the Madoff case illustrates, those with more honest demeanors learn they can get away with lying. Because lying is a choice and because being caught in a lie has consequences, those who are bad at lying–those that find they are easily caught–may select against telling lies, whereas those with more honest demeanors may be more likely to lie. All of this, of course, turns our folk theory on its head. People who are hard to catch by their behavior are the ones more apt to lie; they know they can get away with it. People who know they are easy to catch choose not to lie; they know it won’t work. The people we can easily catch aren’t as likely to lie; the people we can’t easily catch are more likely to lie (Levine, Shaw, & Shulman 2010; Serota, Levine, & Boster 2010). Score one more point for the ecological validity of the skeptical findings that we cannot detect deception by observing behavioral cues.

# How do we really detect lies?

All of this, however, does not mean that we never catch people in their lies. We clearly can and do. But if we don’t do it by observing behavioral cues in real time, how do we do it? Ask yourself the following five questions:

1. When was the last time you were lied to? (Where were you? What was the lie about? What exactly did the person say?)
2. How long ago did the telling of the lie take place?
3. What is the relationship between you and the person who lied to you?
4. How exactly did you discover that the person lied to you?
5. How much time has passed between the telling of the lie and your discovery that they lied?

Go ahead and take a minute and write down your answers.

Now that you have completed this exercise, what was your answer to 4? Did you appeal to your background knowledge that what they said can’t be right, and know they were lying on the spot? Did you acquire additional information later that showed what they said could not be true? Did a third-party later tell you they were lying? Did they later confess to telling the lie? Or could you just see it in their eyes as they lie through their teeth?

I took these five questions from a study designed by Hee-Sun Park (Park et al. 2002). Park et al. asked 202 undergraduate students from a large Midwestern university to fill out a questionnaire with these five questions (though 8 of the students could not think of a lie they were told). When the answers to question 4 were in, the most reported methods of discovery were:

* + Third-party information: 32%
  + Combination of methods: 31%
  + Physical evidence: 18%
  + Confessions: 14%
  + Behavioral cues: 2%

Most respondents were likely to say “I knew she lied when she said she was sick at home, because another friend later told me that he saw her at the county fair with her family all day” or “though he told me he quit smoking, I saw the cigarette butts in the ashtray in his car” than they were to say “she just didn’t look like she was telling the truth.”

Altogether seven methods were reported: third-party information; physical evidence; solicited confessions; unsolicited confessions; at-the-time nonverbal or paraverbal behavior; inconsistency with previous knowledge, and inadvertent confessions. A report of “combination of methods” would simply be a report of one or more of these methods.

Nearly all the lies were detected after they were told (around 4% in an hour; 21% in a day, 21% in less than a week, 21% in less than a month, and 17% in less than a year).

Of all the lies, only three (1.5%) were detected both at the time they were told and on the basis of verbal or nonverbal behavior. If the folk theory were true, this should be very surprising indeed. But if everything we have learned so far about how poor we are at telling whether someone is lying in real time based on behavioral cues, this should come as no surprise at all. We are terrible at detecting lies in real time from observable cues because *that is not how we detect lies*.

Park et al. (2002) understood their study wasn’t representative: the students were not randomly sampled and the lies they recalled were not randomly selected either. They cautioned readers not to place much weight into the specific percentages just reported. They did conclude, however, that their results suggest that “deception judgments are often not immediate, and that they are often based on additional sources of information external to the initial message.” (Park et al. 2002, 154)

Jaume Masip and Carmen Herrero (2015), in a study in Spain, sought to replicate Park et al. with a more representative group of participants. They used the same five questions as Park et al. (2002) and posed them to two groups matched for gender: 22 police officers and 22 community members. The lies told to the police officers were mostly from strangers, while the lies told to the community members were mostly from close acquaintances. Masip and Herrero added one more question at the start with the prompt “please indicate how you believe lies can be detected.”

Overall, their results replicated those of Park et al. (2002): lies were less likely to be reported as detected by behavioral cues but rather by third-party information, physical evidence, confessions, or inconsistency with other knowledge, where third- party information was the most commonly reported method.

What Masip and Herrero found interesting is that both the police officers and the community members answered the initial prompt in the opposite fashion. That is, when it came to saying how they believe lies can be detected, they rated observing behavioral cues over twice as highly as the various methods of detecting lies that do not rely on behavioral information. Even when we detect deception without relying on behavioral cues, we still believe we detect lies by observing behavioral cues.

# The frequency of lying

Another feature of our folk theory of lying is that it is very common. What do you think? Do you think lying is commonplace? When I have discussed this issue with other philosophers, they are inclined to say lying is commonplace. “Don’t people lie all the time?” they ask rhetorically. Popular media agrees. The website for the popular TV show *Lie to Me* said “the average person tells lies three lies in ten minutes of conversation” (Fox Broadcasting Company, 2009). Pamela Meyer, the CEO of a company that trains professionals on how to detect lies, said in her TED talk “How to Spot a Liar” that “on a given day, studies show that you may have lied anywhere from 10 to 200 times” (Meyer 2011). According to her Wikipedia page, her talk has been viewed over 31 million times, and is one of the 20 most popular of all time.

I don’t know the studies that Meyer is referring to (she doesn’t say), but I do know where Fox is coming from, for they cite a study by Feldman, Forrest, and Rapp (2002) entitled “Self-Presentation and Deception: Do Self-Presenters Lie More?” Does this study show that “the average person tells three lies in ten minutes of conversation”? No. The study involved undergraduates having ten-minute getting acquainted conversations with other students. The study divided the undergraduates into three groups. One third were instructed to come across as very likable. Another third was instructed to come across as extremely competent. The last third (the control group) was given no specific instructions about what impression to convey. The study was about *self-presentation*, and two of the three groups were instructed to *present themselves*. Of those two groups, 40% told no lies at all. Of the other 60% who lied, they told an average of three lies in their ten-minute conversations. If you include all the students in the treatment condition, the average was 1.75 lies per ten minutes. And then if you include the control group, the average is 0.88 lies per ten-minutes in the experimental situation. Additionally, using only undergraduates skews the results, for we have learned independently that teenagers and college students lie more on average than either young children or ordinary adults (Levine, Serota, Carey & Messer 2013). The Feldman et al. study does not show that the average person tells three lies per ten minutes of conversation.

If the study Fox referred to doesn’t support ringing the alarm, what do other studies say? Other studies include DePaulo et. al. (1996), George and Robb (2008), Serota et. al. (2010), Halevy et. al. (2014), Debey et. al. (2015), Serota and Levine (2015), and Serota et. al. (2022). I’ll take you inside the details of DePaulo et. al. (1996), considered to be “the best and most cited” research on the topic (Serota et. al. 2010, 3) before turning to more recent studies. The DePaulo study should be revealing.

DePaulo et. al. (1996) conducted two studies. In the first they recruited 77 college students, aged 17-22. In the second, they recruited 70 community members, aged 18-71. The subjects were trained to keep a diary of their conversations throughout the day and to record their lies for a week. The participants were told to count anything as a lie—even nonverbal behavior—that was intended to mislead or deceive. The participants were encouraged to record all lies, no matter how big or small. The only exception was to exclude saying “fine” in response to the perfunctory “how are you?” questions.

Steps to encourage the reporting of all lies included allowing participants to keep the content of their lies secret if they choose; encouraging participants to include as much as they could remember about lies; telling participants if they remembered a lie from a previous day that they had not recorded to include it in later entry; and maintaining anonymity in the reporting of lies.

