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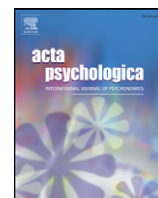
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1 Detecting true and false opinions: The Devil's Advocate approach as a lie 2 detection aid

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ABSTRACT

We examined the efficacy of a new approach to detect truths and lies in expressing opinions: the Devil's Advocate approach. Interviewees are first asked an opinion eliciting question that asks participants to argue in favour of their personal view. This is followed by a Devil's Advocate question that asks participants to argue against their personal view. People normally think more about reasons that support rather than oppose their opinion. Therefore we expected truth tellers to provide more information and shorter latency times in their responses to the opinion eliciting question than to the Devil's Advocate question. Liars are expected to reveal the opposite pattern as the Devil's Advocate question is more compatible with their beliefs than is the opinion eliciting question. In Experiment 1, we interviewed seventeen truth tellers and liars via the Devil's Advocate approach and measured the difference in number of words and latency times to the two questions. Our hypotheses were supported. In Experiment 2, 25 observers were shown these interviews, and made qualitative judgements about the statements. Truth tellers' opinion eliciting answers were seen as more immediate and plausible and revealed more emotional involvement than their Devil's Advocate answers. No clear differences emerged in liars' answers to the two types of question. We conclude that the Devil's Advocate approach is a promising lie detection approach that deserves attention in future research.

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39 Several lie detection tools have been designed to aid criminal
40 investigators to distinguish between truths and lies. Two of these,
41 Statement Validity Assessment (SVA) and Reality Monitoring (RM),
42 are the most widely researched (Masip, Sporer, Garrido, & Herrero,
43 2005; Vrij, 2005, 2008). The core of SVA is Criteria-Based Content
44 Analysis (CBCA), a list of 19 criteria that are thought to occur more
45 often in truthful than in deceptive accounts (Köhnken & Steller, 1988;
46 Steller & Köhnken, 1989; Undeutsch, 1984). Vrij (2008) reviewed
47 more than 50 CBCA studies, and found that several of these criteria
48 discriminated reasonably well between truths and lies. A review of
49 more than 20 RM studies showed a similar picture (Vrij, 2008).
50 Several of the eight RM criteria discriminated reasonably well
51 between truths and lies. CBCA and RM were designed to distinguish
52 between truths and lies when people describe events that they claim
53 they have experienced (e.g., being sexually abused). As a result, many
54 CBCA and RM criteria focus on perceptual detail and examine what
55 people report that they saw, heard, felt or smelled during these
56 events.

Sometimes, however, it is important to distinguish between
truthful and untruthful reports of people's opinions, where the topic

described by the person is not *perceptual*, but *conceptual*. In this type
of deception-detection task, perceptually oriented tools such as CBCA
and RM are inadequate. The goal of the present study was to develop a
more conceptually oriented tool to discriminate between truthful and
false beliefs. Determining the veracity of *conceptual* representations
may not be important in typical police suspect interviews because
these are mainly concerned with examining lying about transgres-
sions. However, it can be important in many security settings, for
example when deciding whether an informant is indeed as much (i)
anti-Taliban or (ii) against Muslim fundamentalism as s/he claims or
(iii) whether the sole reason for entering the UK or the US is indeed to
study at a University. Incorrect veracity judgements can do irreparable
harm in such situations, as demonstrated by the loss of seven CIA
agents in Afghanistan on 30 December 2009. The CIA agents were
killed via a suicide attack by a man they thought was going to give
them information about Taliban and Al-Qaeda targets in Pakistan's
tribal areas. The CIA was aware that the man had posted extreme anti-
American views on the internet. However, it was decided that the
views he had expressed were part of a good cover, and the possibility
that they were his real views was discounted (*The Sunday Times*, 10
January, 2010).

In order to detect truths and lies about opinions we designed the
Devil's Advocate approach. It consists of two questions. First, after
someone expresses his/her opinion (e.g., "I am in favour of the war

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in Iraq”), the investigator asks an *opinion eliciting question*: “What do you think led to you having that opinion about this topic?” This question is then followed by the second question, the *Devil's Advocate question*: “Playing Devil's Advocate, is there anything you can say against/in favour of this topic?” (Interviewer asks ‘against’ if the interviewee had expressed a positive attitude towards the topic and ‘in favour’ if the interviewee had expressed a negative attitude towards the topic.)

