

Why Don't We Catch Liars?*

BY PAUL EKMAN

OUR research (Ekman and O'Sullivan, 1990; Frank and Ekman, forthcoming; Ekman, Frank, and O'Sullivan, forthcoming) suggests that most people cannot tell from demeanor whether someone is lying or telling the truth. Such poor performance is not because lies are told flawlessly. Most liars make mistakes which could be detected but usually are missed. Both perpetrating a lie and detecting a lie, in most people, seem to be poorly developed skills. In this article, I consider six explanations for why most of us do not catch liars from demeanor. I will first explain how I distinguish lying from other forms of deceit, and then discuss the evidence which suggests that people are such poor lie catchers.

The intent of the liar is one of the two criteria I (Ekman, [1985]1992) use to distinguish lies from other kinds of deception. The liar *deliberately* chooses to mislead the target. Liars may actually tell the truth, but that is not their intent. And truthful people may provide false information—bad advice from a stock broker—but that is not their intent. The liar has a choice; the liar could chose not to lie. We are all tempted to lie, but we do not always do so. Lying is not irresistible; it is, by my definition, a conscious, considered choice. I do recognize that lying can become a habit and then performed with little consideration, but, at least initially, all such habits began as considered choices about whether or not to do so. Presumably, a pathological liar is compelled to lie and by my definition, therefore, is not a liar.

* Paul Ekman's research is supported by a Research Scientist Award from the National Institute of Mental Health (MH06092).

The second criterion for distinguishing lies from other deceptions is that the target is not notified about the liar's intention to mislead. A magician is not a liar by this criterion, but Uri Geller is a liar, since Geller claimed his tricks were not magic. An actor is not a liar, but an impostor is. Let the buyer beware is one example of an explicit warning that products or services may not be what they are presented to be. (Of course, that warning does not appear in advertisements, nearly all of which are designed to convey the opposite message.) Poker is still another situation in which the rules of the game sanction and notify the players that deception will occur, and, therefore, one cannot consider bluffing to be a lie.

Sometimes notification of an intention to mislead is implicit in the framing, to use Goffman's (1974) term, of the situation. In real estate transactions, the potential buyer is implicitly notified that the seller's asking price is not the actual price the seller would accept. Various forms of politeness are other instances in which the nature of the situation notifies the target that the truth may not be spoken. The host would not properly scrutinize the dinner guest to determine if the guest's claim to have enjoyed the evening is true anymore than the aunt should worry whether the nephew is lying when he says that he appreciated being given a tie for Christmas. Deception is not expected; even if the target might suspect that the truth is not being told, it is improper to question it. Only certain types of deception may be allowable: the poker player cannot use marked cards; the home seller cannot conceal a known defect.

In courtship, it is ambiguous whether the parties should expect truthfulness. The saying "all's fair in love and war" would seem to warn lovers not to believe all they are told. Recent public opinion polls suggest that lies that downplay the number of previous sexual partners are common among college-aged adults. Yet I expect that lovers want to believe in the truthfulness of their lover. Many popular songs testify to the betrayal felt when lies are discovered (although some do warn that lies may be expected). Romantic love requires

collusive efforts to develop and maintain myths about each other and the nature of the relationship.

I differ from Bok (1982), who only considers false statements to be lies. I (Ekman, [1985]1992) argued that one can falsify without words, and one need not falsify, verbally or nonverbally, to lie. Concealment is just as much a lie as falsification, if there is an expectation that information will be revealed. When filling out a job application that asks for a listing of all previous employment, omitting the one from which one was fired would be a concealment lie, for there is an obligation to reveal. In personal relationships it is not always so clear cut, and the liar, once discovered, and the target of the lie may disagree about whether or not an obligation to reveal the concealed information was in force.

Concealment and falsification are different techniques for accomplishing the same objective. The issue is the motive, not the technique employed to accomplish it. If the motive is to mislead, then the choice between falsifying or concealing is simply a matter of which technique will work better in a given instance. Elsewhere (Ekman, [1985]1992) I have explained why most liars would prefer to conceal rather than falsify if the situation will allow it and also described some other techniques for implementing a lie.