When a participant recorded a lie, they were asked to briefly describe the lie, the reason for the lie, and the gender of the person(s) lied to. Participants were then asked to report on a number of dimensions on 9-point scales, including:

* The intimacy of the interaction, from very superficial to very meaningful.
* The quality of the interaction, from very pleasant to very unpleasant.
* The degree of planning of the lie, from completely spontaneous to carefully planned.
* The importance of not getting caught, from very unimportant to very important.
* Their feelings before telling the lie, during, and after, from very comfortable to very uncomfortable.
* The seriousness of the lie, from very trivial to very serious.
* The recipient’s reaction to the lie, from didn’t believe me at all to believed me completely.

Participants were then asked two additional questions:

* How would the recipient have felt if you had told the truth instead of a lie?
* How would you have felt if you had told the truth instead of a lie?

At the end of the seven days, participants were asked two additional questions about each lie:

* Was your lie discovered?
* If you could relive this social interaction, would you tell the lie again?

Lastly, participants were asked:

* How successful do you think you are at lying?
* How frequently do you lie in comparison with other people your age?

Once the experimenters received all the reports, they coded the lies along four dimensions:

* Content: what is the lie about? Feelings; achievements and knowledge; actions, plans and whereabouts; explanations and reasons; or facts or possessions?
* Reason: what is the reason for the lie? Self-oriented reasons to advance the interests of the liar, or other-oriented reasons to advance the interests of others?
* Type: was the lie an outright lie (a total falsehood), an exaggeration, or a subtle lie (such as telling the literal truth while omitting a relevant detail with the intention of misleading)?
* Referent: who or what was the lie about? The liar, the recipient, another person, or some object or event?

What were some of the results?

* The frequency of lies told per day: on average (the mean), the college students told 1.96 lies per day—about one lie per every three social interactions with others. And the community members, on average (the mean) told 0.97 lies per day—about one lie out of every five social interactions.
* Participants generally rated themselves as successful liars.
* Participants generally said they lied less frequently than they expected.
* Participants generally said they lied less frequently than others their age. (Our folk theory at work–we think others lie a lot.)
* Content: Most lies were about feelings; achievements, actions, plans or whereabouts.
* Reason: Most lies were self-oriented, though approximately a fourth were other- oriented. Among the self-oriented lies, however, most were for psychic rewards—to gain esteem, affection, or respect. Only a smaller number were for financial or other material gain, such as getting a better grade or a promotion.
* Types: The largest category were outright lies. For the rest, the larger group was exaggerations for the college students, but subtle lies for the community members.
* Referent: The clear majority here was a lie about the liar. But lies were also commonly about the recipient, other people, or various objects or events.

After reviewing all their findings, DePaulo et al. conclude that:

* Most lies are self-oriented. About twice as many are self-oriented than other- oriented.
* Most are for psychic rewards. Self-oriented lies are more for esteem or affection than for financial or material gain, and other-oriented lies are typically to protect the feelings of others.
* Lies tended to be unplanned.
* Most lies are not judged to be very serious.
* For everyday lies, most liars do not tend to worry much about being caught.
* Most liars, at the time of their lie, expect to be believed.
* And most would tell the lie again, though the percentage of lies that the liar learned were detected as lies strongly correlated with whether the liar would tell the lie again. That is, around 73% percent of college students and 82% of community members said they would lie again, and around 23% of college students and 15% of community members said the lie was discovered. This suggests that whether one would choose to lie again is a function of whether one got away with the lie.
* Though liars typically think they will be believed, they do feel a degree of distress during and after a lie. They also feel less pleasant and intimate. DePaulo et al. call these negative feelings “the smudge” associated with lying.

They concluded on a note about serious lies. The lies of everyday life are typically of little consequence. But not all lies are so little. “Serious lies, which are often deep breaches of trust, occur too, but they are far less common. They are not a fact of everyday social life.” (DePaulo et al. 1996, 993)

Though I’ve just listed many lessons from their study that are highly relevant, the main point for now is the frequency of lying. On average, teenagers and college students lie about 2 times per day, and people who are older on average lie about once a day. That’s hardly up to 200 times a day, let alone three times per every ten-minute conversation.

The main objection to studies like this is that they rely on self-reporting. There are three problems with self-report studies: participants may forget, they may fail to competently report, and they may be biased so as to make themselves look or feel good about themselves.

The main concern for this study would be the last, though there are reasons for thinking that diary studies on sensitive topics like drinking or sexual behavior will suffer from less under-reporting than simple self-report studies (Lemmens, Tan, & Knibbe 1992; Ramjee, Weber, & Morar 1999). DePaulo et al. (1996) did what they could to address this concern in their design of the experiment and their communications with the

participants. The investigators told the participants that their role would be very important as they would be observing and recording their own behavior, and so the scientific value of the experiment would depend on the quality of their participation. The investigators explained that they neither condone nor condemn lying. The participants were encouraged to see their participation as an opportunity to learn more about themselves. Even so, the investigators believe that the actual rate of lying was somewhat higher than reported. But probably not much higher, for “...the fact that participants described about twice as many self-centered lies as other-oriented ones suggests at least some willingness to own up to selfish motives.” (DePaulo et al. 1996, 992) In a follow- up diary and lab studies, Halevy et. al. (2014) found that those who lied were willing to report that they did, suggesting that concerns over self-reporting in deception studies are not as strong as one might have otherwise thought.

Hancock et. al. (2004) and George and Robb (2008) replicated DePaulo et. al.’s diary studies with similar results. Hancock et. al. (2004) report 1.58 lies per day for college students, and George and Robb report 0.59 lies per day. The range is probably due to sample size.

Studies like DePaulo et al. (1996) on when we lie, who we lie to, what we lie about, and why we lie, provides some insight into why it is so hard to tell, when prompted, whether someone is lying: when we lie, we think it’s easy:

Our… perspective has led us to reject the view that lie telling is typically a complicated, stressful, guilt-inducing process that produces clear and strong cues. Instead, we believe that most deceptive presentations are so routinely and competently executed that they leave only faint behavioral residues…. [O]rdinary people are so practiced, so proficient, and so emotionally unfazed by the telling of untruths that they can be regarded as professional liars. (DePaulo et. al. 2003, 81)

For most lies, lying is easy (McCornack 2014). The folk stereotype of the psychology of the typical lie is a myth.

Serota et. al. (2010) also performed two self-report studies, but this time with a more direct paradigm. They simply asked people how many times they lied during the day. In the first, they embedded their questions in an online commercial research tool that recruits representative samples. The survey asked 1,000 American adults questions in four areas: packaged meals, cat litter products, lying behavior, and water softeners. Before the lying questions, the survey included a brief description of different kinds of lies in a non-pejorative manner with a description of the point of the questions. The subjects were then asked how many times they lied in the last 24 hours using an open- ended format, “responding separately for lies to family members, friends, business contacts, acquaintances…, and total strangers.” (Serota et. al. 2010, 7) The results were consistent with DePaulo’s results of one to two lies per day on average. They then performed a variant of the survey with 255 college students. Besides asking about the number of lies in the last 24 hours, students who reported no lies in the last 24 hours were also asked about the last time they told a lie: in the last 2 days, last week, last month, more than a month, or never. They also took steps to address concerns about self- reporting (Serota et. al. 2010, 19).

What were the results of their surveys? For the students, the mean was 2.34 lies per day. For the survey of adult Americans, the mean was 1.65 lies per day. These results fall in line with previous results. Teenagers really do lie more on average.

In a follow-up study that surveyed just under 3,000 people in the United Kingdom, the results were similar but somewhat higher: the mean was 2 lies per day (Serota and Levine (2015). All the studies I know of have similar results on the average number of lies told per day. It’s not 200 lies per day.