The Devil's Advocate approach invites truth tellers to give reasons that support their true opinion in the opinion eliciting and to give reasons that oppose their true opinion in the Devil's Advocate answer. People tend to seek information that confirms rather than disconfirms their views (so-called *confirmation bias*, Darley & Gross, 1983), and are therefore likely to be able to generate more reasons that support rather than oppose their opinion (Ajzen, 2001; Waenke & Bless, 2000). In addition, people's knowledge about their own beliefs is likely to be more sophisticated and refined than their knowledge about other beliefs. Therefore, a truth teller's answer to the opinion eliciting question is likely to contain more words than his/her answer to the Devil's Advocate question.

The Devil's Advocate approach has the opposite effect on liars. They must manipulate their thoughts in an unnatural fashion. Liars are invited to give reasons that support their true opinion in the Devil's Advocate question and to give reasons that oppose their true opinion in the opinion eliciting question. Liars may therefore provide longer answers to the Devil's Advocate question than to the opinion eliciting question because, for liars, the Devil's Advocate question is more compatible with their beliefs than is the opinion eliciting question. There is a complication, however. Liars will attempt to mask their true opinion. In doing so they may attempt to generate as many reasons as they can think of in their opinion eliciting answers, and may attempt to restrain themselves from giving too many reasons in their Devil's Advocate answers. If they are successful in doing this, they, just like truth tellers, will give longer answers to the opinion eliciting question than to the Devil's Advocate question. Liars may find it difficult to fully employ this latter strategy, however. First, liars probably can think of many more reasons to report in the Devil's Advocate answer than in the opinion eliciting answer. Only providing a selection of those reasons in the Devil's Advocate answer may already result in providing more information than they can generate in the opinion eliciting answer. Second, liars may find it difficult to restrain themselves from providing information in the Devil's Advocate answer as people typically have a strong desire to speak out about topics they care about (Hayes, 2007; Hayes, Glynn, & Shanahan, 2005; Hayes, Shanahan, & Glynn, 2001; Kim, Han, Shanahan, & Berdayes, 2004; Willnat, Lee, & Detenber, 2002). We therefore predict that truth tellers' answers to the opinion eliciting question will contain more words than their answers to the Devil's Advocate question, whereas liars' answers to the opinion eliciting question will be shorter or of equal length as their answers to the Devil's Advocate question.

Reasons that support an opinion are likely to be more readily available in someone's mind than reasons that oppose an opinion (Fazio, 1990; Tesser, 1978). Truth tellers therefore should reveal shorter latency times (time between a question asked and the answer given) when answering the opinion eliciting question than the Devil's Advocate question. Liars' latency times are more difficult to predict. In theory they should display the longest latency times for the opinion eliciting question. However, they may attempt to mask the fact that they are lying, which could, for example, result in the same latency time for both questions. We therefore predict that truth teller's latency time will be shorter for the opinion eliciting question than for the Devil's Advocate question, whereas liars' latency time for the opinion eliciting question will be longer or of equal length as their latency time to the Devil's Advocate question.

1. Experiment 1

1.1. Method

1.1.1. Participants

A total of 17 undergraduate students took part in this experiment, 7 (41%) males and 10 (59%) females. Their average age was $M = 25.76$ years ($SD = 1.59$).

1.1.2. Procedure

The experiment was conducted in the Psychology Department of the University of Portsmouth. The experiment was advertised via posters distributed around the building, asking for students to participate in a study that investigates people's opinions on various contentious issues. The posters informed potential participants that they could earn £10 for taking part.

Participants were informed that the experimenters were investigating people's opinions and arguments for and against various issues. After consenting to the study, participants completed an Opinions Questionnaire which asked the extent to which they agreed or disagreed (where 1 = agree and 7 = disagree) with 25 different statements (e.g. ‘Women should have the right to an abortion’, ‘Gay couples should have the same rights to adopt a child as heterosexual couples’, ‘The UK immigration laws should be much tougher’, ‘The invasion of Iraq was necessary’). Finally the participants were asked via a 7-point Likert scale ranging from [1] not at all to [7] completely, the extent to which they had filled out the questionnaire truthfully (11 participants ticked ‘7’ on this scale and 6 ticked ‘6’, $M = 6.65$, $SD = .49$).