Now let us consider what we know about how well people can detect lies from demeanor. The evidence that most people do poorly in catching lies comes from the following type of experiment. Students are recruited to lie or tell the truth about something which usually does not matter much to them. It has no relevance to their past or their expected future life. Sometimes in a weak (in my judgment) attempt to motivate them, they are told it is important to be able to lie, or that smart or successful people succeed in this task. Videotapes of their behavior are shown to other students who are asked to identify who is lying and who is telling the truth. Typically, most of those trying to catch the liars perform at chance or just slightly better than chance. Our (Ekman and Friesen, 1974;

Ekman, Frank, and O'Sullivan, forthcoming) research has differed in a number of ways.

We have tried to make the lies relevant to their lives and to set the stakes for success or failure as high as we could. We attempted this for two reasons. It is only in high stake lies that emotions about lying (fear, guilt, excitement, or what I have called duping delight) are likely to be aroused and betray the lie. It is not just the leakage of these strong emotions which provide behavioral clues to deceit, but these strong emotions also may disrupt the liar's cognitive processing and result in evasive, implausible, and stumbling accounts. A second reason for studying high stake lies is that these are the lies with which society is most concerned.

In one of our experimental scenarios, we examined how well nurses could conceal the negative *emotions* they felt when witnessing films showing amputations and burns. They were highly motivated to succeed in this lie, because they thought our experiment offered them the opportunity to develop a skill they would need to use when confronting just such upsetting scenes in their future work. In another of our scenarios, the subjects had a chance to take and keep \$50 if they could convince the interrogator they had not taken the *money*. Those subjects who did not take the money could earn \$10 if the interrogator believed them when they said they had not taken the \$50. In our last scenario, we first identified the social issues the subjects felt most strongly about, and then asked them to describe that *opinion* honestly (and earn \$10 if believed) or claim to have the opposite of their true opinion (and earn \$50 if believed).

In our most recent work we gave some of our subjects the choice as to whether to lie or tell the truth, as people have in real life. There are many reasons why some people choose not to lie, one of which is their own knowledge, based on past experience, that they are almost always caught. Including in the sample of liars such terrible liars, people who would not choose to lie unless forced to do so by the experimenter, could

inflate the detection rate. In virtually all previous research, on either interpersonal deception or polygraph lie detection, subjects were not given the choice as to whether to lie or be truthful. One exception is the study of the polygraph by Ginton, Daie, Elaad, and Ben-Shakhar (1982), in which they were able to know which policemen had cheated on a test for eligibility for promotion; Stiff, Corman, Krizek, and Snider (1994) in a similar fashion knew which students cheated on a quiz. Bradley (1988) also allowed subjects to choose whether to lie or tell the truth in a polygraph study.

Another unique feature of our recent experiments is that we told the subjects that they would be punished, and it was a considerable punishment, if the interrogator judged them to be lying. Both the truthful person mistakenly judged to be lying and the liar who was detected would receive the same punishment. Thus, for the first time in research on lying, both the truthful person and the liar might be afraid—of being disbelieved if telling the truth, of being caught if lying. If it is only the liar who might be afraid of being accused of lying, it is too easy for the lie catcher and not relevant to most of real life. And if neither liar nor the truthful person fear punishment, it should have little relevance to the lies that occur in the criminal justice world or in national security, let alone in marital disputes, parent-child conflicts, and so on.

Although our recent experiments can claim to have more ecological validity than our older studies, or than most of the literature on either interpersonal deceit or polygraph lie detection, the findings about detectability were not much different. Most of those who saw the videotapes and made their judgments operated at a chance level or only slightly better than chance. Before proceeding to consider why people do so poorly as lie-catchers, let us consider some limitations of our research which could have led us to underestimate the ability to detect lies from demeanor.

