

Original article

# The effect of lying on intentional versus unintentional facial expressions<sup>☆</sup>

## L'effet du mensonge sur les expressions intentionnelles versus non intentionnelles du visage

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### Abstract

Given the absence of a consensus within the literature regarding nonverbal cues that make lie detection possible, the present research aims to test whether the facial expressions of women involved in deceitful interactions differ from those involved in truthful interactions. This comparison is made both on the factor lie versus truth and on the characteristics of the situation: prepared versus spontaneous lie. The interactional situation is inspired by the “\$20 for a lie” experiment [J Abnorm Soc Psychol 58 (1959) 203–210]. The nonverbal behaviour-coding scheme used was based on the cues identified by Ekman et al. In line with our hypotheses, the number of behaviours observed (all categories combined) was significantly higher in the deceitful interaction and even more so in the spontaneous lie condition. Moreover, there was a noticeably higher proportion of intentional behaviours in liars than in truth-tellers. Finally, the proportion of fake smiles and smiles of embarrassment was also markedly higher in liars. The correspondence between these results and those already reported in the literature is discussed, as well as the possibility of using some of the cues studied as indicators in applied settings.

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### Résumé

Au vu de l'absence de critères consensuels dans la littérature concernant les indicateurs non verbaux permettant de détecter le mensonge, la recherche présentée a pour objectif de tester si les expressions du visage d'individus de sexe féminin placés dans une situation d'interaction mensongère sont différentes de celles manifestées par des personnes de bonne foi. Cette comparaison s'établit à la fois sur le facteur mensonge versus vérité et sur la caractéristique de la situation, mensonge préparé versus spontané. La situation d'interaction est inspirée de l'expérience « 20 dollars pour un mensonge » de Festinger et Carlsmith [J Abnorm Soc Psychol 58 (1959) 203–210]. La grille d'analyse des comportements non verbaux utilisée repose sur les indicateurs dégagés par Ekman et al. Conformément aux hypothèses, nous constatons un nombre significativement plus important de comportements émis (toutes catégories confondues) lors de l'interaction mensongère et cela d'autant plus que le sujet est placé dans la situation de mensonge spontané. On relève également que la proportion de comportements intentionnels est notablement plus élevée chez les sujets qui émettent un mensonge que chez ceux qui livrent une déclaration sincère. Enfin, la proportion de faux sourires et de sourires d'embarras est également nettement plus élevée chez les sujets qui mentent. La congruence entre ces résultats et ceux présents dans la littérature est discutée, ainsi que la possibilité d'utiliser certains des indicateurs étudiés comme indices dans une perspective d'application.

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## 1. Introduction

Research aiming to identify cues for lie detection, or at least for suspecting that a person is hiding something, came to light at the end of the sixties (Ekman and Friesen, 1969; Undeutsch, 1967), with a further specific development in the 1980s (Yuille, 1989; Zuckerman et al., 1981). Three perspectives were thus developed, irrespective of one another, without an aim for any real synthesis (except in some work, notably by Biland et al., 1999; Ekman, 1986, 2001; Vrij, 2000; Zuckerman et al., 1981). “The first” consists of significant physiological measures of emotions correlated to the utterance of a lie. The technique used in this framework is the polygraph (Kleiner, 2002), widely used in North America though controversial elsewhere. “The second” perspective is concerned with teasing out verbal indicators, which emerge from the content analysis of statements. German forensic psychology was at the origin of the Statement-Validity Analysis (SVA) technique (Steller and Köhnken, 1989) that essentially rests on the content analysis of the statements, Criteria-Based Content Analysis (CBCA). The CBCA is based on the hypothesis that testimony from a real-life experience differs, in terms of its content and quality, from statements based on fabrication or fantasy. The analysis is carried out on 19 criteria, which correspond to the general characteristics of the statements, the specific content, any original content, to content related to motivation and to specific elements of the offence. More recently, this perspective also looked at the definition of a set of indicators based on Reality-Monitoring theory (Johnson and Raye, 1981; Masip et al., 2005). According to this theory the events that actually took place are going to be reflected in words of the witness especially by sensory information. On the contrary, events that come from the witness’ imagination will be reflected in information with a number of internal cognitive details, as well as the perfection of a procedure that achieved a certain success in the actual practice of judicial inquiries, the Scientific-Content Analysis (SCAN) developed by Sapir (for a review see Masip et al., 2002). The SCAN technique is not designed to identify if a suspect is lying, it simply sheds light on the parts of a declaration, which demand future clarification during a hearing. The matter at issue would be to analyse the written declaration on the basis of speech choices by the person (words used, punctuation, grammatical structure, general organisation, presentation of facts, etc.). “The third” perspective, developed in order to extract lying indicators, is concerned with the analysis of a liar’s nonverbal behaviour, in particular his facial expressions (for a review see Biland, 2004).