After completing the questionnaire, participants were taken into another room where the experimenter gave them a consent form outlining the next stage of the experiment. After reading this synopsis, all participants agreed to continue, and signed this consent form. Then the experimenter and participant together looked through the participant's completed Opinions Questionnaire and selected a statement that the participant had indicated strong agreement or disagreement with. Participants were then asked to lie about their opinion ($N = 8$) or truthfully argue their opinion ($N = 9$) in a subsequent interview. They were told that they would earn £10 if they were able to convince the interviewer that they were telling the truth. The experimenter noted on a slip of paper the question number from the questionnaire that the interviewer was to question the participants about. The interviewer was blind to the participant's truth, and did not know what opinion (for or against) the participants were going to express until the interview commenced.

The participants were then taken into the interview room. The interviewer first asked each participant his/her opinion about a topic: “What is your opinion about this topic?” This question was followed by the *opinion eliciting question*: “What do you think led to you having that opinion about this topic?” which was followed by the *Devil's Advocate question*: “Playing Devil's Advocate, is there anything you can say in favour/against this topic?” (Interviewer asked ‘in favour’ if the participant had expressed a negative attitude towards the topic and ‘against’ if the interviewee had expressed a positive attitude towards the topic.) During the interviews, nine participants told the truth and eight lied.

After the participants had answered the two questions, they were brought back into the room where they had just been briefed. The experimenter then debriefed the participants and ‘checked’ with the interviewer whether he had believed the participant. Regardless of his answer, all participants were told that the interviewer had believed them and were given £10 as a result. This was considered fair and ethical.

1.1.3. Dependent variables

All interviews were transcribed, and based on these transcripts we counted the number of words in the answers to the opinion eliciting

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and Devil's Advocate questions (via the Word count option). One coder, blind to the veracity of the statements, measured the latency time for the opinion eliciting and Devil's Advocate questions. The latency time was defined as the time between the question asked and the beginning of the actual answers, ignoring uhms, errs and repetitions of the question. For inter-rater reliability purposes, a second coder, blind to the veracity of the statements, also measured the latency times. A Pearson correlation revealed that the latency time scoring was reliable ($r = .93$ for opinion eliciting question and $r = .67$ for Devil's Advocate question).

1.2. Results

A 2 (Veracity) \times 2 (Question) mixed ANOVA with Veracity as between-subjects factor and Question as within-subjects factor and the number of words as the dependent variable revealed one effect, a significant Veracity \times Question interaction, $F(1, 15) = 5.19$, $p < .05$, $\eta^2 = .26$. Table 1 reveals that truth tellers said significantly more words when answering the opinion eliciting question than when answering the Devil's Advocate question. In contrast, liars said fewer words when answering the opinion eliciting question than when answering the Devil's Advocate question (albeit not significantly less ($p = .21$)).

A 2 (Veracity) \times 2 (Question) mixed ANOVA with Veracity as between-subjects factor, Question as within-subjects factor and latency time as dependent variable revealed a significant main effect for Question, $F(1, 15) = 4.53$, $p < .05$, $\eta^2 = .23$, and a significant Veracity \times Question interaction effect, $F(1, 15) = 4.24$, $p = .05$, $\eta^2 = .22$. The Question main effect revealed that the latency time for the opinion eliciting question was shorter ($M = 2.18$, $SD = 2.15$) than the latency time for the Devil's Advocate question ($M = 4.13$, $SD = 2.6$). Table 1 reveals that truth tellers displayed a significantly shorter latency time when answering the opinion eliciting question than when answering the Devil's Advocate question, whereas liars' latency times did not differ between the two types of question.

1.3. Discussion

Comparing the number of words to the Devil's Advocate question and the opinion eliciting question was a useful tool to detect deceit. Truth tellers said more when answering the opinion eliciting question than when answering the Devil's Advocate question. This appears plausible. Truth tellers can think of more reasons to support their own opinion (opinion eliciting question) than to contradict their own opinion (Devil's Advocate question) (Ajzen, 2001; Waenke & Bless, 2000). This is, of course, the same for liars. They also can think of more reasons to support than to contradict their real opinion, and that makes answering the Devil's Advocate question difficult for them. In order to avoid getting caught, liars should restrain themselves from expressing too much of their true opinion in answer to the Devil's Advocate question because that may reveal deceit. The findings illustrate that most of the liars failed to restrain themselves and said

more when answering the Devil's Advocate question than when answering the opinion eliciting question. The finding that truth tellers said more when expressing their true beliefs than their counter-beliefs is obviously not new as this has been demonstrated in classic social psychological research on attitudes. The finding, however, that liars did not succeed in masking this tendency had not been examined before, and it is this failure that makes the Devil's Advocate approach a useful tool to detect deceit.

