Using content analysis to study executive personality on a large-scale

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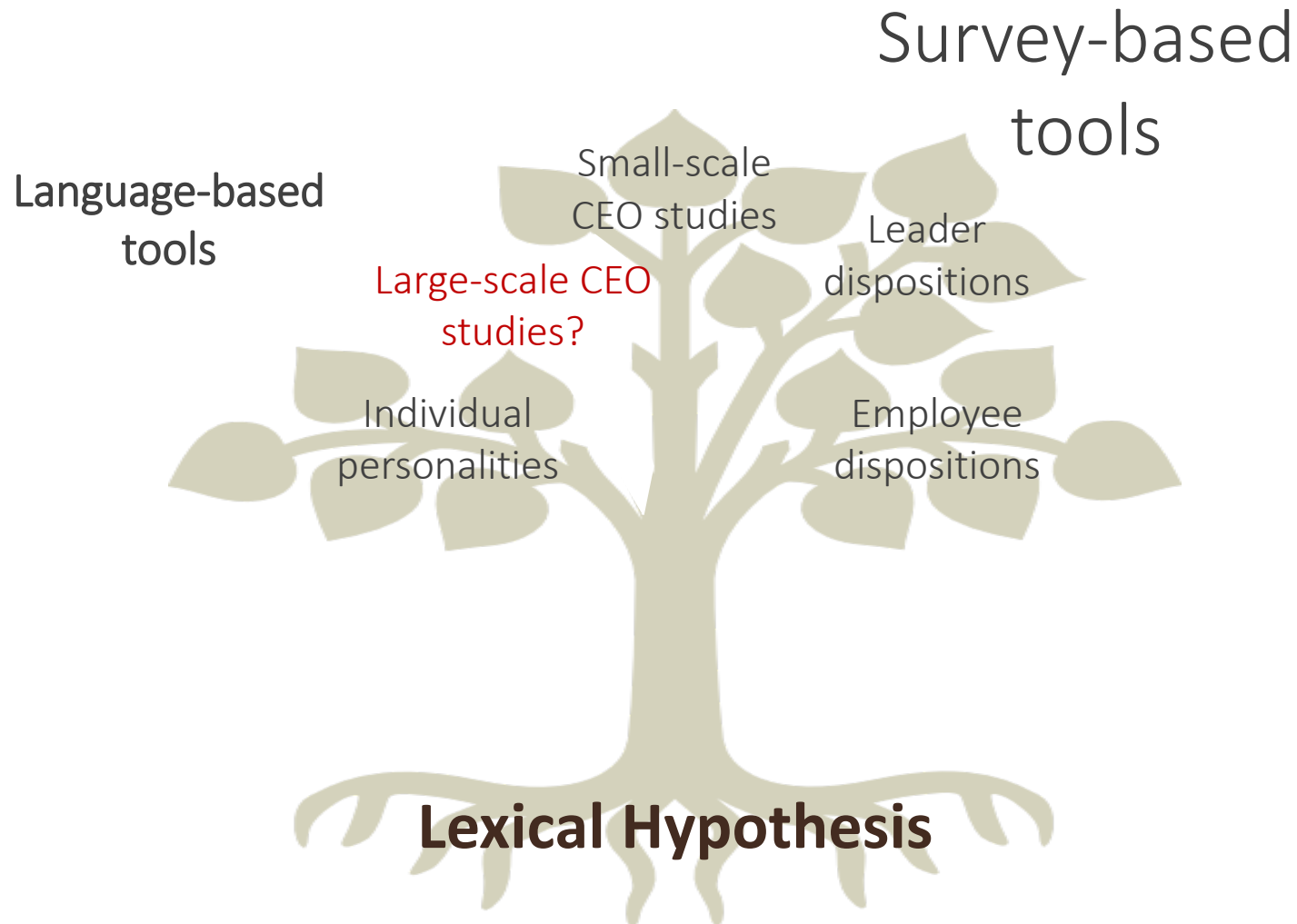TEXAS A&M UNIVERSITY

2016 CONTENT ANALYSIS PDW

ACADEMY OF MANAGEMENT, ANAHEIM, CA
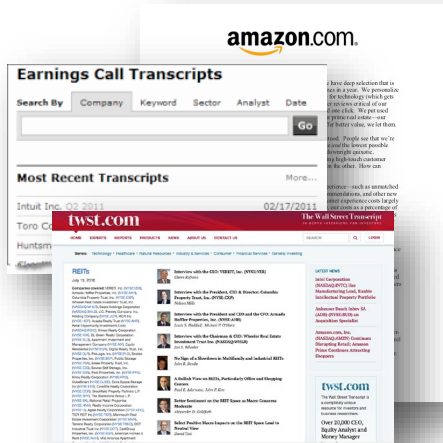
Theoretical Roots & Development

Survey-based tools

Language-based tools

Small-scale CEO studies

Leader dispositions

Large-scale CEO studies?

