Helping auditors identify deception through psycholinguistics

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Abstract

Purpose — This paper reviews an array of psycholinguistic techniques that auditors can deploy to explore written and oral language for signs of deception. The review is drawn upon to propose some elements of a forward research agenda.

Design/Methodology/Approach — Relevant literature across several disciplines is identified through key word searches of major bibliographic databases.

Findings — The techniques highlighted have considerable potential for use by auditors to identify audit contexts which merit closer audit investigation. However, the techniques need further contextual empirical investigation in audit contexts. Seven specific propositions are presented for empirical testing.

Originality/Value — This paper assembles literature on deceptive communication from a wide range of disciplines, and relates it to the audit context. Auditors' attention is directed to potential linguistic signals of fraud risk, and opportunities for future research are suggested. The paper is consciousness-raising, has pedagogic purpose, and suggests critical elements for a future research agenda.

Keywords — audit; deception; fraud; language; oral; words.

Paper type — Conceptual paper

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1. Introduction

Fraud imposes considerable costs on the global economy (Gee et al., 2010), prompting calls for new and more effective methods to assist auditors detect fraudulent activity (Bierstaker et al., 2006; Hogan et al., 2008; Center for Audit Quality, 2010; Lokanan, 2015). There is a strong case that a critical focus of auditors' methods to detect fraud and deception should be on examining what senior executives say and do. Such a focus seems desirable in view of findings that senior executives are involved in 89% of corporate fraud cases (Beasley et al., 2010).

The need for a wider, holistic approach to evaluating fraud risk in financial statements is established in Statement on Auditing Standards No. 99: *Consideration of Fraud in a Financial Statement Audit* (AICPA, 2002) [hereafter SAS 99] and International Standard on Auditing 240: *The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements* (IFAC, 2012) [hereafter ISA 240]. SAS 99 and ISA 240 require auditors to explore beyond financial reports. SAS 99 (para 31) requires them to conduct interviews with management and to consider management's "attitudes/rationalizations." These standards oblige auditors to consider the risk of fraud or misrepresentation in terms of the "fraud risk triangle" of motivation, opportunity, and rationalisation (ISA 240, paras 3, A1).

Thus, auditors are obliged to consider the wide sphere of linguistic data available to help them undertake their audit. Those data reside in formal narratives, such as Management Discussion & Analysis [MD&A] reports, directors' reports and CEO letters; and in informal narratives, such as press interviews and conference calls with financial analysts. Consequently, considerable benefits seem likely to accrue if auditors understand the psyche of senior management and the psychological factors affecting variations in the language senior managers use. There appears to be merit in encouraging auditors to embrace psycholinguistic analysis to determine psychological markers of changes in behaviour. Widening the scope of audits in this

way will create 'triangulation affirmations' of symptoms of fraud. Psycholinguistic analysis should be contemplated seriously by auditors, and be informed by empirical testing of propositions that link linguistic analysis with aspects of audit practice.

Here we explore some psycholinguistic analysis techniques that are likely to be beneficial to auditors. These are based on literature drawn from a wide range of disciplines, including applied psychology, law enforcement, management, fraud examination, ethics, computing and business communications. We distil potentially beneficial methods from empirical studies in these disciplines to help auditors evaluate the risk of fraud and deception.

By 'deception' we mean circumstances in which one party conceals or misrepresents the truth to another party to create a false understanding. Identifying deception within accounting narratives is a challenging task because of the multiplicity of ways to deceive (e.g., by disclosing false information, intentionally suppressing important information, or telling half-truths).

The effectiveness of the linguistic analysis techniques we elaborate is not well known because of a lack of empirical testing in audit contexts. Testing in other disciplines has given rise, on occasions, to mixed results, and to the likelihood of some 'false positive' results. Further research across disciplines is required. The seven propositions we advance below offer elements of an empirical research agenda for the auditing fraternity. They also provide operational ideas (but not specific operational procedures) to auditors who are seeking approaches to satisfy their broader auditing responsibilities.

There is good scope for auditors to apply linguistic analysis techniques to differentiate truthful statements from fabricated statements. Auditors can learn from the use of linguistic detection methods in other professions (for example, by law enforcement officers to assess the veracity of witness statements and suicide notes) (Larcker and Tayan, 2010).