For the most part, the observers who judged who was lying and who was telling the truth had no vital interest at stake in

achieving accuracy. They were not offered higher pay if they were more accurate. And catching liars was not intrinsically rewarding, for most of these people did not make a living catching liars. This limitation was addressed in our (Ekman and O'Sullivan, 1991) study and work by other research groups (Kraut and Poe, 1980; DePaulo and Pfeifer, 1986) which did study professionals concerned with catching liars. We found that customs officials, policemen, trial court judges, F.B.I., C.I.A., B.A.T.F., D.E.A., forensic psychiatrists, and trial lawyers were not much better than chance.

Perhaps accuracy would be higher if those making the judgments had been able to ask the questions, rather than being passive observers. I cannot rule this out, although I doubt it would be so. The requirement to formulate questions might well detract from the ability to process the information provided by the person being judged. It is for this reason that in many interrogations one person asks the questions while another sits passively considering the suspect's responses. It would be interesting to have professional interrogators ask the questions in our experiments and then determine if those who see the videotapes generated were more accurate than has been so far found.

Our observers were not familiar with those whom they judged, and it might be argued that such familiarity would benefit accuracy. There are, of course, many situations in which judgments about lying are made without any prior familiarity with the person being evaluated, and our experiments at least are relevant to those instances. But I doubt that familiarity always benefits lie detection. While it should provide the basis for discounting idiosyncratic behaviors, it may do so at a cost. We tend to become invested in our friendships and work relationships, and the wish to preserve them may lead us to develop blindness to behaviors which could disrupt them. Trust makes one vulnerable to being misled, as usual levels of wariness are reduced and the benefit of the doubt is routinely given.

Involvement in a relationship can lead also to confidence in one's ability to detect deception (Sillars and Scott, 1983), and such confidence may itself make one more vulnerable (Levine and McCornack, 1992). Familiarity should be an unmitigated benefit only when it is with a person one has had reason to distrust, and about whom one has acquired knowledge of how and when they betray the relationship.

In our experiments, the observers were only shown a few minutes of each interview before being required to make their judgment. But longer samples may not necessarily benefit lie detection. We did do one study in which the samples shown were twice as long, and accuracy did not improve. Furthermore, we know from the behavioral measurements we have done that there are clues to deceit in these shorter samples. Nevertheless, we cannot rule out this limitation. If people were given much longer samples to judge, of an hour or two, accuracy might improve.

A critic might also have wondered if accuracy was so poor because there were few behavioral clues to deceit, but, as I have just mentioned, that is not the case in our experiments. Measurements we and our collaborators have done of the facial movements, voice, and speech show that high levels of accuracy are possible—over 80 percent correct classifications of who is lying and who is telling the truth. While those measurements required slowed motion replays, we also know that accurate judgments are possible just by viewing the videotapes at real time. A small percent of those we have studied have reached 80 percent or better accuracy, and they have done so in judging more than one scenario, so it is unlikely their accuracy was a fluke. And we have found a few occupational groups which as a group were highly accurate. The United States Secret Service were highly accurate on the emotion lie; none of them scored at or below chance, and a third were above 80 percent accurate. Interrogators specially selected for their known skills and given a week of training showed similar accuracy on the opinion lie.

Although the stakes in the lies we studied were much higher

than in other research on lying, certainly they were not as high as they are in many criminal or national security cases. Perhaps if the stakes were much higher, the videotapes would have contained many obvious signs of deceit, resulting in much higher accuracy. I cannot argue against that possibility, but, as I just described, there were some occupational groups who were accurate when judging our videotapes. The question remains why were all these other groups not accurate.

The information is there, and it can be detected by some but not by most. Before considering why the overwhelming majority of people do poorly, consider one more feature of our experiments which probably benefited accuracy and may have led us to over- rather than under-estimate accuracy. In all of our recent studies we have told our observers that between 40 and 60 percent of the people they will see are lying. Initially we did not give this instruction, and found that a group of policemen judged everyone they saw on the videotape as lying, later explaining that everyone lies, especially to the police. Knowing the base rate of lies is an advantage people do not always have, and should enhance lie detection. I have more to say about this later.