Individual personalities

Employee dispositions

Lexical Hypothesis

Content Analysis of CEO Dispositions

Data Sources

- Letters to shareholders (Gamache et al, 2014)
- Earnings calls
- Interviews

Analysis Tools

CEO Dispositions

Narcissism
Personal pronoun usage
(e.g., Chatterjee & Hambrick, 2007, 2011; Gerstner et al, 2013; O'Reilly et al, 2014; Reina et al, 2014; Resick et al, 2009; Zhu & Chen, 2015a, 2015b)

Regulatory focus
Promotion/prevention words
(e.g., Gamache et al, 2014; Kolev et al, 2015)

Temporal focus
Past/present/future words
(e.g., Nadkarni & Chen, 2014)

Big 5 personality traits?

Big 5 Personality Traits (Costa & McCrae, 1985)

Extraversion	tendency to be sociable, gregarious, active, and positive as well as the desire to be dominant and assertive (Costa and McCrae, 1985)
Neuroticism (Emotional stability)	tendency to show emotional instability which manifests as higher stress, anxiety, anger, hostility, impulsiveness, and (Judge and Ilies, 2002)
Agreeableness	tendency to be kind, gentle, altruistic, trusting and trustworthy, and warm (McCrae and Costa, 1987)
Conscientiousness	tendency to be achievement-oriented, dependable, orderly, deliberate, and self-disciplined (Costa and McCrae, 1992)
Openness	tendency to be creative, flexible, curious, and unconventional (McCrae, 1996)

Personality Recognizer (Mariesse et al, 2007)

Overview:
- Analyzes written/spoken text & computes Big 5 on 7-pt. scale

Development:
- Inductive analysis
  - Assessed correlations b/w Big 5 & lexical categories from LIWC and MRC
  - Developed feature sets to "automatically recognize" Big 5
- Predicted survey scores with essays & recordings
  - 2k essays of psychology students (Pennebaker & King, 1999)
  - 15k utterances from 96 recordings of students (Mehl, Gosling, & Pennebaker, 2006)
  - Self- & observer reports using Big 5 Inventory (John & Srivastava, 1999)
- Procedure
  - Statistical models: classification, regression, & ranking
  - Algorithms: decision tree; naïve bayes; support vector machines (SVMs); etc.

Personality Recognizer (Mariesse et al, 2007)

Final Product: Java-based command-line program

- Input:
  - (1) file OR (2) directory
- Models:
  - (1) Linear regression;
  - (2) M5' model tree;
  - (3) M5' regression tree; OR
  - (4) Support vector machine with linear kernel
- Types:
  - (1) Observed personality from spoken language OR
  - (2) Self-assessed personality from written language
- Output:
  - Outputs Big 5 for each text file, standardized on sample

