Cognitive Strategies

The current project seeks to examine verbal differences in the spoken language of liars and truth tellers in a naturalistic setting as well as to examine the effects of questioning strategies on linguistic content of truthful and deceptive statements.

H1 - Liars will use more 1st person pronouns compared to truth tellers
H2 - Liars will use fewer 3rd person pronouns compared to truth tellers
H3 - Liars will use fewer adjectives and adverbs compared to truth tellers
H4 - A significant interaction is predicted for questioning strategy with lying/truth-telling such that observed differences in liars and truth-teller statements are expected to be present only in neutral condition (i.e., truth teller statements will resemble liars' statements in guilt presumptive condition).

The current proposal seeks to examine a key, and as yet unexamined, metacognitive difference between liars and truth tellers. Recent advances in exploring cognitive and metacognitive differences between liars and truth tellers have introduced a promising new avenue of deception detection research (see Vrij 2010). A truth teller, for instance, may rely primarily on episodic memory when asked to recall an event, while liars rely on metacognitive beliefs about how best to respond appear truthful. As such, an honest witness may possess a metacognitive strategy of informativeness about the external event he/she has witnessed, whereas a liar (either deceptive witnesses or guilty suspects) will be guided more by a metacognitive strategy of self-preservation and exoneration. These differing metacognitive reporting strategies may lead to key diagnostic differences in elicited statements. Truth tellers may provide more information told in third-person providing details about the situation in general whereas liars will provide more first-person information. The proposed study fits with the PI's current and future goals by potentially providing the legal system with a much-needed empirical method for analyzing statement veracity.

Linguistic analysis of suspect statements remains an important tool for deception detection. The overarching argument upon which all linguistic analysis techniques are based is simply that liars’ and truth tellers’ statements are systematically different based on a quantifiable verbal difference. Several notable concerns call into question the utility of many current linguistic analysis techniques. First, many techniques currently in use (e.g., SCAN; Sapir, 2005) have not been supported empirically. Second, other techniques that have been validated empirically have been tested in a laboratory environment that may not be analogous to real world criminal investigations. The current study will argue theoretically for and demonstrate empirically a novel approach to linguistic deception detection relying on a theorized difference in the goals of guilty liars and innocent truth tellers.

Pitfalls of current deception detection methods

The accurate detection of deception is paramount to the success of law enforcement and will remain so for the foreseeable future. Unfortunately, laboratory studies suggest that the diagnosticity of detecting deception is only slightly higher than chance levels (Aamodt & Mitchell, 2004; Vrij, Edward, & Bull, 2001). These relatively poor accuracy rates of detecting deception may be due to an over-reliance on cues that are only tangentially related to deception (see Vrij, 2008 for review). DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper's (2003) meta-analysis found that across a wide range of studies deception cues are subtle and rarely discernible. Bond and DePaulo (2008) examined individual differences in detecting deception and found that across 247 studies individual accuracy rates varied by less than 1% with an average accuracy of 54%. That is to say human deception detectors were universally and consistently poor at actually detecting deception. Bond and DePaulo postulate that their observed poor detection rates may be due to evaluators' deception judgments being based on visible signs of arousal. Poor deception detection ability is problematic for investigators relying on arousal-based cues in that these cues may not be diagnostic of deception. Nevertheless, many investigators continue to rely on techniques such as the Behavioral Analysis Interview (BAI), an arousal-based approach, when making judgments about the veracity of suspects' statements (Inbau, Reid, Buckley, & Jayne, 2013; Bull, 2004).
One important way in which investigators and researchers have attempted to overcome flawed individual deception detection is through the verbal analysis of written statements. Analyzing the veracity of written statements offers a key advantage over arousal-based methods of deception detection. Vrij (2004) argues that verbal statement analysis strips away supposed “deception cues” from analysis (e.g., grooming behaviors, nervous movements) which are overemphasized and incorrectly believed to be indicative of deception (Akehurst, Köhnken, Vrij, & Bull, 1996; Vrij & Taylor, 2003). The absence of these “red-herring” cues allows investigators to hone in on verbal differences, which potentially offer a more clear-cut means of discriminating true from false statements. Studies have shown that when investigators rely on more behavioral cues, their deception detection accuracy rests at around 55% (Vrij & Mann, 2003; Granhag & Vrij, 2005). In contrast, when investigators employ verbal statement analysis their deception detection accuracy rates average at around 72% (Vrij, 2005). Verbal statement analysis circumvents potential distractions present in more traditional arousal-based methods and offers a much needed and useful investigative tool in deception detection.