Comparing the latency time for the Devil's Advocate question and the opinion eliciting question was another diagnostic tool to detect deceit. Truth tellers displayed the shortest latency times when answering the opinion eliciting question, probably because the reasons that support an opinion (opinion eliciting question) are more readily available to them than reasons that oppose an opinion (Devil's Advocate question). The opposite is true for liars, for them the answers to the Devil's Advocate question should be more available. Yet, liars did not display a difference in latency times when answering the opinion eliciting and Devil's Advocate questions. A possible reason is that liars attempted to display the same latency time for both types of question, assuming that this neutral, undifferentiated pattern, would not reveal their lies. They miscalculated in not realising that truth tellers would have a shorter latency time for the opinion eliciting question. Another explanation is that liars found answering the two types of question equally difficult. The difficulty for them in answering the Devil's Advocate question may have been caused by impression management (Leary & Kowalski, 1990). That is, they may have faced difficulty in presenting the reasons they generated in such a manner that they would not appear to be their true opinion. Given that we obtained a null effect for liars (e.g., no difference), we cannot rule out an alternative explanation, that liars' latency times were random. Whether the null effect has been caused by active control, cognitive load or randomness is a question for future research.

We found parallel results on the two different dependent variables. Truth tellers provided more complete (e.g., number of words) and more accessible (e.g., latency time) answers to opinion eliciting questions than to Devil's Advocate questions. At one level, this is anomalous, as it should take longer to find a more complex than a simple mental representation. For instance, Sternberg (1966) found that it takes longer to compare a test letter to a larger memory set than to a smaller memory set. Comparable findings are observed in other cognitive tasks. For instance, it takes longer to initiate an utterance if the sentence is long and syntactically complex than short and simple (Ferreira, 1991) and it takes longer to initiate a complex motor response than a simple motor response (Osman, Kornblum, & Meyer, 1990). But in our study, truth tellers required less time to initiate longer answers (opinion eliciting) than shorter answers. This complex pattern of results suggests that neither the length of answer data nor the latency to reply data can be accounted for by a simple explanation that addresses only one measure. Rather, it appears that truth tellers' beliefs are represented in a qualitatively different fashion – that is more complex yet more accessible – than their non-beliefs (Devil's Advocate question). We assume that the thought representations of these opinions have become better integrated into their general knowledge system, thereby providing more links to other concepts and also more potential retrieval cues (see Anderson, 2000). The Devil's Advocate paradigm simply exploits this mental representation to increase discrimination between truth tellers and liars.

The patterns found here in the Devil's Advocate paradigm are conceptually similar to the results we found in earlier studies in which we asked liars and truth tellers questions that they either did or did not anticipate (Vrij et al., 2009). Liars and truth tellers were equally consistent in their responses on questions that they could anticipate, but liars were less consistent than truth tellers on questions that they could not anticipate (see also Granhag, Strömwall, & Jonsson, 2003). In some ways, the Devil's Advocate question functions like an unanticipated question, which poses particular problems for liars,

Table 1

A comparison between the number of words and latency time in the answers to the opinion eliciting and Devil's Advocate questions ($N = 17$, 9 truths and 8 lies).

	Opinion eliciting		Devil's Advocate		F	η^2	d	p
	M	SD	M	SD				
<i>Number of words</i>								
Truth	56.00	31.3	35.22	20.6	4.71*	.37	.80	.04
Lie	69.88	71.4	96.38	48.5	1.90	.21	.44	.21
<i>Latency time</i>								
Truth	1.35	.5	4.99	3.0	11.80**	.60	2.06	.009
Lie	3.10	2.9	3.16	1.8	.00	.00	.03	.97

who must construct an ad-hoc reply that will not give away their true mental representation: Slower access and less complete answer to the Devil's Advocate question than to the opinion eliciting question. For truth tellers, however, the Devil's Advocate question is not problematic, as they just naturally provide a slower and less complex response. We believe that, as a general strategy for detecting deception, investigators should exploit liars' inability to conceal their deception to such unanticipated questions.

We always asked the two questions in the same order and the Devil's Advocate question always followed the opinion eliciting question. We believe this is the natural way of asking the questions, as inviting interviewees to argue against their belief (e.g., Devil's Advocate question) before asking them to argue in favour of their belief (e.g., opinion eliciting question) will appear odd. Whether the order of asking the questions has an effect on the efficacy of the lie detection tool is an empirical question. Given that changing the order appears odd, doing this is recommended only when it increases the lie detection ability of the approach. We cannot think of a compelling theoretical reason why it would.