Applying Personality Recognizer to CEOs

Data:
- Lexis-Nexis Full Disclosure Wire (conference calls)
- The Wall Street Transcript database (interviews)
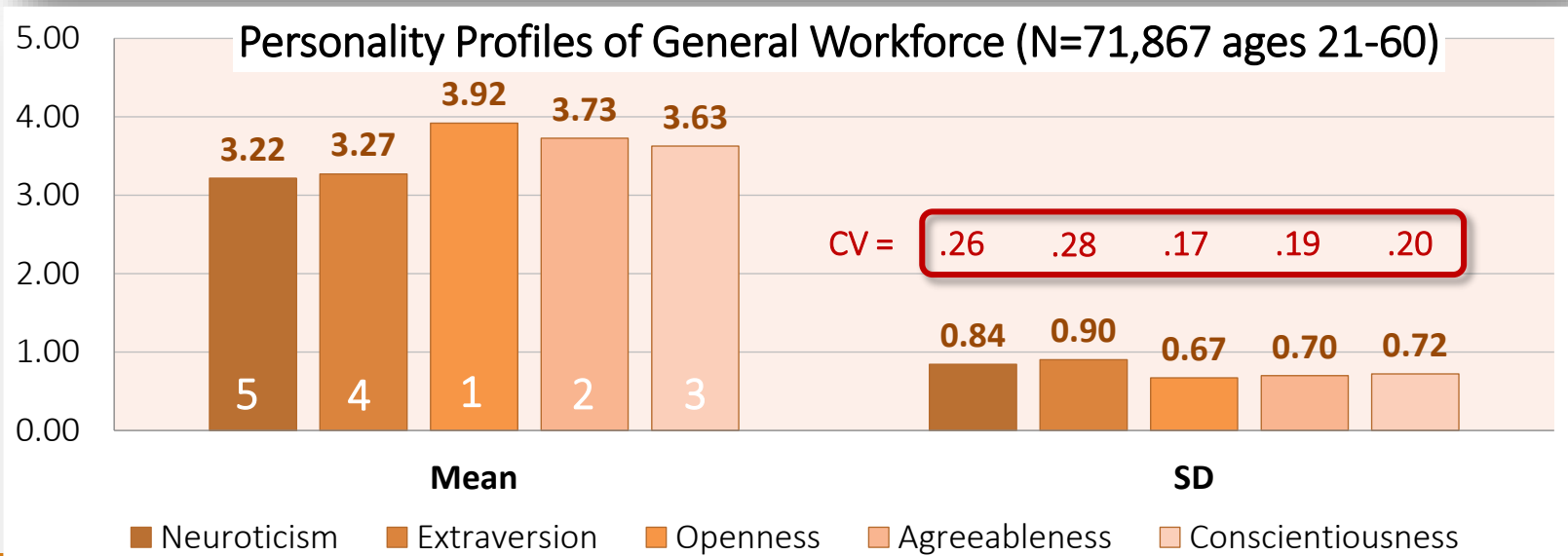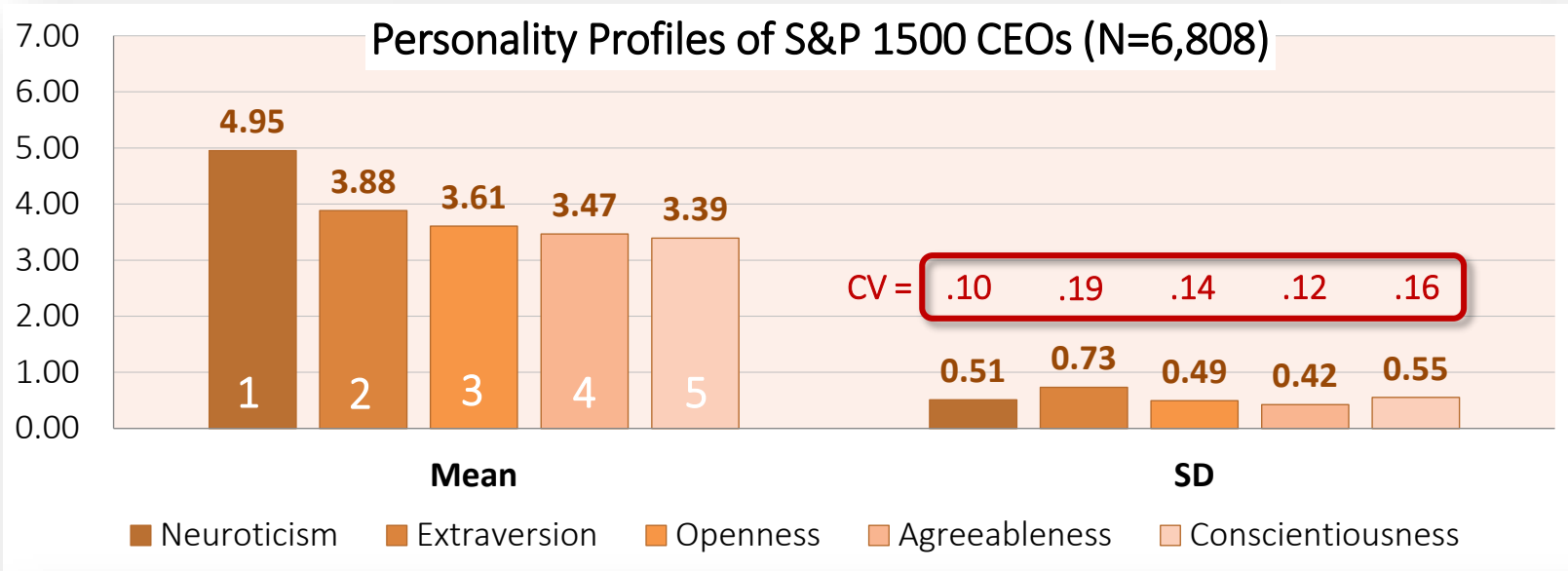- 300k transcripts ➔ 893k speaker files