Granting that our evidence is not conclusive, nevertheless, our videotapes do contain behavioral clues to deceit, which some people can recognize accurately but most do not. For the purpose of this discussion, let us consider this evidence as suggesting that in actual life most people, the overwhelming majority of people, do not detect high stake lies from demeanor. The question I pose is why not, why can we not all do better at this? It is not that we do not care. Public opinion polls time and again show that honesty is among the top five characteristics people want in a leader, friend, or lover. And the world of entertainment is full of stories, films, and songs which describe the tragic consequences of betrayal.

My first explanation of why we may be such poor lie catchers is that we are not prepared by our evolutionary history to be either very good lie catchers or lie perpetrators.¹ I suspect that

our ancestral environment was not one in which there were many opportunities to lie and get away with it, and the costs for being caught in a lie might have been severe. If this speculation is correct, there would not have been any selection for those people who were unusually adept in catching or perpetrating lies. The fossil record does not tell us much about social life, so one must speculate about what life as hunter-gatherers might have been like. I add to that my experience thirty years ago working in what was then a stone-age preliterate culture in what is now called Papua New Guinea.

There were no rooms with doors, little privacy in this group living, small village, in which everyone knew and saw everyone else every day. Lies would most often be betrayed by the target or someone else observing actions which contradicted the lie or by other physical evidence. Adultery was an activity which lying often attempted to conceal in the village where I lived. Such lies were uncovered not by reading the betrayer's demeanor when proclaiming fidelity, but by stumbling over him or her in the bush.

Perhaps lies about beliefs, emotions, and plans could have better avoided detection in such an environment.² But some of those lies would eventually lead to one or another action, and then my argument about how hard it is to conceal or falsify actions in a setting in which there is no privacy would apply.

In a society in which an individual's survival depended on cooperative efforts with other members of their village, the reputational loss for being caught in a high stake lie might well be deadly. No one might cooperate with someone known to have engaged in serious lies. One could not change spouses, jobs, or villages with any ease.

Cheney and Seyfarth (1990), in their chapter on animal deception, make very similar points. An important constraint against lying

... arises from a species social structure. Animals that live in stable social groups face special problems in any attempt at

deceptive communication. . . . Among socially living animals deceptive signals will probably have to be more subtle and occur at lower frequencies if they are to go undetected. Equally important, if animals live in social groups in which some degree of cooperation is essential for survival, the need for cooperation can reduce the rate at which unreliable signals are given (1990, p. 189).

To have had some special skill in detecting (or perpetrating for that matter) lies would not have had much adaptive value in such circumstances. Serious, high stake lies probably did not occur that often because of limited opportunity and high costs. When lies were suspected or uncovered, it was probably not by judgments of demeanor. (Note I have focused just on intra-group lies; certainly lies might between groups, and their costs and detection could be quite different).³

While there are altruistic lies, my discussion has dealt with less friendly lies, lies that occur when one person gains an advantage, often at the cost of the target of the lie. When the advantage is gained by violating a rule or expectation, we call that cheating. Lies sometimes may be required to accomplish the cheating activity, and lies are always required to conceal having cheated. Those cheated do not typically appreciate being cheated and are motivated to uncover any lies involved. But cheating is not likely to have occurred often enough in our ancestral environment to confer some advantage on those who might have been unusually adept at spotting when it did occur. And as I argued earlier, there was probably so little privacy that cheats would be caught by means other than discerning their misdeeds from their demeanor. The biologist Alan Grafen wrote:

The incidence of cheating must be low enough that signaling remains on average honest. As signalers maximize their fitness, this implies that the occasions on which cheating is advantageous must be limited. Perhaps the signalers for whom cheating is advantageous are in a minority, or that only on a minority of occasions does it pay a signaler to cheat. . . . Cheating is expected in evolutionarily stable signal systems, but the system can be

stable only if there is some reason why on most occasions cheating does not pay. Cheats impose a kind of tax on the meaning of the signal. The central fact about stable signaling systems is honesty, and the debasement of the meaning of the signal by cheats must be limited if stability is to be maintained (1990, p. 533).