We measured only ~~one dependent variable~~. The number of words. Of course, other measurements would be relevant too, such as the number of ideas expressed or the complexity of these ideas. We restricted ourselves to the number of words because ~~this variable~~ can be measured easily and objectively unlike the other variables. The disadvantage of using ~~number of words~~ is that ~~it gives~~ no insight into the content of the answers. Also, unless there is a transcript of the interview, there will usually be no indication of the number of words spoken. Rather, the deception detector would have only a subjective, global measure of how wordy the suspect appeared. We therefore carried out a second experiment in which the statements were analysed in a qualitative manner.

In Experiment 2 we showed observers a selection of Experiment 1's videotaped interviews with truth tellers and liars (hereafter called 'senders' following common deception research procedure). We measured three qualitative cues to deception: Plausibility, immediacy and involvement. We based these cues on a meta-analysis of deception research revealing that these three cues discriminate between truth tellers and liars (DePaulo et al., 2003; Vrij, 2008). We are aware that DePaulo et al.'s meta-analysis revealed more verbal cues to deception than these three cues. We chose those three cues as they are key cues that cover many other cues. For example, another diagnostic cue to deceit is the number of contradictions (DePaulo et al., 2003). Contradictions, however, are covered by plausibility as contradictions would lead to implausibility (but, obviously, implausibility is more than just contradictions).

Truthful stories typically sound more plausible than deceptive stories. Moreover, truth tellers are typically more immediate than liars (give more examples of personal experiences and more to-the-point answers) and show more emotional involvement with the topic they discuss (feel more strongly about the topic). We thus informed the observers that truth tellers are likely to give more plausible and immediate answers that reveal involvement to the opinion eliciting questions than to the Devil's Advocate questions and that the opposite may occur in liars.

In addition, we asked the observers to rate senders' talkativeness in answering the opinion eliciting and Devil's Advocate questions. We thought this to be a subjective substitute of counting the number of words. We further informed the senders that truth tellers are likely to be more talkative when answering the opinion eliciting questions than the Devil's Advocate questions and that the opposite may occur in liars.

Observers are generally poor at detecting truths and lies when judging videotapes and typically achieve accuracy rates only just above the level of chance (Bond & DePaulo, 2006; Vrij, 2008). We expected to achieve more substantial accuracy rates in the present experiment, given that (i) there were clear differences between truth

tellers and liars in Experiment 1 and (ii) the observers received guidelines how to assess these differences.

2. Experiment 2

2.1. Method

2.1.1. Participants

A total of 25 observers took part, 5 males (20%) and 20 females (80%). Their average age was $M = 20.96$ years ($SD = 3.67$).

2.1.2. Procedure

The experiment took place at the Students' Union of the University of Portsmouth. Observers were tested simultaneously in small groups sized between four and eight, sitting far enough apart so as not to see each other's answers. Observers were given questionnaires and were asked to complete the first section relating to demographics. They were then informed that they were about to see a selection of clips of students (called 'senders') who were either telling the truth or lying when expressing their opinion about a contentious issue. The experimenter did not tell the observers how many clips they would see, or what percentage were truths or lies, so as to avoid observers attempting to calculate how many truths and lies they were actually being shown, and hence deliberately trying to achieve a certain number of truth/lie responses. Instead they were informed that although they would not be told how many clips they would see, there would not be as many clips as were in their questionnaire. The videotaped interviews were shown on a large screen (approximately $2\text{ m} \times 1\text{ m}$).

We showed the observers 14 interviews containing the questions and answers to the opinion eliciting and Devil's Advocate questions: Seven senders lied and seven told the truth. For practical purposes, we selected the first 14 interviews from Experiment 1 (thus leaving out the interviews of senders 15–17). The experiment took just under 1 h to run, but would have lasted more than 1 h if we had shown all 17 interviews. Our experience is that observers are more willing to take part in experiments that are completed within an hour than in experiments that take longer than 1 h.

Before the lie detection task started the observers were told that research has shown that compared to liars, truth tellers appear to be more talkative, more immediate and more emotionally involved, and that truthful stories are likely to sound more plausible than deceptive stories. Immediate was defined as 'gives examples of personal experiences and to-the-point answers', whereas emotional involvement was defined as 'feels strongly about the topic'.

