Dissonance and Deception: Can Misattributions of Arousal Facilitate the Ability to Detect Deceit?

Lyndsay R. Woolridge and Amy-May Leach

Faculty of Social Science and Humanities, University of Ontario Institute of Technology, Oshawa ON

UNIVERSITY OF ONTARIO INSTITUTE OF TECHNOLOGY

Abstract

We examined whether lie-tellers' attributions about the source of their physiological arousal could make their lies easier to detect. In Phase 1, targets (N = 60) were randomly assigned to watch either an innocuous or a suspicious video. Targets were instructed to either lie or tell the truth about what they saw under one of three conditions: 1) the room's lighting was said to induce tension; 2) the lighting was said to induce relaxation; 3) the lighting was said to have undetermined side-effects. In Phase 2, observers (N =118) viewed the videotaped interviews and attempted to differentiate between lie- and truth-tellers. Observers were less accurate at detecting deception when viewing individuals who expected to feel aroused or relaxed (vs. control). Implications for the criminal justice system will be discussed.

Introduction

- Individuals tend to make cognitive appraisals to identify the sources of their arousal (e.g., Schacter & Singer, 1962).

- Attributing arousal to an external, rather than internal, source can reduce individuals' experience of arousal (e.g., Zanna & Cooper, 1974).

- Lying is physiologically arousing.

- Can encouraging the misattribution of the arousal associated with lying to an external source (i.e., the room's lighting) affect deception detection?

Method

Participants

Phase 1: 60 university students
- 41 females, 19 males; M_{age} = 20.53, SD_{age} = 2.51

Phase 2: 118 university students
- 66 females, 52 males, M_{age} = 20.18, SD_{age} = 2.80

Procedure

Phase 1

Participants were randomly assigned to **lie** or **tell the truth** about a video that they had viewed. Before each interview, the experimenter made one of three comments about the room's lighting:

1. "We've had some reports that it makes some people feel a bit **aroused** and **tense**";

2. "We've had some reports that it makes some people feel a bit **calm** and **relaxed**";

3. "We've had some reports about it."

Participants then answered 14 questions about how they felt during the interview, using a 10-point scale (1 = not at all, 10 = extremely).

Phase 2

Observers were randomly assigned to watch 20 videotaped interviews (10 truth-tellers and 10 lie-tellers) from one of the three lighting conditions. After each video, they were asked to make lie detection judgments about the targets.

Results

Manipulation Check

A one-way MANOVA was performed to examine the effect of Lighting (aroused vs. relaxed vs. control) on targets' comfort and tenseness:

- There were <u>no</u> significant differences in targets' self-reported levels of comfort or tenseness across lighting conditions.

Table 1

Means (M) and standard deviations (SD) for targets' post-interview manipulation checks (Phase 1)

Item	Aroused M (SD)	Relaxed M (SD)	Control M (SD)
How comfortable were you with the room's lighting?	8.11 (2.03)	8.05 (1.93)	7.68 (1.73)
How tense did the room's lighting make you feel?	4.21 (2.32)	3.84 (1.98)	4.21 (1.18)

Accuracy

A Lighting x Veracity mixed-factors ANOVA was performed on overall observer accuracy:

- Observers were significantly more accurate at classifying targets in the control condition, compared to the aroused and relaxed conditions, $F(2, 115)$ = 7.21, p = .001, η^2 = .11.

- Observers more accurately classified truth-tellers than lie-tellers $F(1, 115)$ = 26.02, p < .001, η^2 = .18.

