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Published in:

Proceedings of the 8th International Conference of Speech Prosody

Publication date:

2016

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Citation for pulished version (APA):

Niebuhr, O., Brem, A., Novák-Tót, E., & Voße, J. (2016). Charisma in business speeches: A contrastive acoustic-prosodic analysis of Steve Jobs and Mark Zuckerberg. In J. Barnes, A. Brugos, S. Shattuck-Hufnagel, & N. Veilleux (Eds.), *Proceedings of the 8th International Conference of Speech Prosody* (pp. 79). Speech Prosody Special Interest Group. Speech Prosody

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**Charisma in business speeches --
A contrastive acoustic-prosodic analysis of Steve Jobs and Mark Zuckerberg**

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Charisma is a key component of spoken language interaction; and it is probably for this reason that charismatic speech has been the subject of intensive research for centuries. However, what is still largely missing is a quantitative and objective line of research that, firstly, involves analyses of the acoustic-prosodic signal, secondly, focuses on business speeches like product presentations, and, thirdly, in doing so, advances the still fairly fragmentary evidence on the prosodic correlates of charismatic speech.

The former Apple CEO Steve Jobs undoubtedly was one of the most charismatic speakers of the past decades. The present study provides the first-ever acoustic profile of his "tone of voice", based on his two most well-known product presentations: iPhone 4 in 2010 and iPad 2 in 2011. In contrast, Mark Zuckerberg, the founder and current CEO of Facebook, is generally considered a less charismatic speaker: "when it comes to presentation, Mark Zuckerberg is no Steve Jobs" (John D. Sutter, 2011, CNN, [2]). We used Mark Zuckerberg's presentations at "F8" Facebook events from 2010 and 2015 in order to create an analogous acoustic profile of his "tone of voice" and compare it to that of Steve Jobs. In addition, the acoustic profiles of Jobs and Zuckerberg were related to a reference sample of "ordinary" speakers compiled from other prosody studies. We conflated all prosodic features of charisma that have been identified in previous prosodic studies (e.g., [3,4,5]) and integrated them in a single analysis. Moreover, we added further features of speech rhythm and emphatic accentuation. On this basis, we analyzed sub-sections of the speeches of the two CEOs, altogether about 45 minutes or 1,350 prosodic phrases. Measurements were taken based on the domain of prosodic phrases.

Our results show that Steve Jobs and Mark Zuckerberg both stand out against the reference values of ordinary speakers from the prosodic literature. However, Steve Jobs stands out even more and thus significantly differs from Mark Zuckerberg in almost all prosodic parameters that are known from previous studies to be associated with charisma, see Figures 1 and 2. Compared to Mark Zuckerberg, Steve Jobs' "tone of voice" was characterized by shorter phrases, shorter and fewer hesitations, higher and larger pitch movements, a larger pitch range, more diverse rhythm and tempo patterns, and a higher frequency and diversity of emphatic accents; and while Steve Jobs' speaking rate was at the upper end of the normal range, Mark Zuckerberg's speaking rate clearly exceeded this range, which inevitably caused many strong phonetic reductions in his speech. In addition, as regards the extent of prosodic charisma features, both CEOs produced significant differences between the customer-oriented and investor-oriented sections of their speeches, albeit mostly in opposite directions.

In conclusion, we show that the prosodic features of charisma in political speeches also apply to business speeches. Consistent with the public opinion, our findings are indicative of Steve Jobs being a more charismatic speaker than Mark Zuckerberg. Beyond previous studies, our data suggest that rhythm and emphatic accentuation are also involved in conveying charisma. Furthermore, the differences between Steve Jobs and Mark Zuckerberg and the investor- and customer-related sections of their speeches support the modern understanding of charisma as a gradual, multiparametric, and context-sensitive concept [6]. How much individual prosodic features contribute to speaker charisma, and to what extent factors like speaker familiarity, gender and culture also play a role has to be determined in follow-up perception experiments.