When these studies addressed the kinds of lies told, white lies were always in the majority. There are (at least) three interesting features of white lies. First, they are socially sanctioned. We are instructed as children when to tell them, and we are criticized as adults for not telling them in certain cases: “Avoiding social ostracism, one of the most common responses to telling unpopular truths, is a powerful motivator for liars to tell polite lies” (MacKinnon 2014, 271). Second, hearers want to hear them, at least for the most part. We’re not on our guard not to be lied to about such matters, and we don’t hold people to account for telling such lies. Third, it’s easy to tell white lies. None of this fits with our folk theory of lying. If white lies are the majority of lies, it should be no surprise that the folk theory of lying and how we detect lies doesn’t fit the facts very well.

One of the most interesting findings from the Serota et al. studies is that the popular reports on daily frequency of lying are misleading. The popular reports say things like “everybody lies on average N lies per day.” But when Serota el al. looked closely at the individual data, they discovered a striking skew in the data. It is not that everyone is disposed to lie one or two times a day. Rather it is that most of us hardly ever lie and that a few of us lie a lot. If you have ten people and you ask how often they lie per day, and 7 say ‘never’ and 3 say ‘3-4 times a day’ and then you average the data, you will conclude that on average people lie around once a day. But if you pay close attention to the data before averaging, you’ll discover it is skewed. There are really two groups of people: those who hardly ever lie and those who lie a lot. Serota et al. discovered this skew when they reanalyzed the raw data from the DePaulo et al. 1996 diary studies and in their own survey studies, as well as the survey data from the United Kingdom. These results have also been replicated in South Korea and Japan (Park, Serota, & Levine 2021; Daiku, Serota, & Levine 2021). It’s a remarkable result. A few of us are prolific liars, where most of us routinely tell the truth.

Although it is more than reasonable to wish for better studies on how we really detect lies, better studies of the frequency of lying, and better studies of the types of lies told, I think we have more than good enough studies to conclude that the folk theory about how liars behave and how we can detect lies in real time is false. Altogether, ecologically valid research (in the relevant respects) has shown that our folk theory is wrong in many respects:

* It is wrong about the frequency of lying
* It is wrong that lying well is difficult (for most of us most of the time)
* It is wrong that lying leaks reliable behavioral cues (except for a few bad liars)
* It is wrong that we can detect lies in real time by observing cues or demeanor (that’s not how we catch a liar)

What should social epistemologists draw from this? On the face of it, social epistemology should not invoke what isn’t true to explain how it is we come to acquire true beliefs through communication, just as social epistemology should not invoke what isn’t true to explain how we might do better.

# Fricker’s epistemology of testimony

Based on some of the deception detection research, Michaelian (2010) and Shieber (2012) have accused Elizabeth Fricker of relying on what isn’t so in her epistemology of testimony. Though I agree with their criticisms, I believe we can do deeper in expounding her view and showing just where it goes wrong. We can also take up her replies to Michaelian and Shieber. Readers should come away with a deeper appreciation of her view as well as its shortcomings.

I shall focus on themes from her landmark paper “Against Gullibility” (Fricker 1994), subsequently defended, elaborated, and modified over thirty years (Fricker 1995, 2004, 2006a, 2006b, 2016, 2017a, 2024). Most of the replies have focused on her case for a monitoring requirement for warranted testimony-based beliefs–her argument against gullibility. Hence the title of her paper. But that wasn’t the only point of her paper. As she emphasizes elsewhere (Fricker 2006a, 620), she took the main point of her paper to argue that ordinary hearers possess adequate non-circular reasons to justify their reliance on testimony, pace so-called “anti-reductionists” who think hearers never have enough independent support to justify their reliance on testimony, (despite the title of her paper). I shall review how she makes her case for both points before turning to criticisms.

Here is her argument for her monitoring requirement:

(P1) Lying is very common. (Folk assumption)

“...false utterances are quite common…” (Fricker 1994, 146); “The risks involved in trusting others are considerable… (Fricker 2006b, 242) as “…[f]alse statements made through deceptive intent…are an intrinsic and perennial possibility… (Fricker 2016, 92). “...it is in the nature of testimony that false testimony…is a real risk.” (Fricker 2016, 93). “[T]here is a significant possibility of false assertion…[W]e all understand how easily it can happen and all too often does happen, that a speaker lies…” (Fricker 2017a, 268). “Our understanding of testimony is embedded in our grasp of folk psychology… [We know] there are many everyday communicative situations where the speaker has some motive to deceive, or at least conceal…We all know that human testimony…is by its nature chronically liable to inaccuracy…” (Fricker 2024, 285-86).

(P2) When people lie, for the most part, they know they are breaking an enforced norm against deception. (Prohibitions against lying are universal across human cultures. The knowledge (or some related) norm of assertion is also constitutive of assertion and a social norm–see Fricker (2017b).)

(P3) So, for the most part, they will feel guilty, and they will also be anxious as they don’t want to get caught. (Knowledge of human nature.)

(P4) These emotions, for the most part, will leak in their behavior as cues to deceptive intent. Lying well is hard. (Folk theory of the psychological effects of lying.)

“Expert dissimulators amongst us are few, the insincerity of an utterance is very frequently betrayed in the speaker’s manner, and so is susceptible of detection by [our] quasi-perceptual [deception monitoring] capacity.” (Fricker 1994, 150)

(P5) When can detect these behavioral cues: we have a (possibly subpersonal) “deception detection” mind-reading capacity that makes it easy to tell they are not trustworthy on the occasion of their utterance. We have a reliable “quasi- perceptual” competence to detect deception in real time that takes in behavioral cues or their gestalt as an input and produces a trustworthiness judgment–a demeanor judgment–as its conscious output (Assumption, largely from folk psychology and introspection on anecdotal cases.)

“[Monitoring consists in] being perceptually sensitive to betraying signs that, for instance, the speaker is lying” (Fricker 2006a, 264). “...a hesitancy in the voice, an insincere seeming smile.” (Fricker 2004, 117). “...nervousness… or confusion…” (Fricker 2024, 283). “Such monitoring…[is] usually found in ordinary hearers, at least to some extent.…[I]ts results can generally be fished up into consciousness and expressed, albeit roughly, in words (“He seems suspiciously shifty…I don’t like the look of him” (Fricker 2006a, 624). “Well, she seemed perfectly normal” (Fricker 1994, 150).

(P6) If we did not exercise this competence, then we would be deceived too often.

Not exercising this competence is a recipe for objectionable gullibility.

“It is a law-like general truth that testimony is not in practice a completely reliable source of belief, if accepted uncritically…[As a result, a] “recipient must…filter…[and] detect and block belief [from]…false testimony that she might easily encounter…” (Fricker 2016, 93) For “if a significant percentage of [testimonies] are not [trustworthy]...one should not infer from [S testified that P to P]. A belief so formed is not epistemically rational” (Fricker 1994, 146).

(C1) So as epistemologists must require hearers to exercise (and possibly improve) their quasi-perceptual capacity to detect deception in real time. We should always monitor, even if only passively, such that if there were signs of deceptive intent, we would pick them up and suspend acceptance as a result (Fricker 1994, 145, 154; 1995, 404, 405).

“[To avoid this] uncontroversially bad kind of gullibility” (Fricker 2006a, 623) [a hearer must be] “disposed to pick up…tell-tale signs [of insincerity, of] symptoms of duplicity” (Fricker 1994, 151). “Caution and canniness should govern our response to others’ testimony. Unless we exercise it, we fail to maintain responsibility for our own beliefs” (2006b, 243). “Reliability in the process of forming belief through acceptance of testimony must be maintained in part by an effective filter at the recipient’s end” (Fricker 2016, 116).