Sample:
- 6,808 CEOs of *S&P 1500* firms from 2001-2012
- Analyze text attributed to CEO (~11.5k words/CEO)

Analysis:
- Built directory w/ all text files
- Ran Personality Recognizer:
  - Model: support vector machine
  - Type: observer ratings from spoken text
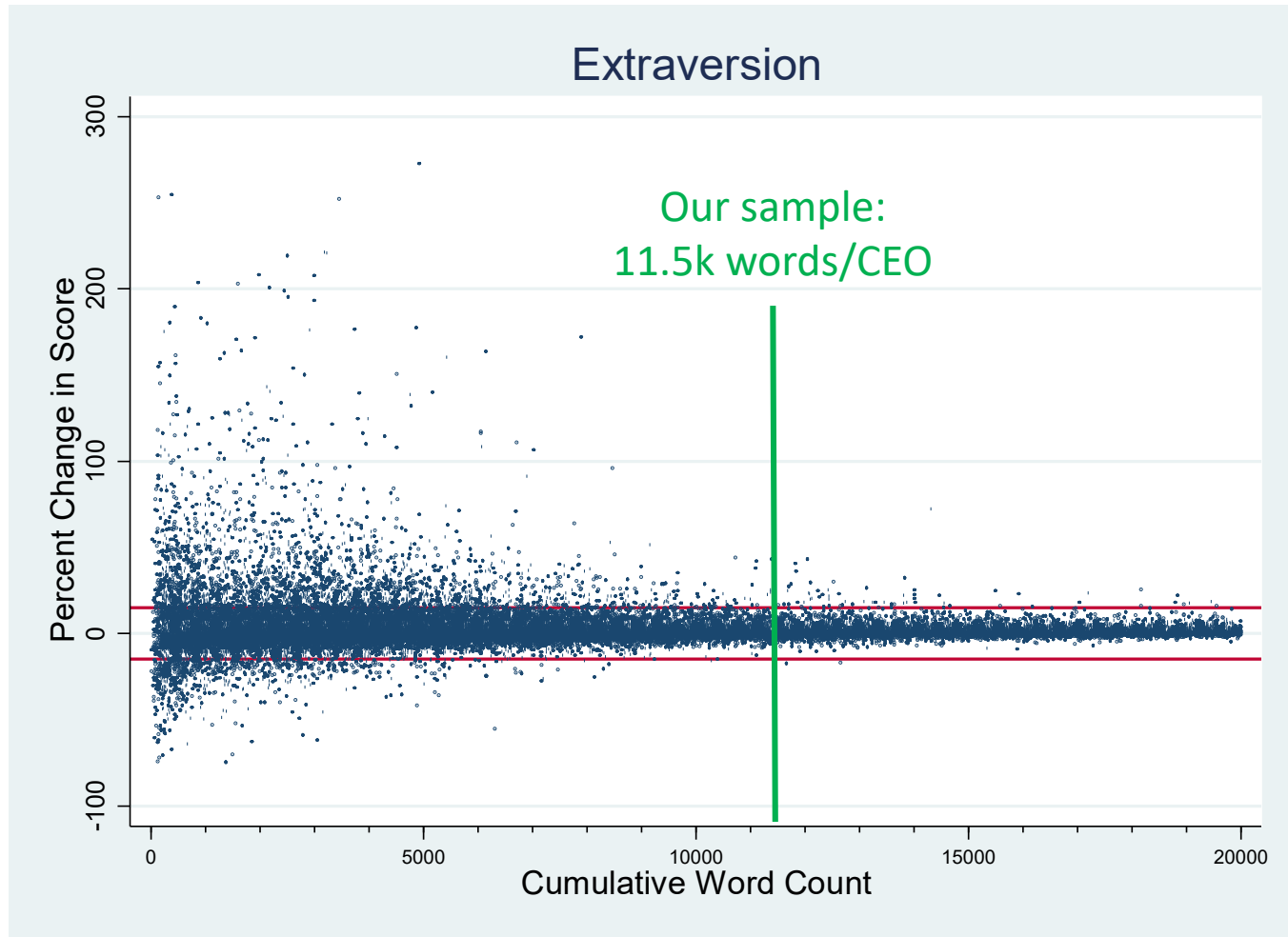
Personality Profile Analysis