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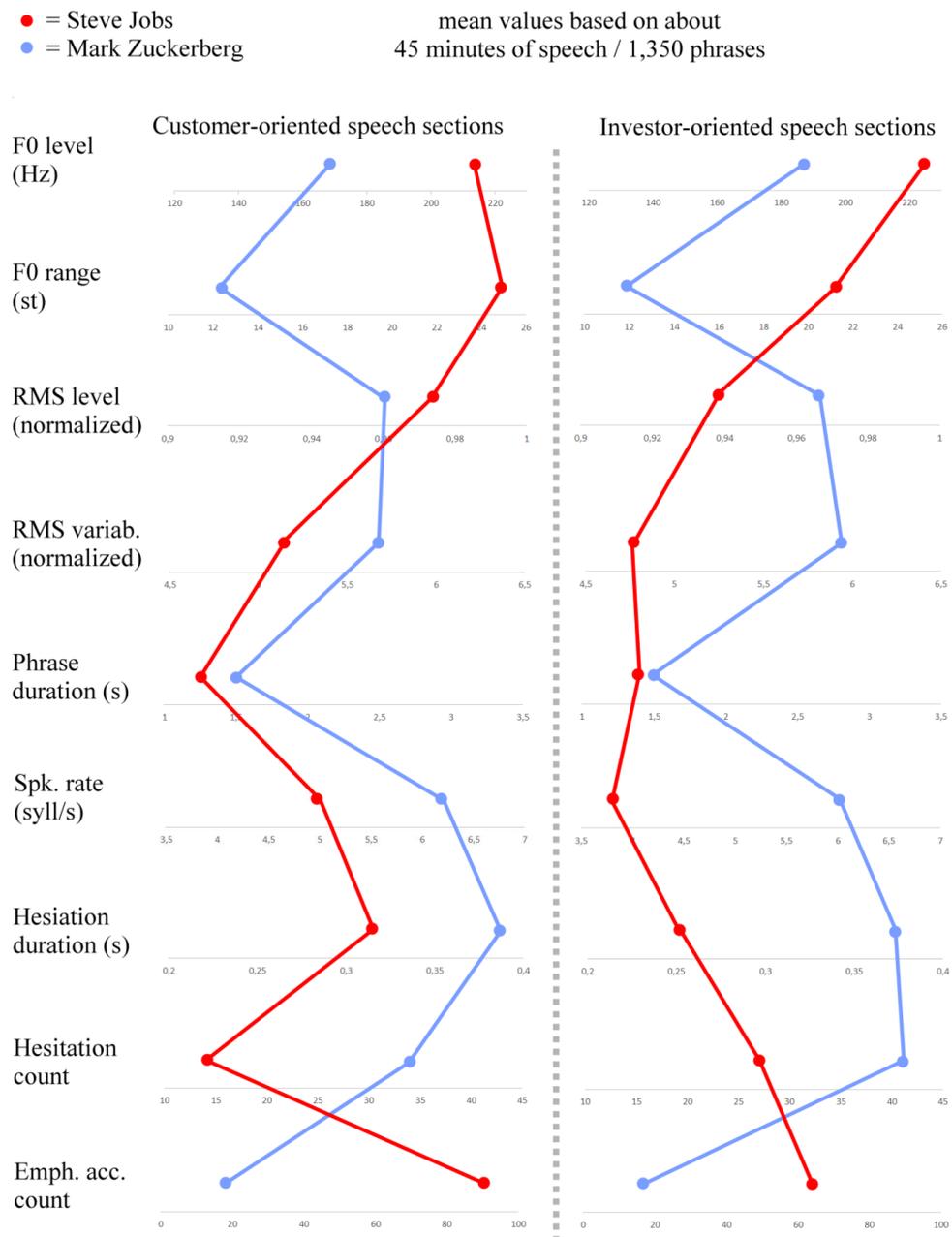


Figure 1: Excerpts of the acoustic-prosodic profiles of Steve Jobs and Mark Zuckerberg; 9 out of 14 parameters are shown separately displayed for the customer-oriented (left) and investor-oriented (right) sections of their speeches (not shown: speaking-rate variability, %V, VarcoV. and silent pause frequencies and durations). Measurements were based on prosodic phrases.