- There was <u>no</u> significant interaction between lighting and veracity conditions.
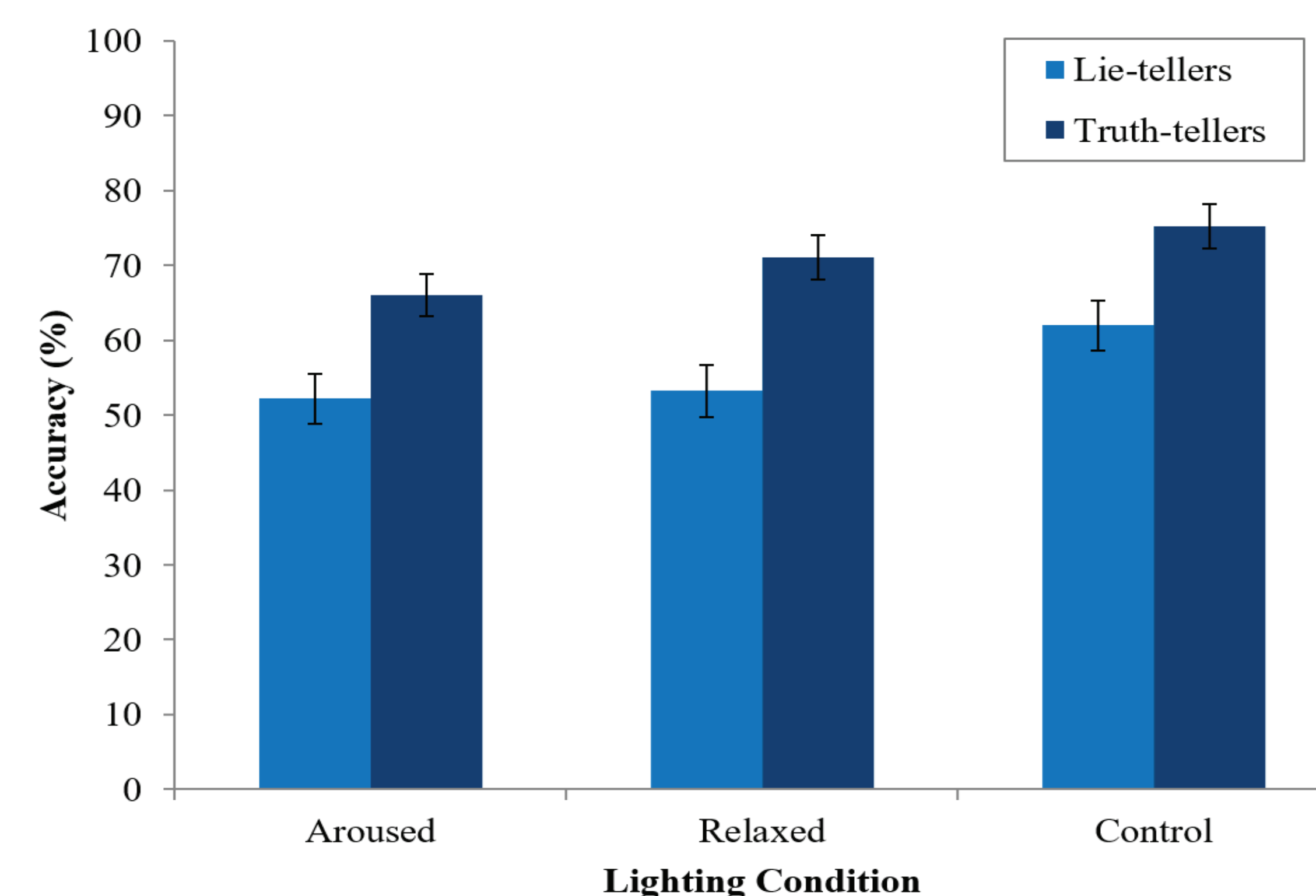

Figure 1. Observers' mean accuracy (%) when judging lie- and truth-tellers across three lighting conditions. Error bars represent 95% confidence intervals.

Discrimination

A one-way ANOVA was conducted to compare discrimination (d') across lighting conditions:

- Observers were significantly better able to discriminate between lie- and truth- tellers in the control condition than in the aroused and relaxed conditions, $F(2, 115)$ = 7.86, p = .001, η^2 = .12.

A one-sample t-test comparing d' to 0 (i.e., no sensitivity) revealed that observers performed significantly above chance in the aroused, $t(40)$ = 5.06, p < .001, d = .77, relaxed, $t(36)$ = 6.49, p < .001, d = 1.58, and control groups, $t(39)$ = 10.02, p < .001, d = 1.07.

Bias

A one-way ANOVA was conducted to compare bias (β) across lighting conditions:

- There was <u>no</u> significant difference in bias across conditions.

A one-sample t-test comparing β to 1 (i.e., no bias) revealed that observers' decisions were not significantly different from chance in the aroused, $t(40)$ = -1.65, p = .107, d = -.30 and relaxed conditions, $t(36)$ = -.16, p = .878, d = -.04. A significant truth bias was found in the control condition, $t(39)$ = -2.26, p = .029, d = -.36.

Table 2

Means (M) and standard deviations (SD) for discrimination and response bias (Phase 2)

Measure	Aroused M (SD)	Relaxed M (SD)	Control M (SD)
Discrimination (d')	.38 (.46)	.49 (.46)	.81 (.50)
Response bias (β)[a]	.93 (.24)	.98 (.39)	.86 (.39)

[a]β > 1 indicates a lie bias, β < 1 indicates a truth bias.

Discussion

- Observers performed worse when targets believed that they should feel aroused or relaxed, compared to control. However, previous research found the opposite (Leach, 2011). Targets in the control condition may have unintentionally experienced exacerbated arousal because lighting side-effects were undefined.

- Observers did not exhibit response biases when targets expected to feel aroused or relaxed. Research consistently finds that observers are biased towards believing that speakers are telling the truth (e.g., Bond & DePaulo, 2006). Our results support the notion that manipulating cognitive processes can eliminate typical response biases.

- Future research is needed to identify the applicability of (mis)attributions of arousal to the justice system (e.g., development of interviewing techniques that exploit differences in cognitive processing).

References

Bond, C. F., Jr & DePaulo, B. M. (2006). Accuracy of deception judgments. Personality and Social Psychology Review, 10, 214-234.

Leach, A.-M. (2011, March). *Illuminating the truth: An attribution approach to deception detection.* Paper presented at the American Psychology-Law Society's Annual Conference, Miami, FL.

Schacter, S., & Singer, J. E. (1962). Cognitive, social, and physiological determinants of emotional state. *Psychological Review, 69,* 379-399.

Zanna, M. P., & Cooper, J. (1974). Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *Journal of Personality and Social Psychology, 29,* 703-709.

Acknowledgements

Contact

Lyndsay Woolridge at lyndsay.woolridge@uoit.ca