Analysis of linguistic cues offers considerable potential to determine whether individuals (such as CEOs) are open, transparent and truthful, or are engaging in deceptive conduct (Larcker and Tayan, 2010). Despite the prospect that linguistic-based methods of detecting deception can be applied to oral and written narratives, many of these methods are not well

known throughout the auditing community, possibly because of the complexity of cross-disciplinary perspectives involved. This lack of knowledge is surprising in view of findings (e.g., Craig et al., 2012) that analysis of the financial accountability language of CEOs and senior managers has strong potential to reveal signs of deceptive conduct.

The seven propositions we advance can be conceived as potential symptoms of fraud: that is, as unconscious expositions of the 'rationalisation' element of the fraud triangle. When combined with contextual information relating to 'motivation' and 'opportunity', they can assist auditors to assess (and possibly predict) the risk of fraud or misrepresentation. They are applicable to the language of both "the accidental fraudster" and the "predatory fraudster" (Lokanan 2015, p. 220).

In 2014, the UK Financial Reporting Council (FRC) commented that "The consideration of fraud risks and relevant laws and regulations, and the performance of related audit procedures, tends to be viewed as a compliance exercise rather than as an important and integral part of the audit" (FRC, 2014, p. 5). The first key message the FRC highlighted was that "Auditors should increase their focus on identifying fraud risk factors in both planning and conducting the audit" (p. 6). The FRC emphasised that more up-to-date training would improve audit quality in this area. The propositions advanced here should be a helpful element of such training.

Auditing standards accept that fraudulent financial reporting does not result necessarily from a deliberate, advance plan to defraud stakeholders, but often arises from aggressive interpretation of accounting standards to 'manage' earnings. As the scale of earnings management grows and becomes more pervasive and complex, it is highly plausible that pressures on management to attain financial targets (such as earnings per share) will increase. In such a context, changes in management's oral and written discourse (both manifest and latent) have the potential to indicate whether managers are concealing or distorting information. The obligation for auditors to analyse linguistic nuances in texts or speeches of managers is implicit in the caution in SAS 99 (para 85) that "Risk factors reflective of attitudes/rationalizations by those charged with governance … may not be susceptible to

observation by the auditor" (AICPA, 2002). It is implicit too in the prospect raised in ISA 240 (para A22) that "... other information obtained about the entity and its environment may be helpful in identifying risks of material misstatement due to fraud" (IFAC, 2012).

2. Literature

Although quantitative sections of financial reports provide important information for analysts and investors, they do not express the whole story an entity or a CEO has to tell (Yuthas et al., 2002; Smith et al., 2005). Hellman (2005, p. 299) reported that company stakeholders felt "the most important [sources of communication] were various forms of written and verbal information from the companies." Researchers in a variety of disciplines have found that language provides highly promising cues to help identify deceit (Dando and Bull, 2011; Porter and Brinke, 2010; Vrij, 2008; Vrij et al., 2000).

The interest of the auditing profession in linguistic analysis is evidenced by Ernst and Young's development of software to analyse corporate emails (Purda and Skillicorn, 2015). Ernst and Young have collaborated with the US Federal Bureau of Investigation in developing fraud evaluation software to monitor language in emails of corporate employees (Donohue, 2013). Examples of phrases monitored include "cover up", "write off", and "nobody will find out." The software also tracks rationalisation phrases such as "not hurting anyone", "fix it later", and "told to do it"; and searches for expressions indicative of hidden activities, such as "call my mobile" or "come by my office".

Schuchter and Levi (2015) highlighted the necessity to expand the purview of fraud detection and for "fraud accounting research, education and practice ... [to strengthen its dialogue]... with criminological research, including that which problematizes the professional and social construction of fraud" (p. 185). Further, they suggest that the "inclusion of psychological aspects may expand our understanding of the motivations and rationalisations for fraud" (p. 185).

A recent and growing area of interest for auditors has been 'data analytics'. This involves processing large volumes of structured and unstructured financial and non-financial data "through the applications of various analytic techniques such as statistical and quantitative analysis and explanatory and predictive models to provide useful information to decision-makers" (Schneider et al., 2015, p. 720).