In the end, after more than thirty years of research, the results drawn are fairly mixed. Whatever the approach taken, when individuals relate an event, few indicators in the literature appear to reliably determine whether they are lying or telling the truth. There is therefore a need, in each of the three aforementioned perspectives, of continuing efforts to identify reliable criteria. In this article, the approach will be focused on the nonverbal indicators of lying, without resorting to physiological measures, most likely to translate both the emotions of the liar and his attempts to control expressions or else the cognitive overloads involved in a lying situation. Various models have been developed to account

for the behaviour of the liar, in particular nonverbal facial expressions. The review that follows is intended to appraise the main studies from these three categories of lying analysis.

Many researchers (Buller and Burgoon, 1996; DePaulo et al., 2003; Zuckerman et al., 1981) consider that a lie produces, in the person who manufactures it, both a physiological arousal, specific negative emotions (guilt, fear of being exposed) as well as positive (the delight in dupery), an attempt to control (exercised by the issuer on his behaviour and speech) and a cognitive overload. Every author focuses their research on at least one of these notions and the weight that it (or they) occupies in interacting with others. The different models all have an integrative aim and objective to predict whether it can be assumed that the person observed is lying or telling the truth. The predictions appear, however, contradictory as the model favours the arousal and emotions associated with the utterance of a lie or rather the attempt versus the difficulty in controlling emotional expressions of lying.

In proposing the first experiment aiming to investigate lying (Ekman and Friesen, 1969) and the conceptualization of the role of emotions experienced by the liar (Ekman, 1975, 1986, 1993), Ekman et al. made a decisive contribution to this field. They introduced a dichotomization regarding the identification of nonverbal (gestures and expressions) and verbal indicators (voice pitch, speech fluidity, pauses, swallowing, clicking of the tongue) and cues. The set of nonverbal and verbal indicators correspond to behavioural “leaks”, which are totally beyond the control of the issuer, while the cues are those behaviours whose change in number or duration can be observed. The latter are the trademarks of lying: with each passing moment the individual loses control over the expression of his behaviours because the task is so complex. This theory seems to exclude the operationalisation of deception of a nonemotional nature, since only the emotion provoked could give access to the liar’s real emotions of the liar and to their nonverbal effects (DePaulo et al., 2003). These researchers argue that it is possible to distinguish a person who tells the truth from one who lies by taking into account the emotions specific to the deceptive situation, in particular fear and guilt. Thus, the cues linked to “fear” would be: a higher vocal tone, quicker speech, louder voice, more pauses and consequently a greater number of speech errors. The cues relating to “guilt” refer to the sorrow generated by this feeling. The liar who feels guilty would have a low-pitched tone of voice, slow speech and look downwards.

Other cues, linked to positive emotion, usually betray the excitement felt of successfully duping the person faced by the liar. The voice is more acute, stronger, has a more rapid speech and a higher number of illustrative gestures. Also, the presence of false smiles when the subject claims to live a pleasurable experience has been demonstrated experimentally (Ekman et al., 1988). This laboratory research is undoubtedly the one where the stakes are the most important. The participants in this experiment were student nurses. The study was presented as a test of communication competence. In the condition “sincere testimony”, subjects watched a pleasant film and had to describe their feelings concerning it. In the condition “false testimony”, subjects watched a film showing amputations and other surgical

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