We then explained what the opinion eliciting and Devil's Advocate questions entailed. After this, we told the observers that if the four speech characteristics (talkative, immediate, emotional involvement and plausibility) were more often/stronger present during the opinion eliciting answer than during the Devil's Advocate answer, the sender is likely to be telling the truth and, vice versa, if these speech characteristics were less present during the opinion eliciting answer than during the Devil's Advocate answer, the sender is likely to be lying.

The lie detection task then commenced. Each of the 14 interviews shown to the observers consisted of the two questions (opinion eliciting and Devil's Advocate) and the answers to these questions. Each time after the answer to the opinion eliciting question the videotape was stopped and the observers were asked to report the extent to which they believed the sender was (i) talkative, (ii) immediate, (iii) emotionally involved and, (iv) the extent to which the story was plausible. Answers were given on 7-point Likert scales ranging from [1] definitely not to [7] definitely. The same questions were also asked each time after the answer to the Devil's Advocate question. After the Devil's Advocate question the observers were also asked to make their veracity judgments. They were asked: 'Do you

think that the sender is telling... (dichotomous answer, the truth/a lie)?'; and 'To what extent do you think the sender is lying?' Answers were given on 7 point Likert scales ranging from [1] definitely not to [7] definitely.

Accuracy was measured by calculating the percentage of correct veracity judgements given by each observer in judging the truthful clips ($N = 7$, truth accuracy) and deceptive clips ($N = 7$, lie accuracy).

2.2. Results

2.2.1. Veracity judgements: Dichotomous answers

A one-way ANOVA with Veracity as the factor and the dichotomous accuracy rates as the dependent variable revealed that truths were detected more accurately ($M = .77$, $SD = .22$) than lies ($M = .49$, $SD = .15$), $F(1, 24) = 21.96$, $p < .01$, $\eta^2 = .48$, $d = 1.51$. Truths were detected above the level of chance, $t(24) = 5.60$, $p < .01$, whereas lies were not, $t(24) = .47$, *ns*. The observers had a truth bias and judged the interviewees as truthful in 61% of their judgements. This is more than could be expected by chance, $t(24) = 4.52$, $p < .01$. A truth bias is a common finding in lie detection research (Bond & DePaulo, 2006; Vrij, 2008), particularly when the observers are not police (Mann, Vrij, & Bull, 2004; Meissner & Kassin, 2002, 2004).

2.2.2. Veracity judgements: Likert scale answers

A one-way ANOVA with Veracity as the factor and the Likert veracity judgements as the dependent variable revealed that the observers discriminated between truth tellers and liars, $F(1, 24) = 26.47$, $p < .01$, $\eta^2 = .53$, $d = 1.29$. Liars were viewed as more deceptive ($M = 3.83$, $SD = .61$) than truth tellers ($M = 2.86$, $SD = .89$).

2.2.3. Judgements of speech characteristics

A 2 (Veracity) \times 2 (Question) MANOVA with talkativeness, immediacy, emotional involvement, and plausibility as the dependent variables revealed a significant Veracity main effect, $F(4, 21) = 6.32$, $p < .01$, $\eta^2 = .55$, a significant Question main effect, $F(4, 21) = 26.81$, $p < .01$, $\eta^2 = .84$, and a significant Veracity \times Question interaction effect, $F(4, 21) = 30.04$, $p < .01$, $\eta^2 = .85$. The significant Veracity \times Question interaction effect is the most informative of these three effects. At a univariate level, the interaction effects were significant for each of the four speech characteristics (all $F_s > 48.82$, all $p_s < .01$, all $\eta^2 > .66$, see Table 2).

Table 2 shows that the observers noticed clear differences between the answers to the opinion eliciting and Devil's Advocate questions in truth tellers. They found the truth tellers more talkative, immediate,

and emotionally involved when answering the opinion eliciting question than when answering the Devil's Advocate question, and also found the truth tellers' answers to the opinion eliciting question more plausible than their answers to the Devil's Advocate question.

The results for liars, however, show a different picture. The observers did not see much difference between liars' answers to the two types of question. The only difference they noticed was in talking time, and they found the liars more talkative when answering the opinion eliciting question than when answering the Devil's Advocate question.