Data analytic approaches are becoming more common in audit assurance tasks, such as fraud detection. Recently, *data* analytic approaches have extended into the realm of *text* analytics (e.g., through the analysis of large volumes of text in "comments from customers, emails between managers, and tweets of companies" [Schneider et al., 2015, p. 728]). The data (text) analytic approach helps auditors to progress beyond providing assurances on fraud detection, to predicting the risks of fraud (Schneider et al., 2015, p. 723).

Linguistic (or text) analysis techniques offer valuable insights to the psyche and psychosocial make-up of senior managers (McClelland et al., 2009). They can also inform auditors' assessments of business leadership risk. Craig and Amernic (2011) showed how analysis of language in CEO letters to shareholders can indicate traces of language use by a CEO that are consistent with a diagnosis of destructive narcissism. Similar uses of linguistic analysis have been applied to form assessments of national leaders in foreign policy settings (Schafer, 2000). In accounting-related narratives, linguistic analysis has been applied to emails (Keila and Skillicorn, 2005), conference calls (Larcker and Zakolyukina, 2012), CEO letters to shareholders (Amernic and Craig, 2007; Craig et al., 2012), and speeches by CEOs (Craig and Amernic, 2014). Such analyses work best (and are more credible) if business leaders have uttered or written the text before becoming aware of monitoring by text analysts.

Narrative sections of annual reports (such as the CEO's letter to shareholders) are usually not subject to formal audit. They are highly susceptible to 'strategic' (manipulated) communication (Amernic and Craig, 2007). No regulatory guidelines mandate what should be communicated in such letters. Thus, whilst it is important to assess language use in CEO

narratives for signs of deception, the fact of doing so will not prevent manipulated communications.

Perpetration of deceitful communication is usually a complicated task. A deceptive individual has to keep track of all of his/her lies to maintain credibility – and do so whilst simultaneously portraying sincerity. Lies of consequence are accompanied by behavioural signs of deception. Such signs comprise a complex blend of affective and cognitive elements, including "body language, facial expressions, and stories" (Porter and Brinke, 2010, p. 58). Three methods of exposing a lie are to:

- survey physiological responses

- observe an individual's general behaviour, and

- examine the verbal content of language (Vrij et al., 2000).

This paper focuses on the last of these methods.

Examination of the verbal content of language, as reflected in forensic psychology literature, emphasises criteria-based content analysis and reality monitoring (RM) (Vrij et al., 2000; Memon et al., 2010). The theoretical premise of RM methods is that actual events create memories which differ in qualitative content from concocted events. This implies that truthful statements are more detailed and are informed by external stimuli. Untruthful statements focus more on internal detail and 'cognitive operations,' including suppositions of sensory experiences (Memon et al., 2010).[1] Another theoretical construct, the 'leakage hypothesis,' maintains that the act of deception creates measurable feelings of stress, guilt and fear in the deceiver; and that the "negative affect and cognitive load" arising will enable differentiation between a deceiver and a non-deceiver (Vrij et al., 2000). Thus, much theorising considers the psychology of a truth teller as opposed to a deceiver (see also Burgoon et al. 2016).

Researchers in accounting and finance are beginning to adopt linguistic analysis techniques to explore narrative disclosures in corporate communications. Consistently, their findings suggest that four dominant cues can differentiate fraudulent from non-fraudulent annual reports. These are pronoun use, frequency of words of extreme emotion, tone of a text, and

clarity manipulations (Newman et al., 2003; Zhou et al., 2004; Keila and Skillicorn, 2005; Hancock et al., 2007; Henry, 2008; Larcker and Tayan, 2010; Larcker and Zakolyukina, 2012; Craig et al., 2012). In considering content analysis of fraudulent financial statements, and drawing from the studies noted above, Goel and Gangolly (2012) highlighted four linguistic cues. They are:

- complex sentence structures

- difficulty of reading and comprehension

- positive tone, and

- passive voice and uncertainty.