By this reasoning, signals that cheat, which I would call lies, should have a low incidence. Cosmides and Tooby's (1992) findings suggest that we have evolved a sensitivity to rule infractions and do not reward cheaters, and this may explain why cheating does not occur often. However, our findings suggest that we are not likely to catch cheaters based on our ability to spot their lies from their demeanor but by other means.

To summarize my argument, our ancestral environment did not prepare us to be astute lie catchers. Those who might have been most adept in identifying a liar from demeanor would have had minimal advantage in the circumstances in which our ancestors probably lived. Serious lies probably did not occur often, because a lack of privacy would have made the chances of being caught high. Such a lack of privacy would also mean that lies would typically be discovered by direct observation or other physical evidence, rather than having to rely upon judgments of demeanor. Finally, in a cooperative, closed, small society, when lies are uncovered the reputational costs to the individual would be high and inescapable.

In modern industrial societies, the situation is nearly the reverse. The opportunities for lying are plentiful; privacy is easy to achieve, there are many closed doors. When caught, the social consequences need not be disastrous, for one can change jobs, change spouses, change villages. A damaged reputation need not follow you. By this reasoning we live now in circumstances which encourage rather than discourage lying, when evidence and activity are more easily concealed and the need to rely upon demeanor to make our judgments would be

greater. And we have not been prepared by our evolutionary history to be very sensitive to the behavioral clues relevant to lying.

If we grant that our evolutionary history did not prepare us to detect lies from demeanor, why do we not learn how to do so in the course of growing up? One possibility is that our parents teach us *not* to identify their lies. Their privacy may often require that they mislead their children about just what they are doing, when they are doing it, and why they are doing it. While sexual activity is one obvious focus of such lies, there might well be other activities which parents want to conceal from their children.⁴

A third explanation is that we generally prefer not to catch liars, because a trusting rather than a suspicious stance enriches life, despite the possible costs. To always doubt, to make false accusations, is not only unpleasant for the doubter, but undermines much chance of establishing intimacy in mating, friendships, or on-going work relationships. We cannot afford to disbelieve a friend, our child, or our spouse when they are actually telling the truth, and so we err on the side of believing the liar. Trusting others is not only required, but it makes life easier to live. What matter if the cost is not detecting some who take advantage of that trust, for one might never know about it. It is only the paranoid who foregoes such peace of mind, and those whose lives are actually at some risk if they are not constantly alert to betrayal. Consistent with this formulation we (Ekman, Bugental, and Frank, unpublished data) obtained preliminary evidence that abused children living in an institutional setting were more accurate than other children in detecting lies from demeanor.

My fourth explanation is that we often want to be misled, we collude in the lie unwittingly because we have a stake in not knowing the truth.⁵ Consider two examples from spousal relationships. It may not be in the interest of a mother with a number of very young children to catch her mate's lie which conceals his infidelity, particularly if he is having a fling in

which he is not diverting resources which would otherwise go to her and her children. The philanderer does not want to be caught, so they both have an interest in the lie not being uncovered. A similar logic is at work in this next, more altruistic lie and collusive belief. A wife asks her husband, "Was there any other woman at the party whom you thought was more attractive than me?" He lies by claiming she was the most attractive when she was not. He does not want to make her jealous, and he does not want to deal with her having such feelings, and she may want to believe she was the most attractive.

In some collusions the target who wants to believe the liar may not benefit from the lie or benefit only in the short run. Consider what was perhaps the most infamous example in this century of a target believing a liar who meant him harm. I refer to the meeting between the British Prime Minister, Neville Chamberlain, and Adolph Hitler, the Chancellor of Germany, on September 15, 1938.