That’s Fricker’s argument for her monitoring requirement. I now turn to her case for thinking hearers possess a good, non-circular reason to accept testimony, through the exercise of a reliable quasi-perceptual competence to tell that their interlocutor is trustworthy:

(p1) For a justified belief, a believer must be able to justify their belief, to provide a good reason supporting their belief. Justified belief requires the capacity for critical reflection and defense. Justification is a “standing in the space of reasons.” Justified beliefs are the property of ordinary reflective adults; the beliefs of young children and non-human animals are another story. (Fricker 1994, 126-127, 138-141, 150, 157-160; 1995, 397, 408; 2004, 114, 120-122;

2016, 89; 2017a, 276, 288, 291-292)

(p2) Some beliefs are basic in virtue of their sources, where simply describing how the beliefs are formed (citing the source) suffices to provide a good reason. For example, “I saw it” suffices to justify a perceptual belief. (Fricker 2006a, 249; 2017a, 262-3, 266-267; 2024, 283)

(p3) Our belief that we have been told that P, formed through linguistic comprehension, is also a basic belief. Our capacity to comprehend assertive speech acts is a reliable, quasi-perceptual capacity. We do not need independent reasons to justify such beliefs. (Fricker 2003; 2004)

(p4) But testimony-based beliefs are not basic. Simply saying “I was told that P” does not suffice to provide a good reason for a testimony-based belief (though the belief “I was told that P” counts as a basic, or quasi-basic, belief). The hearer must also justifiably believe that the speaker, on the occasion, is trustworthy. The hearer needs two justified beliefs that work in tandem to justify their testimony-based beliefs: (a) I was told that P by S on occasion O and (b) S is trustworthy on O: S would not have told me that P on O unless S knows that P. (Fricker finds this both intuitive, by the previous argument that without such a justified second premise one is likely to be fooled all too often.)

(p5) One source of the justified belief that the speaker is trustworthy would be a reliable quasi-perceptual monitoring capacity that outputs the belief that the speaker is trustworthy on the occasion. Such beliefs, like perceptual beliefs, would be basic. A hearer can then have good, non-circular reasons for their

testimony-based beliefs, one from their quasi-perceptual ability to comprehend the force and content of the speech act, and another from their quasi-perceptual ability to tell that the speaker is trustworthy on the occasion.

(p6) The belief formed though such a reliable competence that the speaker is trustworthy provides a non-circular reason to believe the speaker, for it does not assume that what the speaker said is true, nor is it formed simply through taking the speaker’s word for it. Our reality ability to monitor for signs of deception grounds the justified belief we need to justify our reliance on testimony.

(C2) It is then not true, as so-called anti-reductionists suppose, that hearers lack, on most (every?) occasion of a justified testimony-based belief, a non-circular justification (a good argument) in favor of the testimony-based belief.

For Fricker, our quasi-perceptual capacity to tell that a speaker is trustworthy on an occasion then kills two philosophical birds with one stone. First, it shows how a hearer can have a non-circular reason to believe a speaker on an occasion. So-called anti- reductionists who think we lack non-circular reasons to believe testimony on occasions are thus mistaken, as they have overlooked a source of justification for the belief that the speaker is trustworthy. Second, it shows, along with the assumption that lying is common, that we had better exercise this capacity, otherwise we will be deceived far too often. Our testimony-based beliefs will not only lack the good justification they require, but they will also end up riddled with errors. Once again so-called anti-reductionists are mistaken that such monitoring is not a requirement for testimonial knowledge and justification.

What should we think of these arguments? I think we have learned that (P1) is false, or at least that lying is not frequent enough, across ordinary contexts, to raise the alarm bells. “Real risk” and “significant probability” are probably exaggerations. Without (P1), the first argument is cast in doubt, as the conclusion depends on the assumption that without demeanor monitoring, we will be fooled all too often.

We can grant (P2), with the acknowledgement that white lies are an exception, or that the existence of norms for telling white lies competes with, or requires qualification of, norms of truth-telling. (P3) is probably also not true for white lies, but plausible for other types of lies, at least for some people some of the time.

Except for a few bad liars, (P4) is false. “Leakage theories” are incorrect as generalizations about human behavior. Lying is, for the most part, easy. Furthermore, as the Othello effect shows, an honest person can easily resemble a liar. The fact that demeanors in general need not correlate with honesty or dishonesty undermines the folk idea that liars fit the folk stereotype.

The evidence reviewed shows that (P5) is false. We do not possess a capacity to form demeanor judgments that are sensitive to underlying honesty or dishonesty. Since (P6) depends on (P1) and (P5), (P6) is unsupported. (P6) also assumes that there are no other ways to manage concerns regarding deception. Maybe we don't need to worry about being lied to if other facts of social life make lying less likely to occur than one might have otherwise thought. I’ll return to this momentarily.

Fricker’s case for (C1) and so her case against so-called anti-reductionists is not persuasive. It’s an armchair argument, refuted by decades of empirical research on deception detection and the frequency and types of lies.

What about Fricker’s second argument? (p1) as a thesis about knowledge or justification “deluxe” sounds fine. As a thesis about knowledge generally, it seems false. Throughout her career Fricker was aware of such a possibility (e.g. Fricker 1994, pp. 158, 160). In her most recent work, she grants that “justification” as “standing in the space of reasons” and knowledge through testimony might have very different requirements (Fricker 2024, 289). That brings her close to Robert Audi’s (1997) view of testimonial knowledge as less intellectually demanding than testimonial justification.

I shall pass over (p2) and (p3). (p4) dialectically depends for its plausibility on the first argument. Since several the premises in that argument are false, (p4) lacks support. On a so-called anti-reductionist view, the belief “I was told that P” might suffice to justify a testimony-based belief.

What the empirical evidence shows is that (p5) is false. We lack a capacity that reliably discriminates honest speakers from dishonest speakers by demeanor judges that respond to features of the speaker’s nonverbal and paraverbal behavior. Since (p6) depends on the truth of (p5) for its truth, (p6) is false as well. Fricker has failed to show that hearers have, on every occasion of a justified testimony-based belief, an adequate non-circular reason to believe that the speaker is trustworthy that P that derives from demeanor judgments grounded in observation of the speaker’s nonverbal and paraverbal behavior.

(C2), like (C1), is unsupported. The empirical science does not support Fricker’s case for her so-called “local reductionism” as against so-called anti-reductionism.

In her paper "Unreliable Testimony", Fricker (2016) responds to Shieber (2012) (and mentions Michaelian (2010) in the footnotes). How did she respond to Shieber’s presentation of the meta-analyses that purportedly show that we lack the ability to tell, in real time, whether someone is lying? She made three replies.

First, she denied the ecological validity of the studies. In my presentation of the research, I took pains to detail their methodology and to argue for their ecological validity. I did this because I knew Fricker’s response. Fricker’s concern is a reasonable one. We should always worry whether results from experiments in the lab carry over to the real world outside of the lab. But we should not assume, a priori, that they never carry over. Though reasonable, Fricker’s concern is misapplied. The results of this research are ecologically valid.

Second, when it came to explaining why judgments about the speaker’s trustworthiness on the occasion are justified, Fricker downplayed the emphasis on observing behavioral cues in real time and emphasized other sources of evidence that can support a hearer’s judgment that a speaker’s testimony is trustworthy on the occasion. We have background beliefs about the probability of the speaker’s statement. That someone took an umbrella to work when the weather predicted rain is not a surprise. Why would anyone lie about that? We have knowledge of the speaker’s social role and the social situation. Why would a clerk at a store lie about whether they have the size of shoe you want to buy? We often have good reason to believe that a speaker is trustworthy independent of judgments of their demeanor based on observing the nonverbal and paraverbal behavior. We have first-hand knowledge of the speaker’s track-record. We have knowledge of situation specific reasons to lie.