Newman, Pennebaker, Berry, and Richards (2003) developed a technique known as Linguistic Inquiry and Word Count (LIWC), which approaches statement analysis from a more linguistic perspective. This technique is derived from Pennebaker, Mehl, and Niederhoffer’s (2003) earlier method of linguistic statement analysis which was not specifically tailored for predicting deceptive responses. Unlike many of the other approaches discussed, LIWC focuses on words that are not directly associated with the content of statements (e.g., articles, pronouns and prepositions) when analyzing the veracity of a statement. Thus, LIWC is focused on examining how individuals say something more so than what it is they’re saying. LIWC suggests that liars will produce statements that are 1) linguistically less complex 2) less self-based, and 3) more negative than the statements produced by truth tellers. Critically, Newman and colleagues found support for LIWC’s diagnostic ability as a function of the differing grammar and non-content word usage by liars and truth tellers.

Although LIWC’s ability to detect deception was robust and highly diagnostic of deception, several notable problems preclude Newman et al.’s (2003) technique from being generally adopted. Importantly, Newman et al.’s paradigm tested lies about a social attitude (e.g. abortion). Deceptive statements were centered on taking a perspective contrary to one’s personal beliefs, and not lying to conceal a wrong-doing. As Newman and colleagues explain, liars are driven to distance themselves verbally from their lies as these lies go against the grain of their personal beliefs. This was observed through a decreased use of first person pronouns and self-referential statements. Unfortunately, lies most commonly proffered in legal contexts are not lies about beliefs in social ideologies, but rather lies to deflect suspicion from oneself about a suspected wrong-doing, and thus avoid subsequent repercussions. Lies created to exonerate are categorically different from the type of lies studied by Newman and colleagues, and as such, may not be governed by the same theorized strategic principles.

Each of the currently available methods of verbal statement analysis shares an integral common theme. Liars and truth tellers use different strategies when producing statements and these strategic differences can lead to verbal differences, either in the content of messages or the way the messages themselves are structured grammatically. The reviewed statement analysis methods also share a relatively high level of complexity, requiring considerable investment and training on the part of the investigator. Another essential common thread throughout many of the reviewed statement analysis methods is that liars will seek to personally distance themselves from their lies. This is expected to be manifested by a lack of first person pronoun usage or an avoidance of self-referential statements. Although many of the reviewed techniques are highly diagnostic within a given context, mixed findings and theoretical problems limit their net utility and diagnosticity. This is particularly problematic regarding the hypothesized differences in self-reference between liars and truth tellers.

Exoneration versus Description
The notion that liars may wish to personally distance themselves from their lies makes rational sense, however, empirical support for this hypothesis is limited. Consider the results of Porter and Yuille (1996) and Nahari et al. (2012) on SCAN’s diagnostic criteria. No evidence was found to support SCAN’s premise that liars used fewer first person pronouns compared to truth tellers. Similarly, Buller and colleagues (1994) predicted that liars would use fewer first person pronouns compared to truth tellers. Contrary to their expectations, they reported finding exactly the opposite (i.e. liars used proportionately
more first person pronouns than truth tellers). Buller et al. fail to account for this finding within the context of IDT. Although Newman and colleagues found evidence to support their hypothesis about liars’ avoidance of self-reference, the overriding socio-ideological context of those deceptive statements may have affected their use of first and third person pronouns. As previously discussed, lies that were produced contextually from an ideological viewpoint that an individual does not agree with may result in substantially different statements than lies in a typical criminal investigative context. Indeed, as argued by Buller et al. (1994) as well as by Steller & Köhnken (1989), it is context that may have a critical impact on shaping the strategies of both truth tellers and liars.

Narrative Manipulation is listed among the strategies employed by liars in IDT (Buller et al., 1994). Deceptive individuals have been shown in a variety of settings to avoid producing incriminating details in their reporting (DePaulo et al., 2003). Concurrently, Buller et al. (1994) argue that liars are still bound by the same pressures of interpersonal communication to produce a response. If the relative costs of producing a truthful response are too high, liars are left with two potential options. First, they may create a detailed narrative that is to some extent fabricated. However, there are notable risks associated with this sort of confabulation, namely, that their story may be refuted later if further evidence comes to light. If liars did create a fictitious narrative with which to exonerate themselves, it would, however, resemble Johnson and Raye’s (1981) concept of an internally derived memory. If a deceptive statement contains many internally derived memories, then it is reasonable to expect that the focus of that statement will be on the deceiver to a greater extent than it would be were the narrative derived from an external, observable event memory. Second, liars can mislead and misdirect the focus of the narrative from describing the wrong-doing to describing something innocuous which exonerates them from involvement and suspicion.