2.2.4. Assessing speech characteristics: Its potential for lie detection

Finally, we calculated the potential for lie detection on the basis of the observers' assessments. We calculated the total perception scores for each of the 14 senders that the observers assessed. First, for each of the four verbal cues we subtracted the observers' Devil's Advocate scores for each sender from their opinion eliciting scores. Second, we calculated a total perception score, which is the summation of these four scores. We considered summation scores greater than 4 to be high. Scores greater than 4 indicate that the sender obtained, on average for each verbal cue, at least one point higher on the 7-point Likert scale for the opinion eliciting question than for the Devil's Advocate question. For lie detection purposes, those with high positive scores should be considered truth tellers, whereas the others should be considered liars. Table 3 shows the scores for each verbal cue and the total perception scores for the seven truth tellers and seven liars. The total perception score is presented in the last column.

Table 3 shows that the scores for truth tellers and liars differed considerably. Three out of seven liars obtained a negative total perception score, whereas no truth teller did. Six out of seven truth tellers obtained a high positive score (greater than 4), whereas only two liars did. The decision rule that those with high scores (greater than 4) should be considered truth tellers and the others should be considered liars leads to correctly classifying six out of seven truth tellers (86%) and five out of seven liars (71%). This results in a total correct classification of 11 out of 14 interviewees (79%).

2.3. General discussion

The Devil's Advocate approach can be used to detect deceit when people express their opinions. Our analyses of response length revealed that truth tellers give longer answers to opinion eliciting questions than to Devil's Advocate questions, whereas liars give longer answers to Devil's Advocate questions than to opinion eliciting questions (see Table 1). In addition, our analyses of latency times

Table 2

Assessments of being talkative, immediate, emotionally involved and plausible as a function of Veracity and Question.

Cues	Opinion eliciting		Devil's Advocate		F(1, 24)	η^2	d
	M	SD	M	SD			
<i>Being talkative</i>							
Truth	4.93	.58	3.76	.75	117.80**	.82	1.83
Lie	4.93	.63	4.59	.56	9.83*	.29	.58
<i>Immediate</i>							
Truth	5.06	.62	3.57	.76	163.06**	.87	2.16
Lie	4.73	.55	4.51	.67	3.90	.14	.36
<i>Emotionally involved</i>							
Truth	4.64	.57	3.37	.60	65.47**	.73	2.17
Lie	4.19	.51	3.96	.69	3.75	.14	.38
<i>Plausible</i>							
Truth	5.22	.57	4.30	.59	74.93**	.76	1.59
Lie	4.82	.54	4.80	.57	.06	.00	.04

* $p < .05$.
** $p < .01$.

Table 3

Lie detectors' perception scores as a function of Veracity.

Interviewee	Being talkative	Immediacy	Emotional involvement	Plausibility	Total perception score
Truth teller 1	.84	1.60	.80	1.00	4.24
Truth teller 2	1.48	1.40	1.00	.56	4.44
Truth teller 3	1.32	2.00	2.24	1.08	6.64
Truth teller 4	.04	.44	.08	.72	1.28
Truth teller 5	1.24	1.32	1.08	1.00	4.64
Truth teller 6	1.48	.72	1.68	.56	4.44
Truth teller 7	3.24	2.92	2.00	3.20	11.36
Liar 1	-.44	-1.33	-.68	-.48	-2.93
Liar 2	-.16	-.70	-.16	-.16	-1.28
Liar 3	1.68	1.76	1.12	1.12	5.68
Liar 4	-.44	-.28	-.40	-.40	-1.52
Liar 5	.16	.24	.20	.12	.72
Liar 6	.28	.40	.32	.20	1.20
Liar 7	1.12	1.52	1.32	.72	4.68

revealed that truth tellers display shorter latency times to opinion eliciting questions than to Devil's Advocate questions, whereas liars' latency times did not differ between the two types of question (see Table 1). When we based our decisions on the observers' assessments of the speech characteristics of the truth tellers and liars (in terms of being talkative, immediate, emotionally involved and plausible) 85% of truth tellers and 71% of liars were correctly classified when applying the following rule: Those who score clearly higher in terms of being talkative, immediate, emotionally involved and plausible on opinion eliciting questions than on Devil's Advocate questions should be considered truth tellers, whereas the others should be considered liars (see Table 3).