Some research using a "bag of words" method has had some success in distinguishing fraudulent financial statements (e.g., Purda and Skillicorn, 2015). This method is premised on searching for words found to recur in incidences of corporate fraud. For example, terms used in M&A activity are recorded in the "bag of words" dictionary because companies committing fraud are often involved in M&A. Whilst the method does not use a psycholinguistic approach (and consequently is very prescriptive and lacking in extemporaneity) it can be useful when results are triangulated with quantitative financial approaches to provide further insight to auditors (Purda and Skillicorn, 2015). To detect financial fraud, Throckmorton et al. (2015, p.78) used a three-pronged analytical approach involving "financial numbers, linguistic behaviour, and non-verbal vocal cues." They analysed 1572 quarterly conference calls in the US and concluded that their approach "provided better fraud detection than was achieved by any of the [methods] alone" (p.78).

A considerable volume of evidence suggests that linguistic cues can identify deceit (Dando and Bull, 2011; Porter and Brinke, 2010; Vrij, 2008; Vrij et al., 2000). In the following section, we outline seven broad psycholinguistics-based approaches that can be invoked to detect deceptive conduct. At the conclusion of our discussion of each approach we provide a broad proposition for auditors that warrants empirical testing in audit contexts. There is empirical support for these propositions, in non-business contexts, in the literature reviewed.

3. Linguistic Cues

3.1 Fewer self-references

Reduced use of first person singular pronouns (that is, self-references) has been a prominent indicator of deceptive communication (Gupta and Skillicorn, 2006; Newman et al., 2003). The use of first person singular pronouns (I, me, mine, my, myself) declare an individual's ownership of a statement. Such use has been found to be associated with honesty (Vartapetiance and Gillam, 2012). A transition involving decreased use of first person *singular* pronouns and increased use of first person *plural* pronouns (we, us, our, ours, ourselves) helps deceptive individuals distance themselves from the deceptive content of their statements. Such use helps them shift responsibility from themselves to others (Gupta and Skillicorn, 2006).

As a disassociation technique, communicators who are engaged in deception unconsciously use fewer first person singular pronouns to avoid responsibility for their words (Keila and Skillicorn, 2005). One interpretation of the use of first person plural pronouns (such as 'we') is that it suggests an individual is not committed to what he/she is expressing, and therefore, is being deceptive or omitting something. Another, more generous interpretation is that 'we' simply indicates that the person is being inclusive and is willing to share credits for business achievement. Hancock et al. (2007, p. 4) explain that deceivers' practice of refraining from using first-person pronouns arises due to "a desire to dissociate themselves from the lie being told." Deceivers unconsciously use more first person plural pronouns (such as we, our, ourselves) to disassociate themselves from the content of their statement (Newman et al., 2003). Such practice is consistent with a blame-shifting strategy: the individual is not declaring full ownership of their statement (Gupta and Skillicorn, 2006).

Craig et al. (2012) explored pronoun use in the CEO shareholder letters of Satyam's CEO, Raju, who resigned in 2009 after confessing to a fraud of approximately $1.5 billion (Bhasin, 2013). They analysed Raju's letters over the six-years preceding his confession. They found that as the scale of Raju's fraud developed, his use of first person plural pronouns increased

considerably. In Raju's CEO letter for the fiscal year 2002-2003, 44% of the nine first person pronouns were plural. In comparison, in 2006-2007, 98% of the 84 first person pronouns were plural. Craig et al. (2012) concluded that monitoring the incidence of first person singular pronouns and first person plural pronouns in CEO communications could help to detect deception.

Proposition 1: Deception in communication is indicated by an increase in first person plural pronouns, relative to first person singular pronouns. A growth in the ratio of first person plural pronouns indicates a distancing of the writer or speaker from the content of the information being communicated.

Auditors should monitor the written and oral discourse of senior executives longitudinally to observe whether there is a significant change over time in the incidence of first person plural pronouns to first person singular pronouns.

3.2 Higher cognitive complexity

To maintain fluency and credibility, individuals engaged in deception have to deal with higher cognitive complexity by controlling their body language, facial expressions, and their account of events (Porter and Brinke, 2010). This directly affects the way a deceiver structures his/her story or statement (Vartapetiance and Gilliam, 2012). The central argument is that it is cognitively more demanding to construct an account based on falsehood and fabrication (Newman et al., 2003; Vartapetiance and Gillam, 2012). Thus, a deceiver is less prone to use 'exclusive' words, such as 'except', 'but' and 'without.' Additionally, Vartapetiance and Gillam (2012) and Newman et al. (2003) argue that there is a negative correlation between cognitive complexity and the use of motion verbs such as 'go', 'walk' and 'run'. They contend that because truthful individuals have experienced what they are communicating, their statements will include more details based on reality. In contrast, deceptive individuals construct a falsified account and use fewer 'exclusive' words and more motion verbs.