I accept these other sources of prima facie pro tanto reasons to believe the speaker is either honest or dishonest on the occasion. What I doubt is that they can play the role Fricker needs them to play in her second argument. Though these reasons may be non-circular in the sense that they do not presuppose believing that the speaker is trustworthy on the occasion, they often depend on testimony from others. They may not be present in every case. Fricker had hoped to show that trustworthiness judgments from a demeanor monitoring capacity yielded justified basic beliefs that did not depend on testimony, available in every case. Given that we lack such a reliable capacity, we lack “basic” beliefs that the speaker is trustworthy from this route. Other routes may be possible. But the other routes may not be basic and may not be present in sufficient strength in every case, putting dialectical pressure on Fricker’s reply to so-called anti- reductionists.

I also found Fricker’s downplaying of the role of monitoring for behavioral cues – “telltale signs” – of deceptive intent misleading. It really is obvious throughout her body of work prior to 2016 that her main case for a monitoring requirement derived from our folk theory of the frequency of lies, how liars behave, and how we can tell they are lying by observing their behavior. That’s partly why I’ve included so many direct quotes from her writings. In a 2024 paper the emphasis on behavioral cues comes back in full force: “Such telltale giveaways might be perceived in the speaker’s manner [including] nervousness [or] hesitancy…” (Fricker 2024, 283). When it comes to worries about deception and how we know someone is not lying, Fricker’s view really is the view the empirical science shows to be mistaken.

Third, Fricker reminds us that we should worry not only about deception but also incompetence. Maybe false testimony though incompetence is even the bigger concern. That may be true. But as I said at the outset, I am tabling issues of competence here. But if Fricker thinks we have a reliable quasi-perceptual capacity to issue competence judgments from observing nonverbal and paraverbal behavior, odds are she is mistaken there too.

Fricker (2024) does not mention any of the empirical research. Neither Shieber nor Michaelian are referenced. But she does hint that she might be willing to raise the white flag. She makes four interconnected remarks:

First, she correctly says that whether we have a reliable demeanor monitoring capacity is an empirical question, not to be answered from the armchair. (Fricker 2024, 289)

Second, though she says she believes we have one, she says she will not offer any empirical evidence. (Fricker 2024, 287) That’s wise, as the available evidence shows we don’t.

Third, even so, she continues to insist that monitoring for demeanor, reliably so, is a normative requirement on the justification for testimony-based beliefs. (Fricker 2024, 283, 289) No reliable monitoring, then too many false beliefs, on the one hand, and one less source for the justified belief that the speaker is trustworthy, on the other.

Fourth, if humans lack such a capacity, she is then “happy” to conclude that it is “very likely so” that “people may sometimes be too credulous in their everyday reception of testimony.” (Fricker 2024, 289) She seems willing to embrace a more skeptical stance towards the extent of our justified testimony- based beliefs.

That’s why I say she seems willing to raise the white flag, for she seems willing to concede that we lack the ability to detect deception in real time through monitoring the speaker’s nonverbal and paraverbal behavior.4

I’ve put Fricker’s work under the critical microscope, in part because she’s the one social epistemologist who did the most to turn our folk epistemology into a well worked out social epistemology. But Fricker is not the only philosopher in my crosshairs: Miranda Fricker, Sanford Goldberg, Jennifer Lackey, and Steven Reynolds – not to mention all of the other philosophers I did not mention (you know who you are) – have all placed bad bets on the truth of our folk theory. No one should assume in their social epistemology of conversation that the folk theory is true. If you have placed a monitoring requirement on testimony ala Fricker, it is time to take it back. Goldberg and Henderson (2006), I’m looking at you.

# Concluding thoughts

Though this chapter was long. Even so there are a lot of interesting issues from the literature that I have left on the table, issues central to the epistemology of testimony:

* + Our default tendency to believe that others are telling the truth (the “truth bias”) (Zuckerman, DePaulo et al., 1981; McCornack & Parks 1986; Gilbert, Krull & Malone 1990; Gilbert 1991; Gilbert, Tafarodi, & Malone 1993; Anderson, Ansfield & DePaulo 1999 Levine, Park, and McCornack 1999; Hasson, Simmons, & Todorov 2005; Richter, Schoeder, & Wöhrmann 2009; Levine 2014; 2022; 2023; Clare & Levine 2019);
  + The influence of the base-rate of honest over dishonest reports on the frequency of our accurate judgments of honesty over dishonest–the so-called “veracity effect” (Levine, Park, & McCornack 1999; Levine, Kim, Park & Hughes 2006; Levine, Kim, & Hamel 2010; Levine, Clare, Green, Serola & Park 2014; Levine 2019; 2020);
  + Experimental evidence showing what techniques for detecting lies are much more likely to work (Hartwig et al. 2006; Granhag, Stromwal, & Hartwig 2007; Levine, Shaw, & Shulman 2010; Levine, Clare, Blair, McCornack et al. 2014; Blair, Reimer, & Levine 2018);
  + Experimental evidence of our aversion to lying despite incentives to lie (Gneezy 2005; Lundquist et al. 2009; Ariely, 2012; Fischbacher & Föllmi-Heusi 2013; Gneezy, Rockenbach & Serra-Garcia 2013; Gneezy, Kajackaite & Sobel 2018; Abeler, Nosenzo, & Raymond 2019);
  + The role of social norms for truth-telling in explaining our aversion to lying and in otherwise supporting the reliability of testimony so that perhaps there is no need for each individual to bother with being on their guard as long as enough of us catch liars and enforce penalties (Faulkner 2011; Graham 2012; 2015; 2020a; 2020b; Fricker 2016; 2017b; 2024; Simion 2020; Simion & Kelp 2020;

Bruner 2024; Grodniewicz 2024);

4 For the exact opposite reaction, see Michaelian 2019.

* + Evolutionary considerations surrounding lying and lie detection (Kraut 1980; Bond, Kahler, & Paolicelli 1985; Sperber 2001; 2013; Sperber et al. 2010;

Mercier & Sperber 2011; Graham 2015);

* + and how all of the facts I covered and all of these issues that I just mentioned fit into our most plausible account of the epistemology of conversation (Graham 2010; 2020a; 2020b; Vesga 2023).

Maybe I will have the opportunity to discuss further lessons for the epistemology of testimony from the deception detection research on further occasions.

But before I leave you, I want to answer an objection to my work from Mona Simion and Chris Kelp in their 2020 paper “How to be an Anti-Reductionist.” They target my 2010 paper “Testimonial Entitlement and the Function of Comprehension” and argue that I should be hoisted on my own petard (though that is not how they put it). By comprehension I meant our capacity to comprehend assertive speech acts. Testimony-based beliefs are then comprehension-based beliefs, beliefs based on comprehending (as of) testimony. I then argued for the following theses:

* + Epistemic warrant for a belief turns on the normal functioning of the belief- forming process when the process has forming true beliefs reliably as an etiological function.
  + Comprehension of assertive speech with filtering has the etiological function of forming true beliefs reliably as a function. Filtered comprehension-based beliefs are reliable beliefs.
  + Putting two and two together: beliefs formed through comprehension with filtering are (prima facie, pro tanto) warranted.