For instance, if a guilty suspect was questioned by police about his/her potential involvement in a murder at a party, rather than describe his/her witnessing of the party and details associated with the murder, he/she might instead focus his/her narratives more narrowly on his/her own actions. This would satisfy the suspect’s interpersonal obligation to provide information to investigators as well as his/her two-fold strategic goals of avoiding revealing incriminating information and providing potentially accurate exonerating memories. Whether a liar takes on one or some combination of both approaches in his/her narratives, a guilty liar who is focused on a strategic goal of exoneration will be faced with an inevitable and pervasive emphasis on him/herself and “his/her” actions over a focus on the situation. For example, a guilty liar suspected of involvement in a bar fight might say:

“I was just sitting at the bar minding my own business. Nobody was bothering me and I was keeping to myself. I had my drink and I was watching the ballgame. I wasn’t anywhere near the victim so I’m pretty surprised that I’m being questioned since I wasn’t there and I didn’t have anything to do with the fight. In spite of the findings of Newman and colleagues (2003), liars will need to self-reference and provide relevant first person pronouns in support of these statements in order to successfully exonerate themselves, particularly when unable to provide truthful exonerating information. Indeed, this may also account for the increased prevalence of self-references found by Buller and colleagues (1994). Liars should then produce substantially more self-referential statements and necessarily use more first person pronouns.

Truth tellers and liars should share the same strategic goals. For innocent truth tellers, the communicative and personal costs of providing deceptive information should be necessarily outweighed by the benefits of providing honest, accurate information. According to the Self-Presentational Perspective (DePaulo et al., 2003) truth tellers, similar to liars, should be strategically motivated to prove their innocence. However, truth tellers may perceive an additional benefit in providing accurate information (i.e. aiding the investigator). Truth tellers may value this cooperation based on two potential motivations: 1) aiding the investigators who are perceived to be aiding society is considered the social norm and subscribing to this norm may be considered the most appropriate behavior for a member of a particular social community; 2) out of self-interest stemming from a desire to see the actual perpetrator come to justice (Tyler & Fagan, 2008). Consider also Buller et al.’s (1994) argument about the dynamics of interpersonal interaction. It is clear that liars will be motivated to satisfy the communicative goal of the individual who is questioning them and thus engage in conversation by providing (deceptive) information. It stands to reason that truth tellers should also be motivated by this same communicative goal to converse and to provide information. Truth tellers also have a distinct advantage over liars. Providing accurate and specific information within
the communication context will not pose a threat to the truth teller’s goal of maintaining innocence. In fact, this information may aid in both satisfying the questioner as well as establishing the truth teller’s own innocence. Kassin et al. (2010) make the argument that the phenomenology of innocence is such that innocent individuals find their innocence apparent, and do not feel the same communicative reticence displayed by a guilty suspect (Kassin & Norwick, 2004). Indeed, innocent individuals seem very willing to provide information to investigators. This supports the notion that innocence could drive truth tellers to adopt a strategy of informativeness aimed at aiding themselves and potentially the investigation. If innocent truth tellers are indeed adopting the role of a witness then their statements should contain key differences from the more internally derived (and self-referenced) statements of liars.

RM (Johnson & Raye, 1984) makes a very important prediction about the focus of truthful and deceptive statements. Truthful statements are theorized to be based on observable (external) memories. External memories are theorized to contain considerable descriptive information and highly specific sensory details about an observed event. In contrast, RM predicts that deceptive statements will be based on the internal cognitive state of the individual from which they are derived. If truthful statements do contain more external memories then it is reasonable to expect that the perspective of those memories should be in the third person. Similar to a witness, an innocent truth teller would be an observer, describing events as they took place. The organization of that event memory as an observed phenomenon would necessitate the use of the third person. The truth teller in producing statements about the external observable environment would potentially describe these events not from the self-focused perspective of the liar but from the third person as a rememberer and as a witness. The truth teller describes the event as an external observer since that is essentially how he/she would have encoded the memory as predicted by RM. This is also amenable to the predictions made by CBCA in that statements made by truth tellers should be highly descriptive (Steller & Köhnken, 1989). For the truth teller, self-reference is required only to place him/herself within the context of an observed event. In contrast, if a liar is creating statements that are derived internally, then those memories should be self-focused as they originated from within the liar with the intention of exonerating the liar. These essential grammatical differences in the use of first and third person pronouns may serve to classify the statements made by liars and by truth tellers.