Pennebaker et al. (2003) argue that 'explainer' words (e.g., 'because', 'since' and 'in order to') are highly correlated with anxiousness – and, in turn, with guilt. Thus, the use of 'explainer' words should be monitored. If a liar is feeling anxious and/or guilty, then the languages s/he chooses will reflect this state of mind (Newman et al., 2003). Generally, anxiousness seems likely to be evidenced by the use of more explainer words.

Proposition 2: In comparison with truthful language, deceptive language is characterised by fewer exclusive words, more motion verbs, and more 'explainer' words.

Auditors should conduct ongoing assessments of the patterns of cognitive complexity of corporate narrative communications — as indicated by the incidence of exclusive words, motion verbs, and 'explainer' words.

3.3 Words of high positivity

The degree of guilt felt by deceptive individuals is reflected unconsciously in the tone of their word choices (Gupta and Skillicorn, 2006). Henry's (2008) analysis of 1336 earnings press releases of companies in the telecommunications and computer services industries, 1998-2002, determined the extent to which the tone of such communication influenced investor reactions. She found that the "framing [of] financial performance in positive terms causes investors to think about the results in terms of increases, relative to [their] reference points" (Henry, 2008, p. 365). Craig et al. (2012) applied Henry's method to the letters to shareholders of Satyam's CEO, Raju. They found that the tone of these letters became increasingly positive as the scale of Raju's deception grew. Indeed, Raju scored the maximum score for positivity in the year prior to his public confession.

A few months before the bankruptcy filing of Lehman Brothers in the US, Larcker and Tayan (2010) examined the text of a conference call involving the company's executives. They found that the former CFO (Callan) had used excessively positive language to distract attention

from the company's deteriorating financial position. She used "the word 'great' 14 times, 'strong' 24 times, and 'incredibly' eight times"; but only used the word 'challenging' six times and 'tough' once (Larcker and Tayan, 2010, p. 2). Similarly, Amernic and Craig (2006, pp. 18-27) highlighted the delusional hyperbole in the last letter to shareholders of Enron in late 2001. This was co-signed by Jeffrey Skilling (as CEO) and Ken Lay (as Chairman). Skilling and Lay were convicted in the United States District Court (Southern District of Texas – Houston Division) on May 25, 2006 of (among other charges) conspiracy to commit securities fraud. Their joint letter included the following text (with bolding applied for emphasis):

"Enron's performance in 2000 was a **success by any measure**, as we continued to **outdistance the competition** and solidify our leadership in each of our major businesses. In our largest business … we experienced **an enormous increase of 59 percent** in [identifier deleted] deliveries. Our … business achieved its **highest level ever of total contract value**. Our newest business…, **significantly accelerated transaction activity**, and our oldest business,… registered *increased earnings*. The company's **net income reached a record $1.3 billion** in 2000.

Enron has **built unique and strong businesses** that have **tremendous opportunities** for growth. These businesses … **can be significantly expanded** within their very large existing markets and extended to new markets with **enormous growth potential**. At a minimum, we see our **market opportunities company-wide tripling over the next five years."**

Larcker and Zakolyukina (2012) used lists of extreme positive words and extreme negative words to assess emotion in company conference calls. They reported a positive correlation between the likelihood of deception and words of extreme positive emotion. They found that linguistic features predicted fraud at levels "significantly better than a random guess by 6 – 16%" in a conference call setting (p. 495). In a study of MD&A sections in 10-K reports, Purda and Skillicorn (2015, p. 13) noted that "we see higher average proportions of deceptive, litigious and negative words in truthful rather than fraudulent reports." Larcker and Tayan (2010)

reported that deceptive managers over-exaggerate positive news to obscure negative news. Other research has found that the frequency of negative words was the *least* consistent indicator of deception in the e-mails of Enron executives following the collapse of Enron in 2001 (Keila and Skillicorn, 2005).