Simion and Kelp (2020) argue that I’m in trouble on the grounds that “filtering” isn’t reliable. Filtering is just monitoring for behavioral cues of dishonesty, and haven’t we just learned that our judgments as to whether someone is honest or dishonest based on observable nonverbal and paraverbal features of their message fail to vary reliably with whether the speaker is in fact honest or dishonest? Filtering is then, at best, an idle wheel. They cite Michaelian (2010) as providing all the relevant evidence. So if filtering is supposed to improve the reliability of beliefs formed on the basis of comprehension, it’s not going to work (Simion & Kelp 2020, 285-55; Simion 2020; Carter & Littlejohn 2021, 232). In effect, they are accusing me of just the mistake I accused Fricker of making. How am I going to get out of this?

By drawing a distinction. Yes, I used the word ‘filtering.’ And yes, Fricker uses the word ‘filtering’ too. But there are many possible filters, many possible ways to “screen out” unreliable testimony. When it came to the filters I discussed in my paper, I didn’t include monitoring for behavioral cues to insincerity. Though at the time I didn’t know the detection deception literature well, I do remember reading a presentation of some of the results in a textbook on nonverbal communication and finding myself somewhat bewildered. Since I didn’t understand it, I didn’t rely on it.

Instead, I relied on “filters” I understood. Like Fricker, I included information about the track-record of the speaker. Fool me once, shame on you. Fool me twice,

shame on me. I included the confidence of the speaker. That may or may not have been a mistake. I included the internal coherence of the speaker’s message. Like Fricker I also included external coherence of the message with our background beliefs. But unlike Fricker I did not include, and so surely did not emphasize, detecting behavioral cues to deception. So the evidence Simion and Kelp cite about the unreliability of our capacity to detect valid behavioral cues doesn’t apply to me. It’s not one of the filters I had in mind. Simion and Kelp in effect make the same mistake Michaelian (2013) made when he accused Sperber et al. in their 2010 paper “Epistemic Vigilance” of relying on monitoring demeanor as a means of being vigilant for misleading testimony. Just as I didn’t rely on such a filter, neither did Sperber et al. (see Sperber 2013). Maybe we should just use “demeanor judgments” for the “filter” that doesn’t work and stop calling it a filter altogether.

Last question. If our folk theory is false, why is it so persistently held? Maybe it serves an important function. If people think they’ll be easily caught, maybe they will be less likely to lie (Bond 2006). As always, look for the function first.5

**References**

Abeler, J., Nosenzo, D., and Raymond, C. 2019. Preferences for truth-telling.

*Econometrica*, 87 (4), 1115-1153.

Anderson, D., Ansfield, M., and DePaulo, B. 1999. Love’s best habit: Deception in the context of relationships. In Philippot, P. & Feldman, R. (eds.). *Social Context of Nonverbal Behavior*, pp. 372-409. New York: Cambridge University Press.

Ariely, D. 2012. *The (Honest) Truth About Dishonesty*. New York: HarperCollins.

Audi, R. 1997. The place of testimony in the fabric of knowledge and justification. *American Philosophical Quarterly,* 34 (4), 405-422.

Blair, J., Reimer, T., and Levine, T. 2018. The role of consistency in detecting deception: The superiority of correspondence over coherence. *Communication Studies,* 69 (5), 483-498.

Bond, C. and The Global Detection Research Team. 2006. A world of lies.

*Journal of Cross-Cultural Psychology*, 37, 60-74.

Bond, C. and DePaulo, B. 2006. Accuracy of detection judgments. *Personality and Social Psychology Review*, 10 (3), 214-234.

5 I am grateful to the editor for his patience and comments for improvements. I started working through this research in 2020 while visiting CONCEPT at the University of Cologne as a Humboldt Research Award winner. I had the pleasure of discussing what I was learning and its relevance to social epistemology with a number of audiences from Fall 2020 to Fall 2023, including two different audiences at the University of Cologne, an audience at Southern Denmark University, an audience at the University of Glasgow, and to the Empirical Epistemology Network. I am grateful for all of the helpful comments I received on those occasions.

Bond, C. & DePaulo, B. 2008. Individual differences in judging deception: Accuracy and bias. *Psychological Bulletin,* 134 (4), 477-492.

Bond, C., Kahler, K., and Paolicelli, L. 1985. The miscommunication of deception: An adaptive perspective. *Journal of Experimental Social Psychology,* 21 (4), 331-345.

Bruner, J. 2024. Assertions: deterrent or handicap? A reply to Graham (2020).

*Episteme* (First View).

Burgoon, J. 2015. Rejoinder to Levine, Clare et al.’s Comparison. *Human Communication Research*, 41 (3), 327-49.

Burgoon, J. and Buller, D. 1996. Interpersonal deception theory. *Communication Theory,* 6, 203-242.

Carter, A. and Littlejohn, C. 2021. *This is Epistemology: An Introduction*. Wiley- Blackwell.

Clare, D. and Levine, T. 2019. Documenting the truth-default: The low frequency of spontaneous unprompted veracity assessments in deception detection. *Human Communication Research*, 45, 286-308.

Daiku, Serota, K., and Levine, T. 2021. A few prolific liars in Japan. *PLoS One,*

16 (4).

Davis, M., Markus, K., Walters, S., Virus, N., and Connors, B. 2005. Behavioral cues to deception vs. Topic incriminating potential in criminal confessions. *Law and Human Behavior,* 29, 683-704.

Debey, E., De Schryver, M., Logan, G., Suchotzke, K., and Verschuere, B. 2015. From junior to senior Pinocchio: A cross-sectional lifespan investigation of deception. *Acta Psychologica,* 160, 58-68.

DePaulo, B. 1980. Humans as lie detectors. *Journal of Communication,* 30 (2), 129-139.

DePaulo, B., Kashy, D., Kirkendol, S., Wyer, W., and Epstein, J. 1996. Lying in everyday life. *Journal of Personality and Social Psychology*, 70 (5), 979-995.

DePaulo, B., Lindsay, J., Malone, B., Muhlenbruck, L., Charton, K., and Cooper,

H. 2003. Cues to deception. *Psychological Bulletin*, 129 (1), 74-118.

Driskell, J. 2012. Effectiveness of deception detection training: A meta-analysis.

*Psychology, Crime & Law,* 18 (8), 713-731.

Eckman, P. & Friesen, W. 1969. Nonverbal leakage cues to deception.

*Psychiatry,* 32, 88-106.

Faulkner, P. 2011. *Knowledge on Trust.* Oxford: Oxford University Press.

Feeley, T. and deTurck, M. 1998. The Behavioral correlates of sanctioned and unsanctioned deceptive communication. *Journal of Nonverbal Behavior,* 22*,* 189-204.

Feldman, R., Forrest, J., and Happ, B. 2002. Self-presentation and verbal deception: Do self-presenters lie more? *Basic and Applied Social Psychology,* 24 (2), 163-170.

Fischbacher, U. and Föllmi-Heusi, F. 2013. Lies in disguise: An experimental study on cheating. *Journal of the European Economic Association,* 11 (3), 525-547.

Frank, M. and Feeley, T. 2003. To catch a liar: Challenges for research in lie detection training. *Journal of Applied Communication Research,* 31 (1), 58- 75.

Fricker, E. 1994. Against gullibility. In Chakrabarti, A. & Matilal, B.K. (eds.)

*Knowing from Words*, pp. 125-161. Dordrecht: Kluwer Academic Publishers.

Fricker, E. 1995. Telling and trusting: Reductionism and anti-reductionism in the Epistemology of Testimony. *Mind*, 104 (414), 393-411.

Fricker, E. 2003. Understanding and Knowledge of What is Said. In Barber, A. (ed.). *Epistemology of Langauge*, pp. 325-366. Oxford: Oxford University Press.