The world watches, aware that this may be the last hope of avoiding another world war. (Just six months earlier Hitler's troops had marched into Austria, annexing it to Germany. England and France had protested but done nothing further.) On September 12, three days before he is to meet Chamberlain, Hitler demands to have part of Czechoslovakia annexed to Germany and incites rioting in that country. Hitler has already secretly mobilized the German Army to attack Czechoslovakia, but his army won't be ready until the end of September. If he can keep the Czechs from mobilizing their army for a few more weeks, Hitler will have the advantage of a surprise attack. Stalling for time, Hitler conceals his war plans from Chamberlain, giving his word that peace can be preserved if the Czechs will meet his demands. Chamberlain is fooled; he tries to persuade the Czechs not to mobilize their army while there is still a chance to negotiate with Hitler. After his meeting with Hitler, Chamberlain writes to his sister, '. . . in spite of the hardness and ruthlessness I thought I saw in his face, I got the impression that here was a man who could be relied upon when he had given his word . . .' Defending his policies against those who doubt Hitler's word, Chamberlain five days later in a speech

to Parliament explains that his personal contact with Hitler allows him to say that Hitler 'means what he says' (Ekman, [1985]1992, pp. 15, 16).

Hitler reportedly wrote, "The victor will not be asked afterward whether he told the truth. In starting and waging war it is not justice that matters but victory." Why did Chamberlain believe Hitler? Not everyone did, there were many in the opposition party in Britain and elsewhere who recognized that Hitler was not a man of his word. Chamberlain unwittingly, I believe, colluded in Hitler's lie because he had to believe Hitler. If Chamberlain were to have recognized Hitler's lie, he would have to confront the fact that his policy of appeasement had put his country at grave risk. Since he had to face that fact just a few weeks later, one might ask why did he not recognize it during this meeting with Hitler? That would be rational but not psychological. Most of us operate on the unwritten principle of postponing having to confront anything which is very unpleasant, and we may do so by collusively overlooking a liar's mistakes.

Chamberlain was not unique. The targets of lies, often unwittingly, collusively want to believe the liar. The same motive—not wanting to recognize impending disaster—explains why the businessman who mistakenly hired an embezzler continues to miss the signs of the embezzlement. Rationally speaking, the sooner he discovers the embezzlement the better, but psychologically that discovery will mean he must face not only his company's losses, but his own mistake in having hired such a rascal. In a similar fashion, everyone but the cuckolded spouse may know what is happening. Or the pre-adolescent using hard drugs may be convinced that her parents surely must know what she is doing, while they unwittingly strive to avoid spotting the lies which would force them to deal with the possibility that they have failed as parents and now have a terrible struggle on their hands. One is nearly always better off in the short run to cooperate with the lie, even if that means that the consequences tomorrow will be even worse.

A fifth explanation is based on Erving Goffman's writings (1974). We are brought up to be polite in our interactions, not to steal information which is not given to us. A rather remarkable example of this is how we unwittingly avert our gaze when someone we are talking to cleans their ears or picks their nose. Goffman would also argue that the false message sometimes may be the more socially important message than the truth. It is the acknowledged information, the information for which the person who states it is willing to take responsibility. When the secretary who is miserable about a fight with her husband the previous night answers, "Just fine," when her boss asks, "How are you this morning?" that false message may be the one relevant to the boss' interactions with her. It tells him that she is going to do her job. The true message—that she is miserable—he may not care to know about at all as long as she does not intend to let it impair her job performance.

None of the explanations I have offered so far can explain why most members of the criminal justice and intelligence communities do so poorly in identifying liars from demeanor. Police and counter-intelligence interrogators are not taking a trusting stance with their suspects, they are not colluding in being misled, and they are willing to steal information not given to them. Why do they not do better in identifying liars from demeanor? I believe they are handicapped by a high base-rate and inadequate feedback. Most of the people they deal with probably are lying to them. Those with whom I have spoken estimate the base rate of lying as more than three-fourths. Such a high base rate is not optimal for learning to be alert to the subtle behavioral clues to deceit. Their orientation all too often is not how to spot the liar, but how to get the evidence to nail the liar. And when they make a mistake and learn that someone was wrongfully punished, that feedback comes too late, too far removed from the mistaken judgment to be corrective.