Personality Profiles of S&P 1500 CEOs (N=6,808)

CV = .10 .19 .14 .12 .16

Mean | SD

■ Neuroticism ■ Extraversion ■ Openness ■ Agreeableness ■ Conscientiousness

Personality Profiles of General Workforce (N=71,867 ages 21-60)

CV = .26 .28 .17 .19 .20

Mean | SD

■ Neuroticism ■ Extraversion ■ Openness ■ Agreeableness ■ Conscientiousness

* Scores for general workforce provided by Srivastava, John, & colleagues (John and Srivastava, 1999; Srivastava et al., 2003)

Assessing the Tool

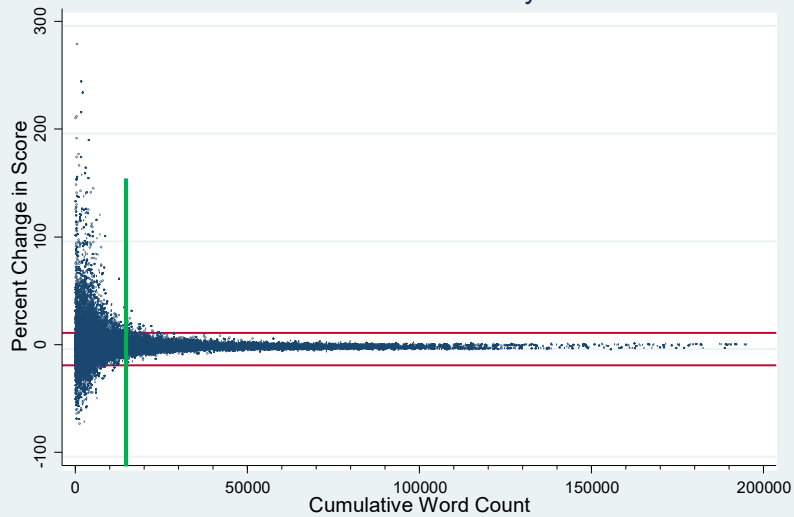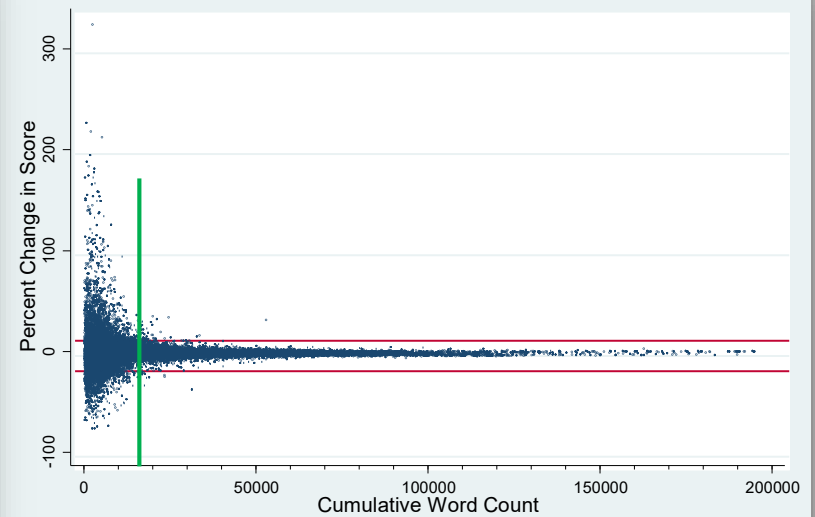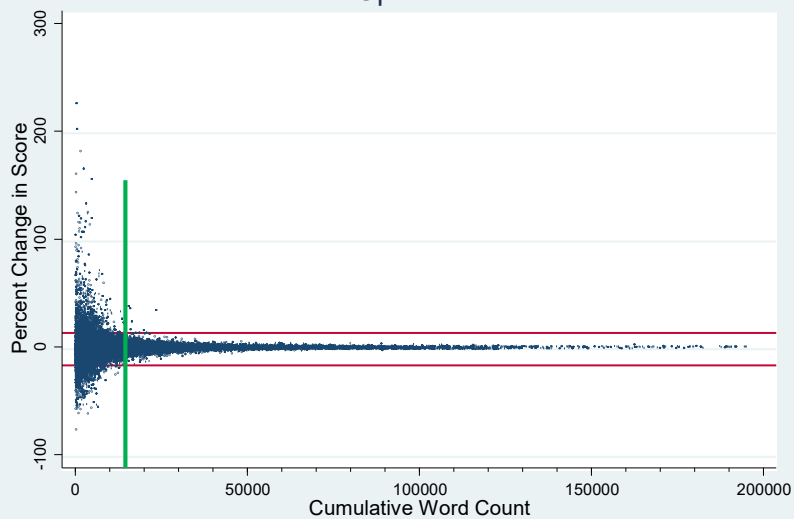| Area	Details	S	W	Resolution
Development				
Inductive approach	Optimizes scores Strained correlations	✔	✔	Predictive validity check
No clear "winner"	Adaptable Easy to apply inappropriately	✔	✔	Align use with data
Reliability				
Within-CEO reliability	Some variance across transcripts		✔	Word threshold **~10k words**
Validity				
Construct validity	Validated on survey responses 10 − 25% of variance	✔	✔	Use observer ratings Predictive validity check (Step beyond demographics)
External validity	~6.8k CEOs vs. ~400 CEOs (across 9 "small scale" studies)	✔		

