More monotonous, not more melodic, intonation in younger autistic speakers

Solveigh Janzen & Sophie Püchel
{sjanzen1,spuechel}@smail.uni-koeln.de

The typical intonation style in autism (spectrum disorder; ASD) has been an important area of research since the very first publications on ASD in the 1940s. However, there is no clear consensus on what characterises the speech melody in ASD, with claims ranging from particularly monotonous to particularly melodic intonation [1, 2]. In [3], a new method for measuring intonation styles (see Chapter 3 in [1] for overview) was applied to a corpus of speech by autistic as compared to non-autistic adults. The authors report a robust tendency for more melodic intonation style in the ASD group, in line with the majority of more recent findings. It is further suggested that the autistic population under study (mean age 44) may feasibly have learned to (over)compensate for a monotonous speech style that may have been present in earlier development.

With this in mind, the aim of the current study is to provide an exploratory analysis of the intonation style of younger autistic speakers, using the same methodology. We analysed the speech of 4 autistic (mean age = 22; range = 10-36) and 4 matched non-autistic control (CTR) speakers, engaged in spontaneous interviews, at the group level and in pair-wise comparisons.

Results stand in contrast to [3]: the intonation style of the ASD group was more monotonous than that of the CTR group, with lower means for both wiggliness (capturing pitch dynamics) and spaciousness (capturing pitch excursions); see Figure 1. Pairwise analyses reveal that all autistic speakers produced a more monotonous intonation style than their non-autistic counterparts; see Figure 2.

While the cross-sectional comparison in the current analysis seems to lend support to the suggestion that the melodicity of autistic speech may increase in individual development, further research is needed for corroboration and for disentangling the effects of age and conversational setting.

References

[1] Wehrle, Simon. 2023. *Conversation and intonation in autism: a multi-dimensional analysis.* Berlin, Language Science Press.

[2] Grice, Martine, Simon Wehrle, Martina Krüger, Malin Spaniol, Francesco Cangemi & Kai Vogeley. 2023. Linguistic prosody in autism spectrum disorder – an overview. *Language and Lingustics Compass*.

[3] Wehrle, Simon, Francesco Cangemi, Kai Vogeley & Martin Grice. 2022. New evidence for melodic speech in Autism Spectrum Disorder. *Proceedings of the 11th International Conference on Speech Prosody,* Lisbon, Portugal.

Figures

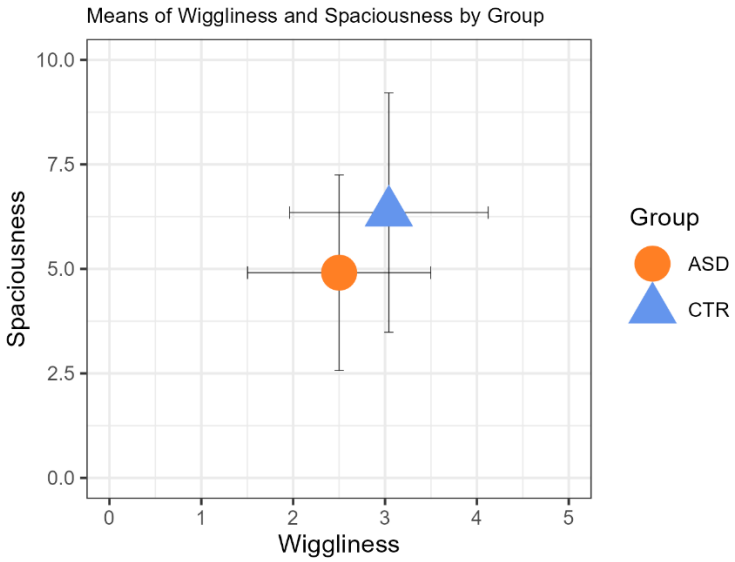

Figure 1: Means of wiggliness (x-axis) and spaciousness (y-axis; in semitones) by group. ASD group represented with orange circle, CTR group represented with blue triangle. Error bars represent one standard deviation from the mean.

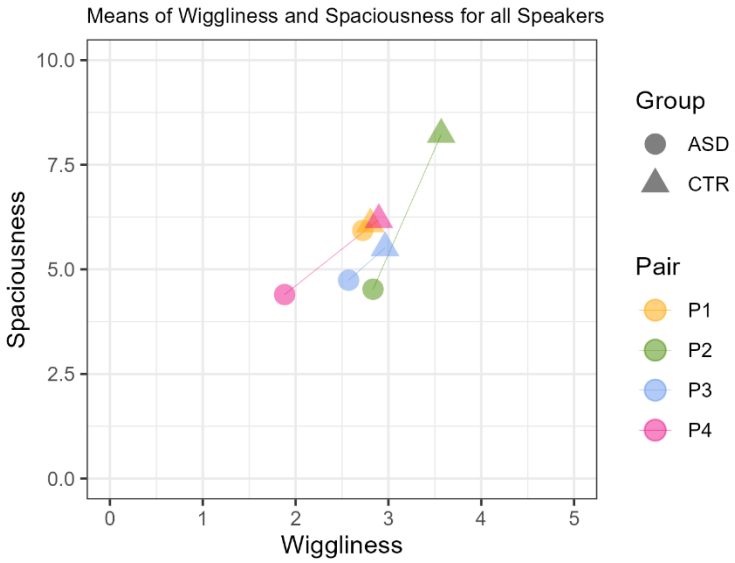

Figure 2: Means of wiggliness (x-axis) and spaciousness (y-axis; in semitones) by speaker and group. Autistic speakers represented with circles, controls with triangles. Lines (and colours) indicate matched speakers for pairwise analysis.