Fricker, E. 2004. Testimony: Knowing through being told. In Niiniluoto, I., Sintonen, M., & Wolenski, J. (eds.). *Handbook of Epistemology*, pp. 109-130. Dordrecht: Kluwer Academic Publishers.

Fricker, E. 2006a. Varieties of anti-reductionism about testimony: A reply to Goldberg and Henderson. *Philosophy and Phenomenological Research*, 72 (3), 618-628.

Fricker, E. 2006b. Testimony and epistemic autonomy. In Lackey, J. and Sosa,

E. (eds.). *The Epistemology of Testimony*, pp. 225-250. New York: Oxford University Press.

Fricker, E. 2016. Unreliable testimony. In McLaughlin, B. & Kornblith, H. (eds.). *Goldman and His Critics*, pp. 88-120. Malden, Oxford: John Wiley & Sons, Inc.

Fricker, E. 2017a. Inference to the best explanation and the receipt of testimony: Testimonial reductionism vindicated. In McCain, K. & Poston, T. (Eds.), *Best Explanations: New Essays on Inference to the Best Explanation*, pp. 262-294. New York: Oxford University Press.

Fricker, E. 2017b. Norms, constitutive and social, and assertion. *American Philosophical Quarterly*, 54 (4), 397-418.

Fricker, E. 2024. A defense of local reductionism about testimony. In Steup, M., Roeber, B., Turri, J., & Sosa, E. (Eds.), *Contemporary Debates in Epistemology*, Third Edition, pp. 279-289. Malden, Oxford: John Wiley & Sons.

Fricker, M. 2007. *Epistemic Injustice*. Oxford: Oxford University Press.

George, J. and Robb, A. 2008. Deception and computer-meditated communication in daily life. *Communication Reports,* 21(2)*,* 92-103.

Gilbert, D. 1991. How mental systems believe. *American Psychologist,* 46, 107- 19.

Gilbert, D., Krull, D., and Malone, P. 1990. Unbelieving the unbelievable: Some problems in the rejection of false information. *Journal of Personality and Social Psychology*, 59, 601-13.

Gilbert, D., Tafarodi, R., and Malone, P. 1993. You can’t not believe everything you read. *Journal of Personality and Social Psychology, 65*, 221-233.

Gladwell, M. 2019. *Talking to Strangers: What We Should Know about the People We Don't Know*. Boston: Little, Brown and Company.

Gneezy, U. 2005. Deception: The role of consequences. *American Economic Review*, 95 (1), 384-394.

Gneezy, U., Kajackaite, A., and Sobel, J. 2018. Lying aversion and the size of the lie. *American Economic Review,* 108 (2), 419-453.

Gneezy, U., Rockenbach, B., and Serra-Garcia, M. 2013. Measuring lying aversion. *Journal of Economic Behavior & Organization,* 93, 293-300.

Goldberg, S. 2007. How lucky can you get? *Synthese*, 158 (3), 315-327.

Goldberg, S. and Henderson, D. 2006. Monitoring and anti-reductionism in the epistemology of testimony. *Philosophy and Phenomenological Research*, 72 (3), 600-617.

Gongola, J., Scurich, N., and Quas, J. 2017. Detecting deception in children: A Meta-Analysis. *Law and Human Behavior*, 41 (1), 44-54.

Graham, P. J. 2010. Testimonial entitlement and the function of comprehension. In Millar, A., Pritchard, D., and Haddock, A. (eds.). *Social Epistemology*, pp. 148-174. Oxford: Oxford University Press.

Graham, P. J. 2012. Testimony, trust, and social norms. *Abstracta,* 6, 92-117. Graham, P. J. 2015. Epistemic normativity and social norms. In Henderson, D.

& Greco, J. (eds.). *Epistemic Evaluation*, pp. 247-273. Oxford: Oxford

University Press.

Graham, P. J. 2020a. The function of assertion and social norms. In Goldberg, S. (ed.). *The Oxford Handbook of Social Norms*, pp. 727-748. Oxford: Oxford University Press.

Graham, P. J. 2020b. Assertions, handicaps, and social norms. *Episteme*, 17, 349- 363.

Granhag, P., Stromwal, L., and Hartwig, M. 2007. The Sue Technique: The way to interview to detect deception. *Forensic Update,* 88, 25-29.

Grodniewicz, J. 2024. Effective filtering: Language comprehension and testimonial entitlement. *The Philosophical Quarterly,* 74 (1), 291-311.

Halevy, R., Shalvi, S., and Verschuere, B. 2014. Being honest about dishonesty: Correlating self-reports and actual lying. *Human Communication Research,* 40 (1), 54-72.

Hancock, J. T., Thom-Santelli, J., and Ritchie, T. 2004. Deception and design: The impact of communication technology on lying behavior. *CHI Letters*, 6 (1), 129–134.

Hartwig, M. and Bond, C. 2014. Why do lie-cheaters fail? A lens model meta- analysis of human lie judgments. *Psychological Bulletin,* 137 (4), 643-659.

Hartwig, M., Granhag, P., Stromwall, L. and Kronsvist, O. 2006. Strategic use of evidence during police interviews: When training to detect deception works. *Law and Human Behavior,* 30, 603-619.

Harwood, J. (2014). Easy lies. *Journal of Language and Social Psychology,* 33 (4), 405-410.

Hasson, U., Simmons, J., Todorov, A. 2005. Believe it or not: On the possibility of suspending belief. *Psychological Science*, 16, 566-571.

Hauch, V., Sporer, S. Michael, S., and Meissner, C. 2016. Does training improve the detection of deception? A meta-analysis. *Communication Reports,* 43 (3), 243-283.

Hume, D. 2007. *An Enquiry concerning Human Understanding*. Edited with an Introduction and Notes by Peter Millican. Oxford: Oxford University Press.

Johnson, R. 2009. Race and police reliance on suspicious non-verbal cues. *Policing: An International Journal of Police Strategies & Management,* 30, 277-290.

Kraut, R. (1980). Humans as lie detectors. *Journal of Communication,* 30 (4), 209-218.

Lackey, J. (2008). *Learning from Words.* Oxford: Oxford University Press.

Lemmens, P., Tan, E. S., and Knibbe, R. A. 1992. Measuring quantity and frequency of drinking in a general population survey. *Journal of Studies on Alcohol*, 53, 476–486.

Levine, T. 2010. A few transparent liars: explaining 54% accuracy in deception detection experiments. *Annals of the International Communication Association,* 34 (1), 41-61.

Levine, T. 2014. Truth-Default Theory (TDT): A theory of human deception and deception detection. *Journal of Language and Social Psychology*, 33 (4), 378-92.

Levine, T. 2017. Mysteries and myths in human deception and deception detection. *Ewha Journal of Social Sciences,* 33, 5-28.

Levine, T. 2018. Ecological validity and deception detection research design.

*Communication Methods and Measures,* 12 (1), 45-54.

Levine, T. 2019. An overview of detecting deceptive communication. In Docan- Morgan, T. (ed.). *The Palgrave Handbook of Deceptive Communication*, pp. 289-299. New York: Palgrave Macmillan.

Levine, T. 2020. *Duped: Truth-default theory and the social science of lying and deception*. Tuscaloosa, AL: University of Alabama Press.

Levine, T. 2022. Truth-default theory and the psychology of lying and deception detection. *Current Opinion in Psychology*, 47, 1-4.

Levine, T. 2023. Deception detection and question effects: Testing truth-default theory predictions in South Korea. *Human Communication Research,* 49, 448-462.