Observers' veracity assessments yielded a high truth accuracy rate (77%) but a low lie accuracy rate (49%). The results for the speech characteristics explains why observers obtained a high truth accuracy rate but had difficulty in pinpointing liars. The observers noticed clear differences in truth tellers. Observers found them more talkative, immediate, emotionally involved and plausible when answering opinion eliciting questions than when answering Devil's Advocate questions. In contrast, the observers did not see much difference between the liars' answers to the opinion eliciting and Devil's Advocate questions. The only difference they noticed was in talking time, and they found the liars more talkative when answering the opinion eliciting question than when answering the Devil's Advocate question.¹ In other words, deceit is indicated by the absence of differences between the two types of question. Judging veracity based on the absence of certain cues is considerably more difficult than judging veracity based on the presence of some cues (as is the case with truth tellers), as people normally respond to the presence of a signal rather than to the absence of a signal.

Why were the answers of liars to both questions so similar? We have argued that liars may have attempted to mask their true opinion, but could not restrain themselves enough in the Devil's Advocate question. An alternative explanation is that liars deliberately tried to provide answers of similar quality to both types of question. They may have done so because they may have thought that an absence of differences would be the best lie strategy. This is often the case, as people normally respond to the presence of a signal (see above). However, it does not work in the Devil's Advocate approach because truth tellers do not display such an 'absence of cues' strategy in this approach.

This is only the first test of the Devil's Advocate lie detection technique but the results are encouraging. One benefit of the technique is that it is a within-subjects lie detection technique. Therefore, the Devil's Advocate approach does not suffer from a common problem in lie detection: How to deal with individual differences. Such differences can be substantial. For example, some people naturally talk more than others, and some people naturally show more emotional involvement than others. Individual differences are irrelevant in the Devil's Advocate lie detection approach as these differences cancel themselves out.

The Results of Experiment 2 were still based on group means judgements, that is, on the results of the 25 observers as a whole. Of course, there could be individual differences in the observers' ability to apply the Devil's Advocate method. By means of a meta-analysis Bond and DePaulo (2008) have recently examined individual differences in observers' ability to detect deceit and concluded that

¹ The finding that observers found the liars more talkative when answering the opinion eliciting question than when answering the Devil's Advocate question does not replicate the findings of Experiment 1. In that experiment no significant difference was found in the number of words mentioned by liars when answering the Devil's Advocate question and the opinion eliciting question. Perhaps for the observers in Experiment 2, 'talkativeness' was not equal to the number of words used. With hindsight it is unfortunate that we did not give the observers in Experiment 2 more guidance about how we defined talkativeness.

the individual differences typically found in detection deception studies are small and do not differ from what could be expected by chance. We assume that the same conclusion could apply to the ability to effectively use the Devil's Advocate approach.

After this initial success of the Devil's Advocate approach more research is desirable. Future research could focus on why liars displayed an absence of difference in the two types of questions, as outlined above. In addition, future research could focus on other differences between truth tellers and liars than those examined here. For example, the complexity and sophistication of the arguments in true support of one's belief could well be greater than the complexity and sophistication of counter-belief arguments. Also, since arguments that support a belief are more readily available in someone's mind, interviewees may well pause less before discussing their true beliefs than their counter-beliefs (i.e., shorter onset times), and may speak faster when discussing their true beliefs than their counter-beliefs.

Future research could also examine the vulnerability of the Devil's Advocate approach to countermeasures. That is, do interviewees who are aware of the approach manage to give answers that fool lie detectors? Employing countermeasures in the Devil's Advocate approach may be more difficult than in many other lie detection techniques. Countermeasures are typically nonverbal, such as artificially increasing the level of arousal during control questions in polygraph tests (Honts & Amato, 2002). Although these countermeasures might be effective for an arousal-based assessment of deception (Honts & Amato, 2002), they should not influence the patterns we observed here, based on the amount of information provided. The problem liars face in the Devil's Advocate approach is that they should use verbal countermeasures, and that these verbal answers vary with the topics that will be discussed. As long as liars do not know the topic that will be discussed, they cannot effectively prepare their answers.

Research could also examine which factors influence the efficacy of the Devil's Advocate approach. For example, if someone has engaged in serious debate about a particular topic (e.g., abortion), then he or she might already have heard the opposing arguments, which may make it easier to express them. Therefore, the Devil's Advocate approach may work better when someone has not engaged much in discussion about a topic than when someone has. We think that this does not dilute the utility of the technique for exposing terrorists, fanatics and fundamentalists. Those people have extreme views and typically interact with others who have similar extreme views. When people with extreme views get together, opinions opposing the opinions of the groups as a whole are rarely heard, as research on group polarisation (Moscovici & Zavalloni, 1969) and groupthink (Janis, 1982) have demonstrated.

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