In contrast to the preceding results (generally finding a relationship between positive words and deception), a meta-analysis of 116 academic studies on deception and deceit by adults found deceptive statements had a higher negative tone than truthful statements (DePaulo et al., 2003). Similarly, Pennebaker et al. (2003) concluded that deceptive individuals lack the ability to rationalise their behaviour, and that their discomfort or guilt is reflected through increased use of negative words and words of negative emotion. A study of 10-K reports (1994 to 2008) by Loughran and McDonald (2011) revealed that negative words, and words reflecting uncertainty, and litigious words, all had a statistically significant link to 10b-5 lawsuits (relating to fraud, false statements, omission of relevant information, and intent to deceive).

The discord in empirical findings, reported above, warrants further elaboration. The Loughran and McDonald (2011) study evaluates the impact of negative words in 10-K filings on share price returns and considers the incidence of negativity in litigation filings. This involves an after the event test rather than a precursor test to establish deception indicators. De Paulo et al. (2003) and Pennebaker et al. (2003) focus on non-financial cases of deception. The DePaulo et al. (2003) meta-analysis elicits some defining characteristics which are relevant here. They argue that self-presentation perspectives are a way that people can control impressions of themselves. They may act strategically to maintain professional credibility and status. They wish to appear truthful and sincere "which ... could involve trying to behave in the generally positive ...way that they believe more characteristic of truth tellers..." (DePaulo et al., p.78).

The emerging picture is that manifestations of deception are contextually variant. This is further reinforced by Bargh (1989, p.5) who defined five situations that explain situational automatic processing effects. Two such effects are particularly relevant here:

(a) "[e]ffects that are relatively *effortless,* such that they will operate even when attentional resources are scarce"; and

(b) "[e]ffects that are *autonomous,* in that they will run by themselves to completion, without the need of conscious attentional monitoring."

These effects refer to the 'auto-pilot' people engage when in repeated or process-driven events. In such situations it is difficult to detect deceptive behaviour. For example, when CEOs speak in analysts' meetings it is possible, given their depth of experience in these situations, that goal-dependent automaticity is applicable.

DePaulo et al. (2003) suggest that it is more difficult to lie than to be truthful because lying requires the construction of a new experience. However, in the context of explaining financial position and results, experience at CEO level will help provide the alternative truth required so that no new construction may be necessary. DePaulo et al. (2003) note "… liars … based their lies on experiences from their own lives…" (p. 80). In cases of significant financial statement deception, the weight of contextualised evidence supports argument that a high frequency of positive words is associated with deception in financial communications.

Proposition 3: To distract from negative financial results, deceptive CEOs use more words of extreme positive emotion, and fewer words of extreme negative emotion.

Auditors should analyse the ratio of positive and negative words in the narratives of senior executives. Any major changes in the pattern of such language should merit closer scrutiny.

3.4 Lexical density and diversity

Another cue to identifying deception in language is lexical density (Picornell, 2013). This is "the percentage of content words (nouns, verbs, adjectives, and adverbs) to all the words in a given text (content words plus grammatical words)" (Johansson et al., 2006, p. 683). A common measure of lexical density is Johnson's (1946) Type-Token Ratio [TTR]. This measures the number of distinct words divided by the total number of words. The sentence "One small step

14

for man, one giant leap for mankind" has a TTR of 0.80 – eight non-repetitive words divided by a total of ten (Colwell et al., 2002, p. 289). A high TTR indicates an avoidance of overstatement.

Colwell et al. (2002, p. 289) argued that highly motivated deception will "result in noticeably different patterns of speech … people who lie tend to become more stereotypical in their responses." Thus, the lexical diversity of people telling lies (measured by the TTR) will be lower than if they were not telling lies. They also argue that:

" … low anxiety will hypothetically lead to higher TTR and high anxiety will lead to lower TTR. The former [low anxiety, high TTR] arises from an attempt at impression management, the latter [high anxiety, low TTR] stems from the motivational impairment effect. … deceptive persons are aware of their prevarications, and therefore are able to carefully phrase the apocryphal portions of their statements…"

In the context of *oral* communication, Carbone (1975, p.105) concluded that "high credibility sources" [such as CEOs] are aware that "a speaker using unfamiliar words will be better liked and more respected than one using common words." Thus, they will respond by using speech manuscripts with a "preponderance of synonyms rather than repetition of the same words" (p.105). They are aware that if there is "more vocabulary diversity than usually expected for oral communication [this] may produce favourable attitudes towards the source of an oral message" (p.105).

