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The Analysis of Deceptive and Truthful Speech: A Computational Linguistic Based Method

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Abstract : Recently, detecting liars and extracting features which distinguish them from truth-tellers have been the focus of a wide range of disciplines. To the author’s best knowledge, most of the work has been done on facial expressions and body gestures but only few works have been done on the language used by both liars and truth-tellers. This paper sheds light on four axes. The first axis copes with building an audio corpus for deceptive and truthful speech for Egyptian Arabic speakers. The second axis focuses on examining the human perception of lies and proving our need for computational linguistic-based methods to extract features which characterize truthful and deceptive speech. The third axis is concerned with building a linguistic analysis program that could extract from the corpus the inter- and intra-linguistic cues for deceptive and truthful speech. The program built here is based on selected categories from the Linguistic Inquiry and Word Count program. Our results demonstrated that Egyptian Arabic speakers on one hand preferred to use first-person pronouns and present tense compared to the past tense when lying and their lies lacked of second-person pronouns, and on the other hand, when telling the truth, they preferred to use the verbs related to motion and the nouns related to time. The results also showed that there is a need for bigger data to prove the significance of words related to emotions and numbers.

Keywords : Egyptian Arabic corpus, computational analysis, deceptive features, forensic linguistics, human perception, truthful features
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