Levine, T., Clare, D., Blair, J., McCornack, S., Morrison, K., and Park, H.-S. 2014. Expertise in deception detection involves activity prompting diagnostic information rather than passive behavioral observation. *Human Communication Research*, 40 (4), 442-462.

Levine, T., Clare, D., Green, T., Serota, K., and Park, H.-S. 2014. The effects of truth-lie base rate on interactive deception detection accuracy. *Human Communication Research,* 40 (3), 350-372.

Levine, T., Kim, R., and Blair, P. 2010. (In)accuracy at detecting true and false confessions and denials: An initial test of a projected motive model of veracity judgments. *Human Communication Research,* 36, 82-102.

Levine, T., Kim, R., and Hamel, L. 2010. People lie for a reason: Three experiments documenting the principle of veracity. *Communication Research Reports*, 27 (4), 271-285.

Levine, T., Kim, R., Park, H. S., and Hughes, M. 2006. Deception detection accuracy is a predictable linear function of message veracity base-rate: A formal test of Park and Levine’s probability model. *Communication Monographs,* 73 (3), 243–260

Levine, T., Park, H-S., and McCornack, S. 1999. Accuracy in detecting truths and lies: Documenting the “veracity effect.” *Communication Monographs,* 66, 125-144.

Levine, T., Serota, K., Carey, F., and Messer, D. 2013. Teenagers Lie a Lot: A Further Investigation into the Prevalence of Lying. *Communication Research Reports, 30(3)*, 211-220.

Levine, T., Serota, K., Shulman, H., Clare, D., Park, H-S., Shaw, A., Shim, J-C., and Lee, J-H. 2011. Sender demeanor: Individual differences in sender believability have a powerful impact on deception detection judgments. *Human Communication Research*, 37, 377-403.

Levine, T., Shaw, A., and Shulman, H. 2010. Increasing deception detection accuracy with strategic questioning. *Human Communication Research,* 36*,* 216-231.

Lundquist, T., Ellingsen, T., Gribbe, E., and Johannesson, M. 2009. The aversion to lying. *Journal of Economic Behavior & Organization,* 70*,* 81-92.

MacKinnon, S. 2014. Deception motives. In Levine, T. (ed.), *Encyclopedia of Deception*, pp. 271-274. Thousand Oaks, CA: Sage Publications.

Masip, J. and Herrero, C. 2015. Police detection of deception: beliefs about behavioral cues to deception are strong even though contextual evidence is more useful. *Journal of Communication,* 65 (1), 125-145.

McCornack, S. and Parks, M. 1986. Deception detection and relationship development: The other side of trust. In McLaughlin, M. (ed.). *Communication Yearbook* 9, pp. 377-89. Thousand Oaks, CA: Sage Publications.

McCornack, S. 2014. Difficulty of lying. In Levine, T. (ed.), *Encyclopedia of Deception*. pp. 614-616. Thousand Oaks, CA: Sage Publications.

Mercier, H., and Sperber, D. 2011. Why do humans reason? Arguments for an argumentative theory. *Behavioral and Brain Sciences*, 34, 57-111.

Meyer, P. 2011 (July). How to spot a liar [Video]. TED Conferences. https://[www.ted.com/talks/](http://www.ted.com/talks/) pamela\_meyer\_how\_to\_spot\_a\_liar.

Michaelian, K. 2010. In defense of gullibility: The epistemology of testimony and the psychology of deception detection. *Synthese,* 176 (3), 399-427.

Michaelian, K. 2013. The evolution of testimony: Receiver vigilance, speaker honesty and the reliability of communication. *Episteme,* 10 (1), 37-59.

Michaelson, E. 2018. Lying, Testimony, and Epistemic Vigilance. In Meibauer,

J. (ed.). *The Oxford Handbook of Lying*, pp. 215-229. Oxford: Oxford University Press.

Miller, G. and Stiff, J. 1993. *Deceptive Communication*. Newbury Park, CA: Sage.

O’Sullivan, M. 2008. Home runs and humbugs: Comments on Bond and DePaulo. *Psychological Bulletin,* 134 (4), 493-497.

O’Sullivan, M., Frank, M., Hurley, C., and Tiwana, J. 2009. Police lie detection accuracy: The effect of lie scenario. *Law and Human Behavior,* 33 (6), 530- 538.

Park, H-S., Levine, T., McCornack, S., Morrison, K., and Ferrara, M. 2002. How people really detect lies. *Communication Monographs,* 69 (2), 144-157.

Park, H-S., Serota, K., and Levine, T. 2021. In search of Korean outliers: “A Few Prolific Liars” in South Korea. *Communication Research Reports,* 38 (3), 206-215.

Ramjee, G.,Weber, A. E., and Morar, N. S. 1999. Recording sexual behavior: Comparison of recall questionnaires with a coital diary. *Sexually Transmitted Diseases,* 26, 374–380.

Reynolds, S. 2002. Testimony, knowledge, and epistemic goals. *Philosophical Studies,* 110 (2), 139-161.

Richter, T. Schroeder, S. and Wöhrmann, B. 2009. You don’t have to believe everything your read: Background knowledge permits fast and efficient validation of information. *Journal of Personality and Social Psychology,* 96, 538-58.

Serota, K. and Levine, T. 2015. A few prolific liars: Variation in the prevalence of lying. *Journal of Language and Social Psychology,* 34 (2), 138-157.

Serota, K., Levine, T., and Boster, F. 2010. The prevalence of lying in America: Three studies of self-reported lies. *Human Communication Research,* 36, 2- 25.

Serota, K., Levine, T., and Docan-Morgan, T. 2022. Unpacking variation in lie prevalence: Prolific liars, bad lie days, or both? *Communication Monographs,* 89 (3), 307-331.

Shieber, J. 2012. Against Credibility. *Australasian Journal of Philosophy,* 90 (1), 1-18.

Simion, M. 2020. Testimonial contractarianism: A knowledge-first social epistemology. *Nous* 55 (4), 891-916.

Simion, M., and C. Kelp 2020. How to be an Anti-Reductionist. *Synthese*, 197, 2849–2866.

Sperber, D. 2001. An evolutionary perspective on testimony and argumentation.

*Philosophical Topics,* 29 (1-2), 401-413.

Sperber, D. 2013. Speakers are honest because hearers are vigilant: Reply to Kourken Michaelian. *Episteme,* 10 (1), 61-71.

Sperber, D., Clement, F., Heintz, C., Mascaro, O., Mercier, H., and Origgi, G.

2010. Epistemic vigilance. *Mind and Language,* 25 (4), 359-93.

Sternglanz, W., Morris, W., Morrow, M., and Braverman, J. 2019. A Review of meta-analyses about deception detection. In Docan-Morgan, T. (ed.), *The Palgrave Handbook of Deceptive Communication*. pp. 303-326. New York: Palgrave Macmillan.

Vesga, A. 2023. Communicating Testimonial Commitment. *Ergo an Open Access Journal of Philosophy*, 10: 16.

Vrij, A. and Mann, S. 2001. Telling and detecting lies in a high-stakes situation: The case of a convicted murderer. *Applied Cognitive Psychology,* 15, 187- 203.

Zuckerman, M., DeFrank, R., Hall, J., Larrance, D., and Rosenthal, R. 1979. Facial and vocal cues of deception and honesty. *Journal of Experimental Social Psychology,* 15 (4), 378-396.

Zuckerman, M., DePaulo, B., Rosenthal, R. 1981. Verbal and nonverbal communication of deception. In L. Berkowitz (ed.). *Advances in Experimental Social Psychology*. pp. 1-59. New York: Academic Press.