The peril of sounding manly: A look at vocal characteristics of lawyers before the United States Supreme Court

Alan C. L. Yu*, Daniel Chen*, Katie Franich*, Jacob Phillips*, Betsy Pillion*, Yiding Hao*, Zhigang Yin**

University of Chicago*, ETH Zurich*, Chinese Academy of Social Sciences**

aclyu@uchicago.edu, daniel.li.chen@gmail.com, kfranich@gmail.com,
jacobphillips09@gmail.com, betyschmetsy@gmail.com, yiding@uchicago.edu,
yin.zhigang@163.com

Introduction: Individuals make use of many aspects of the speech signals to construct personas and to project hidden desires to the external world. Of interest here is whether vocal characteristics and the perceptual evaluation of them exert an influence on listener behavior. With the exception of a few pioneering studies (e.g., Purnell et al. 1999), this question has remained largely unexplored. In the present study, we examine the vocal characteristics of lawyers arguing in front of the Supreme Court of the United States and link this data to the lawyers’ actual win rates in the Court. We show that perceived attributes of voices predict Supreme Court wins, suggesting potential differential labor market treatment of lawyers with certain culamore or less masculine or confident.

Part I: Methods: In order to obtain listener evaluation of talker voices, we extracted sixty sound clips of male lawyers’ Supreme Court oral argument’s introductory sentence, which is identical across cases (i.e., “Mister Chief Justice, may it please the court”) from the Oyez Project website (http://www.oyez.org/), which is a multimedia archive at the Chicago-Kent College of Law devoted to the Supreme Court of the United States and its work since the installation of a recording system in October 1955. The recordings and the associated transcripts were made available to the public in electronically downloadable format. 200 participants recruited on Amazon's Mechanical Turk listened to the sixty sound clips (normalized for intensity) and were asked to rate the voice sample in terms of masculinity, attractiveness, confidence, intelligence, trustworthiness, and educatedness, as well as the probability of win, on a 7-point scale.

Results: To understand the relative importance of these seven scalar factors in predicting actual court outcomes, and to avoid problems of collinearity, we conducted binary partitioning of the data using a Classification and Regression Tree (CART) analysis with the rpart function in R with court outcome (win vs. lose) as the dependent variable and the listeners’ responses on the seven scales as predictors. Only two factors, Masculinity and Confidence, remained in the final pruned tree. In particular, individuals with higher masculinity rating are more likely to lose, while individuals with high confidence rating are more likely to win.

Part II: Methods: To explore the acoustic features that index perceived masculinity and confidence, we measure the following phonetic attributes: formant frequencies (F1, F2) for five stressed vowels (/i, æ, e, ɔ, ʌ/), formant dispersion (average vowel distance from a central point per talker per sound clip), spectral tilt (H1-H2, H1-A1, H1-A2, H1-A3), center for gravity and peak frequency of /s/, speaking rate (phonemes per second), and rhythm (Pairwise Variability Index; Low et al. 2000). Results: We conducted binary partitioning of the data using a Classification and Regression Tree (CART) analysis with by-subject normalized perceived masculinity and perceived confidence ratings as separate dependent variables and the phonetic factors as the predictor variables. For perceived masculinity, only six acoustic predictors (F1 and F2 of /i/ and /ɔ/, F2 of /ɪ/, and the center of gravity of /s/) remain in the final pruned tree. Individuals with lower F2 (i.e. more back) for /ɪ/ and /ɪ/ are rated as more masculine, while individuals with higher F1 for /ɔ/ (i.e. lower in vowel height) are rated as less masculine. Finally, very low spectral center of gravity for /s/ is also rated less masculine. In terms of perceived confidence, lower F2 of /ɪ/ and higher PVI (more rhythmic speaking style) are perceived as more confident, but lower vowel height for non-low vowels (i, e, ey) and breathier voices (H1-H2 and H1-A3) are all signs of low perceived confidence.

Conclusion: Our data linking actual outcomes with perceptions, holding constant the words and omitting visual cues, form an uncommon dataset. We show that perceived masculinity and confidence constitute significant predictors of Supreme Court decisions. In particular, more masculine sounding voices are less likely to win a case, while more confidence-sounding voices show the opposite correlation. While the mechanism underlying these connections is still under investigation, it suggests that the perceived vocal characteristics might have significant impact on real world outcomes.

References