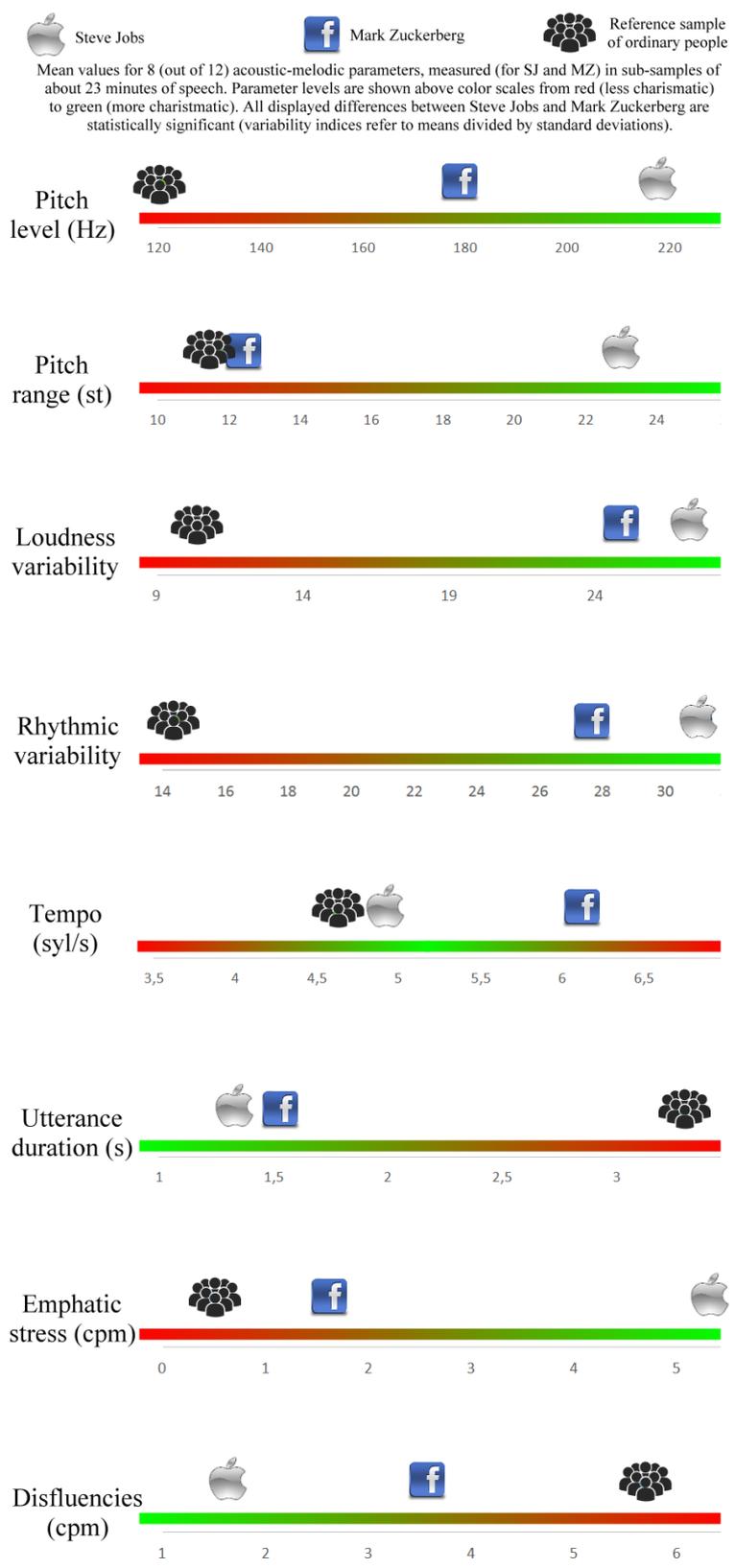


Figure 2: Comparisons of Steve Jobs and Mark Zuckerberg against the reference sample of "ordinary" speakers (mean values taken from the literature). Note that the color code along the x-axis of each prosodic parameter is consistent with empirical evidence but probably not exact in terms of its scaling.