Word Threshold
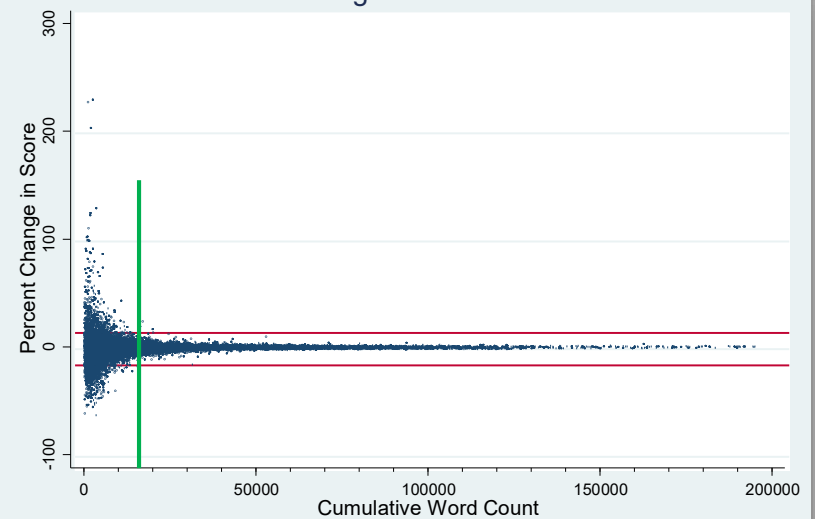
Word Threshold

Emotional Stability — Percent Change in Score vs. Cumulative Word Count

Conscientiousness — Percent Change in Score vs. Cumulative Word Count

Openness — Percent Change in Score vs. Cumulative Word Count

Agreeableness — Percent Change in Score vs. Cumulative Word Count

Our sample: 11.5k words/CEO

Resources

Selected References:

◦ Mairesse et al (2007) Using linguistic cues for the automatic recognition of personality in conversation and text. *Journal of Artificial Intelligence Research*: 457-500.

◦ Chatterjee & Hambrick (2007) It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance. *Administrative Science Quarterly*, 52: 351-386.

◦ Gamache et al (2014) Motivated to acquire? The impact of CEO regulatory focus on firm acquisitions. *Academy of Management Journal*, 58: 1261-1282.

◦ Nadkarni & Chen (2014) Bridging yesterday, today, and tomorrow: CEO temporal focus, environmental dynamism, and rate of new product introduction. *Academy of Management Journal*, 57: 1810-1833

◦ Srivanstava et al (2013) Development of personality in early and middle adulthood: Set like plaster or persistent change? *Journal of Personality and Social Psychology*, 84: 1041-1053.

Websites:

◦ Terry content analysis page: http://www.terry.uga.edu/management/contentanalysis/

◦ Personality Recognizer page: http://farm2.user.srcf.net/research/personality/recognizer

◦ LIWC: http://liwc.wpengine.com/