Another important finding relevant to the exoneration versus informativeness hypothesis is notion that liars are less forthcoming in their verbal statements than truth tellers (See DePaolo et al., 2003 for review). This finding fits naturally with the current hypothesis in several ways. First, if liars are motivated to achieve self-exoneration speaking too much could jeopardize that goal. An overly verbose lie might be difficult to remember, particularly given what is known about the increased cognitive demands of lying in general (e.g. Vrij et al., 2008). Additionally, too much information, even untruths, could reveal a lie and stoke investigator suspicion (Hartwig, Granhag, Strömwall, & Kronkvist, 2006). Second, if truth tellers, are motivated to be informative and helpful to investigators (as cooperative eyewitnesses) then they should be motivated naturally to be forthcoming with the information they possess. Additional truthful information would serve both to aid investigators in finding the actual culprit as well as establish innocence if needed. These differences in expected statement length may serve as an important ancillary to the predicted self-referential differences in differentiating between the informative statements of truth tellers and the exonerative statements of liars.

Finally the interrogation literature has demonstrated the power of questioning strategies’ influence on a suspect's propensity to give a true or false confession (see Kassin et. al., 2010). Questioning strategy may have a profound impact in the linguistic patterns used by liars and truth-tellers and has not yet been examined in the deception detection literature. The current proposal seeks to examine if an accusatory request for information changes the words use by liars and truth tellers in their proffered statements specifically by driving truth tellers to adopt an exoneration focus and thus resemble liars linguistically.

We will use a modified version of a study paradigm first used by researchers in the Florida International University Department of Psychology (the “cheating paradigm”; Russano, Meissner, Narchet, & Kassin, 2005). In that study (and others who have followed this paradigm since, e.g., Perillo & Kassin, 2011; Marsden et al, 2013), researchers manipulated guilt versus innocence to explore true and false confessions. Specifically, participants were paired up with a confederate. In the guilty condition, a confederate asked the participant for help on a problem that was
supposed to be solved independently. Although only half of participants were “guilty,” all participants were accused of cheating (for helping the confederate) and asked to sign a confession. This paradigm will be modified for the current study. As the focus of the current study is on deception detection, our reasoning behind the use of the “cheating paradigm” is to create a situation where some participants are driven to lie without being explicitly directed to do so by the researcher, thus emulating more closely an actual lie being told to law enforcement. We will simply inform them of the University’s policy on cheating and the severity of the consequences of admitting cheating. Since only some of the participants will actually have helped the RA and thus engaged in cheating, this enables us to examine spontaneous guilty lying and innocent truth telling.

Participants will be randomly assigned into either a guilty or not guilty condition, using an experimental paradigm based on Russano et al (2005). Each participant will be paired with a confederate. After a brief rapport building phase between the confederate and participant, the experimenter will provide the participant and confederate with a “cognitive ability test” that they should work on independently. After providing participants with general instructions, the experimenter will leave allowing the participant and confederate to complete the test. In the guilty condition, the confederate will ask participants for help in solving a specific problem (participants that do not agree to help will be excluded from analysis and dismissed from the remainder of the study and given full credit for participation). In the innocent condition, participants will complete all problems independently from one another. After the testing phase, the experimenter will return to score the results of the test, leaving briefly. The experimenter will return and separate the participant from the confederate, seating them in separate rooms after revealing a serious problem was found in the test results. Participants will be informed that the confederate and participant have both gotten the same answer wrong in exactly the same way, and is very suspicious. Participants will be informed of the consequences of academic dishonesty as per the University’s cheating policy.

The researcher will randomly assign participants to a guilt presumptive or neutral questioning strategy condition. In the guilt presumptive condition participants will be told that cheating is suspected to have taken place, that the participant is suspected to be involved in that cheating and they need to get to the bottom of what happened to report the incident to their professor. In the neutral condition participants will be told that they have no idea what happened, but as they were not present they need to rely on the participant to report everything that happened. In both condition participants will be instructed to give detailed accounts of what happened in the experiment from beginning to end.

After initial free recall, participants will be given an opportunity to recall additional information. Once participants have concluded they will be fully debriefed as to the true purpose of the experiment.

REFERENCES