Proposition 4: Language in which there is a high proportion of content words to total words and/or a low Type Token Ratio should be investigated for signs of deception.

Auditors should be alert for signs of noticeably different patterns of speech, possibly featuring high stereotypicality, and a low TTR.

3.5 Oral cues of entraneity, focus and attitude

Adams and Harpster (2008) explored homicide phone calls to the emergency number 911 for verbal cues that could associate the caller with the crime. When comparing innocent callers with guilty callers, they found three significant cues: extraneous information, the focus of the help, and the caller's attitude towards the victim. Each of these cues is discussed in the following paragraphs.

Deceptive individuals provided irrelevant details to increase their credibility or conceal their involvement in a crime — as opposed to conveying actual events in a truthful manner (Adams and Harpster, 2008; Boydell et al., 2013). Extraneous information was a significant indicator of guilt. Adams and Harpster (2008) found that 96% of emergency calls containing extraneous information were made by a guilty individual. The urgency and focus of the assistance required is a significant indicator of deception. Adams and Harpster (2008) found that 7% of all callers requested help for themselves and not the victim — and all of these callers were found subsequently to be guilty. Similarly, a caller's immediacy in demanding assistance is correlated highly with the caller's sincerity – any individual who does not prioritise seeking medical attention for the victim should become a suspect (Harpster et al., 2009). In a corporate context, executives of financially ailing companies who persistently suggest that there is no financial problem, despite evidence to the contrary, potentially are highlighting the extreme nature of existing problems.

The shock of a traumatic event involving death can cause individuals to revert to a denial and fail to accept what has happened (Kopczuk and Slemrod, 2005). Even if a victim of crime is dead, callers often demand urgent assistance for the victim. They are unable to process the shock involved. Adams and Harpster (2008) found that of the 23% of callers who accepted the death of a victim, 100% were guilty. They also reported that 5% of callers held the victim responsible, or insulted them in some form – and that 100% of these callers were found later to be guilty of murder. None of the innocent callers criticised victims negatively. Consistent with

this finding, in a corporate context, incumbent CEO's leading failing companies are likely to disassociate themselves from the failures and continue to seek support for financial restructuring.

Proposition 5: Major verbal cues to deception in the narrative in management communications are the level of extraneous information provided, irrespective of whether the focus is on urgently assisting managers to operate the company, or whether there is a denial of responsibility for bad events affecting the company.

Auditors should monitor the language of executives for evidence of irrelevant details, misplaced focus, and an inappropriate attitude to serious issues confronting the company.

3.6 Changes in tense

Newman et al. (2003) reported that a shift in tense in the middle of a statement (e.g., from past to present) indicates deception. In a case study in 1995 of two boys allegedly kidnapped at gunpoint, the mother of the boys told reporters: "My children wanted me. They needed me. And now I can't help them." The father reassured her by saying "They're okay. They're going to be home soon" (Adams, 1996). The mother's use of the past tense deviated from normal behaviour – when children are missing, parents are hopeful they will remain unharmed. However, use of the past tense indicated the mother already thought they were dead. Later it was revealed she had strapped the boys into her car and allowed it to roll into a lake. The mother knew that the boys were already dead — and this was subconsciously reflected in her language.

A study of tense can also be instructive in business contexts. For example, Burgoon et al.'s (2016) analysis of earnings conference calls concluded that the use of past tense instead of present tense created a lower immediacy. The future tense was conceived as pushing ideas into an uncertain, indeterminable future. A change of tense when addressing significant issues in managerial communications can reflect concern about the specific content being discussed.

Proposition 6: Patterns of tense use in narratives of senior executives should be monitored for signs

of deception. Significant changes in tense suggest closer audit scrutiny is required.

Auditors should monitor the tenses used in corporate communications to gain insights to the activities they are reviewing.