This suggests that if you expose people to a lower base-rate

of lying, around 50 percent, and give them corrective feedback after each judgment they make, they might well learn how to accurately identify lies from demeanor. This is an experiment we are now planning. I do not expect that accuracy will reach one hundred percent, and for that reason I do not believe that judgments about who is lying should be allowable evidence in court. Such judgments, however, may provide a sounder basis for deciding, at least initially, whom to investigate further, and when to ask more questions to clarify why something unusual has been noticed.

Notes

¹ I am grateful to Helena Cronin, London School of Economics, for asking me why evolution had not prepared us to be better lie catchers, also to Mark Frank, Rutgers University, and Richard Schuster, University of Haifa, for their many helpful comments on this manuscript.

² Helena Cronin raised this possibility.

³ I am grateful to Leda Cosmides and John Tooby, University of California, Berkeley, and to Richard Schuster, University of Haifa, for pointing this out.

⁴ I am grateful to Alison Gopnik, University of California, Berkeley, for suggesting this explanation.

⁵ For evidence consistent with my reasoning see Tooby and Cosmides, 1989.

References

- Bok, C., *Secrets* (New York: Pantheon, 1982).
- Bradley, M.T., "Choice and the Detection of Deception," *Perceptual and Motor Skills*, 66 (1988): 43-8.
- Cheney, D.L. and Seyfarth, *How Monkeys See the World* (Chicago: University of Chicago Press, 1990).
- Cosmides, L. and Tooby, J., "Cognitive Adaptations for Social Exchange," in J. Barkow, L. Cosmides, and J. Tooby, eds., *The Adapted Mind* (New York: Oxford University Press, 1992).

- DePaulo, B.M. and Pfeifer, R.L., "On-the-job Experience and Skill at Detecting Deception" *Journal of Applied Social Psychology*, 16 (1986): 249-67.
- Ekman, P., *Telling Lies: Clues to deceit in the marketplace marriage and politics*, 2/e ([1985]New York: W.W. Norton, 1992).
- Ekman, P., Frank, M., and O'Sullivan, M., "Detecting Deceit from Demeanor," forthcoming.
- Ekman, P. and Friesen, W.V., "Detecting Deception From Body or Face," *Journal of Personality and Social Psychology*, 29 (1974): 288-98.
- Ekman, P. and O'Sullivan, M., "Who Can Catch a Liar," *American Psychologist*, 46 (1991): 913-920.
- Frank M. and Ekman, P., "The Ability to Detect Deceit Generalizes Across Deception Situations," *Journal of Personality and Social Psychology*, forthcoming.
- Ginton, A., Daie, N., Elaad, E., and Ben-Shakhar, G., "A Method for Evaluating the Use of the Polygraph in a Real-Life Situation," *Journal of Applied Psychology*, 67 (1982): 131-37.
- Goffman, E., *Frame Analysis* (New York: Harper and Row, 1974).
- Grafen, A., "Biological Signals as Handicaps," *Journal of Theoretical Biology*, 144 (1990): 517-46.
- Kraut, R.E. and Poe, D., "On the Line: The Deception Judgments of Customs Inspectors and Laymen," *Journal of Personality and Social Psychology*, 39 (1980): 784-98.
- Levine, T.R. and McCornack, S.A., "Linking Love and Lies: A Formal Test of the McCornack and Parks Model of Deception Detection," *Journal of Social and Personal Relationships*, 9 (1992): 143-54.
- Sillars, A.L. and Scott, M.D., "Interpersonal Perception Between Intimates: An Integrative Review," *Human Communication Research*, 10 (1983): 153-56.
- Stiff, J., Corman, S., Krizek, B., and Snider, E., "Individual Differences and Changes in Nonverbal Behavior," *Communication Research*, 21 (1994): 555-581.
- Tooby, J. and Cosmides, L., "The logic of threat," Annual meeting of the Human Behavior and Evolution Society, Evanston, Illinois, 1989.