3.7 Statement validity assessment [SVA]

Wright Whelan et al. (2014) explain that single cues to deception can be inaccurate, unreliable, and context-dependent. A widely implemented method of evaluating deception that uses multiple deception cues is Statement Validity Assessment (SVA). This involves a Criteria-based Content Analysis (CBCA) approach (Roma et al., 2011) which assesses the credibility of a statement by examining the presence of 19 criteria "considered to be characteristic of truthful accounts" (Blandon-Gitlin et al., 2009, p. 902; see Humphreys et al., 2011).[2] These criteria include "logical structure", "complication" and "external association." The more criteria present, the more a statement is considered truthful. The basic premise is that statements produced from imagination will differ in content and structure from those recalled from memory. SVA has proven successful in differentiating between truthful and fabricated accounts but has been criticised for lacking ecological validity (Wright Whelan et al., 2014) and for having a "truth bias" (Roma et al., 2011). Despite these limitations, SVA has been beneficial when applied in other contexts (e.g., to determine the authenticity of allegations of sexual abuse [Blandon-Gitlin et al., 2009]).

Humphreys et al. (2011) found that the use of CBCA to detect differences in language between fraudulent and non-fraudulent financial SEC 10-K filings were not statistically significant. A later meta-analysis by Amado et al. (2015) found that 97% of honest statements contained a higher incidence of CBCA criteria than false statements. They identified six generalisable CBCA criteria. Those criteria which would be especially relevant in cases of

financial statement manipulation were logical structure, quantity of details, contextual embedding and superfluous details.

Proposition 7: SVA and CBCA methods have potential to identify deception in unrehearsed, unscripted narrative.

Auditors should consider the benefits of evaluating relevant CBCA variables to assess corporate statements in analyst conference calls (or similar events) where language use is extemporaneous.

4. Conclusions

Linguistic analysis techniques have strong potential to help detect deception within written and oral financial communications. These techniques can help auditors to improve their detection of financial fraud and minimise the level of unsystematic risk within financial markets.

Professionally trained 'lie detectives' have only a slightly better than even record of detecting deceit (Dando and Bull, 2011). Nonetheless, psycholinguistic techniques analysing patterns in language and non-verbal cues can be effective for auditors. If these techniques are applied to corporate financial narratives of individuals (such as CEO's), with a view to identifying fraudulent communication, they can help differentiate between truthful and fabricated statements (Larcker and Tayan, 2010). Ideally, they should be applied as dynamic, longitudinal tests for each audit client, in conjunction with analysis of "financial numbers and non-verbal vocal cues" (Throckmorton et al., 2015).

No single cue can definitively identify deception. Nonetheless, linguistic analysis methods can help auditors identify areas needing further audit investigation. By monitoring financial communications longitudinally, deviations in word choice behaviour (such as a significant change in the use of personal pronouns) might be noticeable, and if so, should prompt further assessment by auditors. However, if definite deception cues are discovered, and publicly disclosed, CEOs might avoid suspicion by adapting their financial communication to preclude

offering those diagnostic cues. This raises the possibility that the techniques suggested could have a short 'half-life.' Consequently, changes in linguistic behaviour in response to such public disclosures should be monitored, as well.

Further research should extend current explorations of oral and written management communications and narratives to determine whether there is empirical support for the propositions advanced above. We suggest four beneficial lines of enquiry. First, to what extent (if at all) are the analysis protocols highlighted context-specific, or specific to a particular communications genre? Second, a focus on the informal, impromptu verbal communications of CEOs (such as the transcripts of 'doorstop' interviews with journalists) should be encouraged. These are likely to be more revealing as they usually cannot be planned strategically, and written in advance. Thus, informal oral communications seem likely to be more informative in signalling deception by CEOs – especially in circumstances where a CEO is provoked or under stress. Third, we should continue to explore the links between language use by companies and their executives, and financial indicators (such as earnings quality). Finally, we should investigate whether continuing professional development programs for auditors need reform to help auditors develop greater sensitivity to language and stronger awareness of available techniques for analysing language in audit contexts.

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[1] We acknowledge that 'truth' and 'lies' are not necessarily dichotomous states; and that there may be a 'continuum of truth.'

[2] Blandon-Gitlin et al. (2009) suggest there are 18 overall criteria. They test for 16. Most other studies suggest there are 19 criteria overall (Roma et al., 2011, Vrij, 2000, Humphreys et al., 2011).

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