

The effect of slow and fast tempo on the perceived pleasantness of speakers

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Introduction and Objectives

- observe relationship between speech rate, pause duration and perceived pleasantness of a speaker
- determine how various subjective evaluation parameters (naturalness, competence, calmness) are influenced by speech rate

Data and Materials

- **BonnTempo** corpus: selection of German speakers reading the same text at different speeds
- 15 speakers (7 female, 8 male), 3 different speeds (normal, faster, slower)
- additional modification: cut out pauses between words in each recording
→ $15 * 3 * 2 = 90$ possible stimuli to be evaluated

Method

- present each of 12 test subjects (11 m / 1 f) a balanced selection of 15 recordings, each from a different speaker
- evaluation based on an online interface using continuous sliders
- **Task:** evaluate the recording based on how suitable you think it would be for an audio book

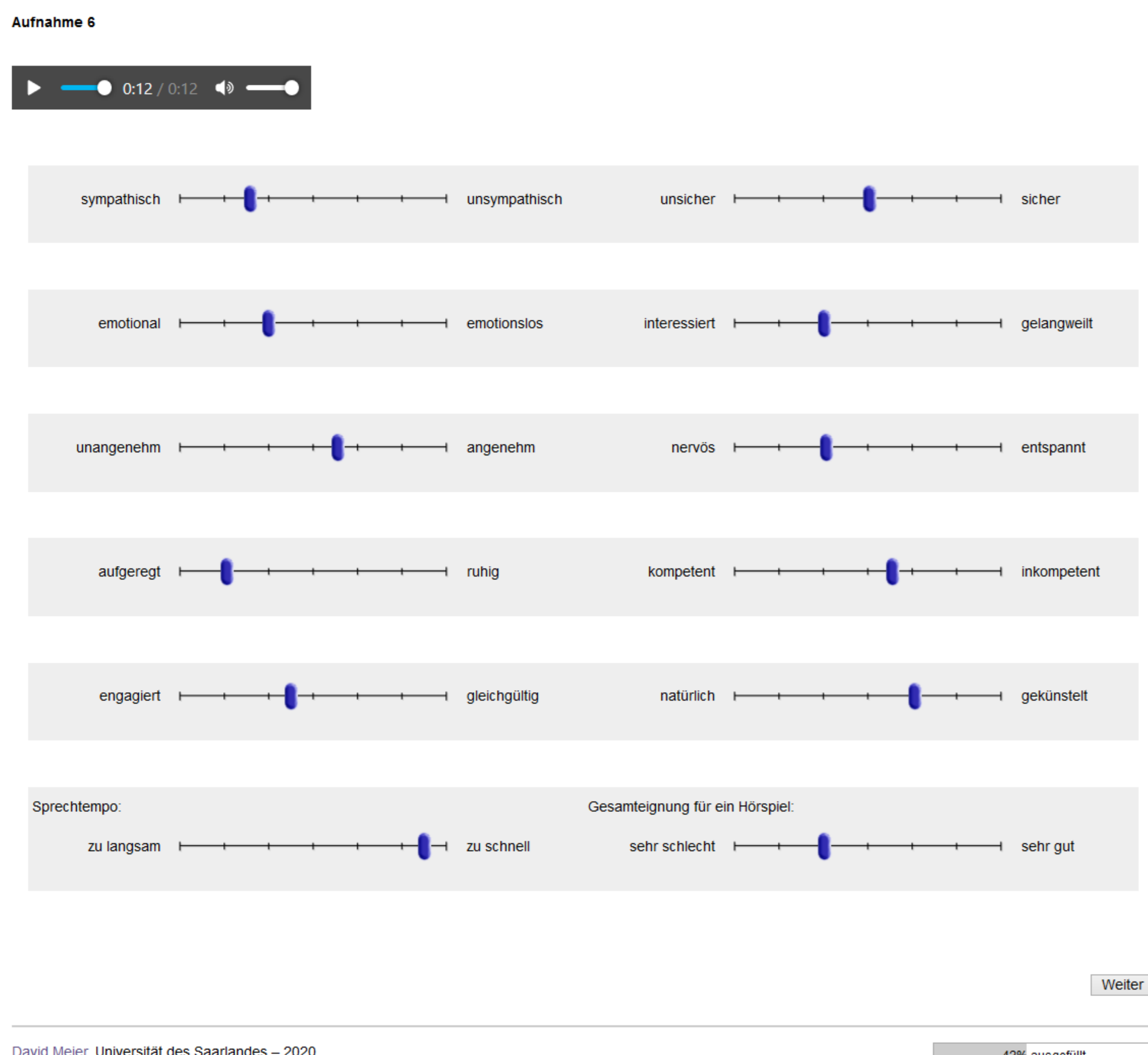


Figure 1: SoSci Survey Interface [1]

Results

L. Gen.	S. Gen.	Avg	σ
M	M	46	27.3
M	F	34	26.3
F	M	46	17.1
F	F	59	18.1

Table 1 - Average overall score relative to speaker and listener gender

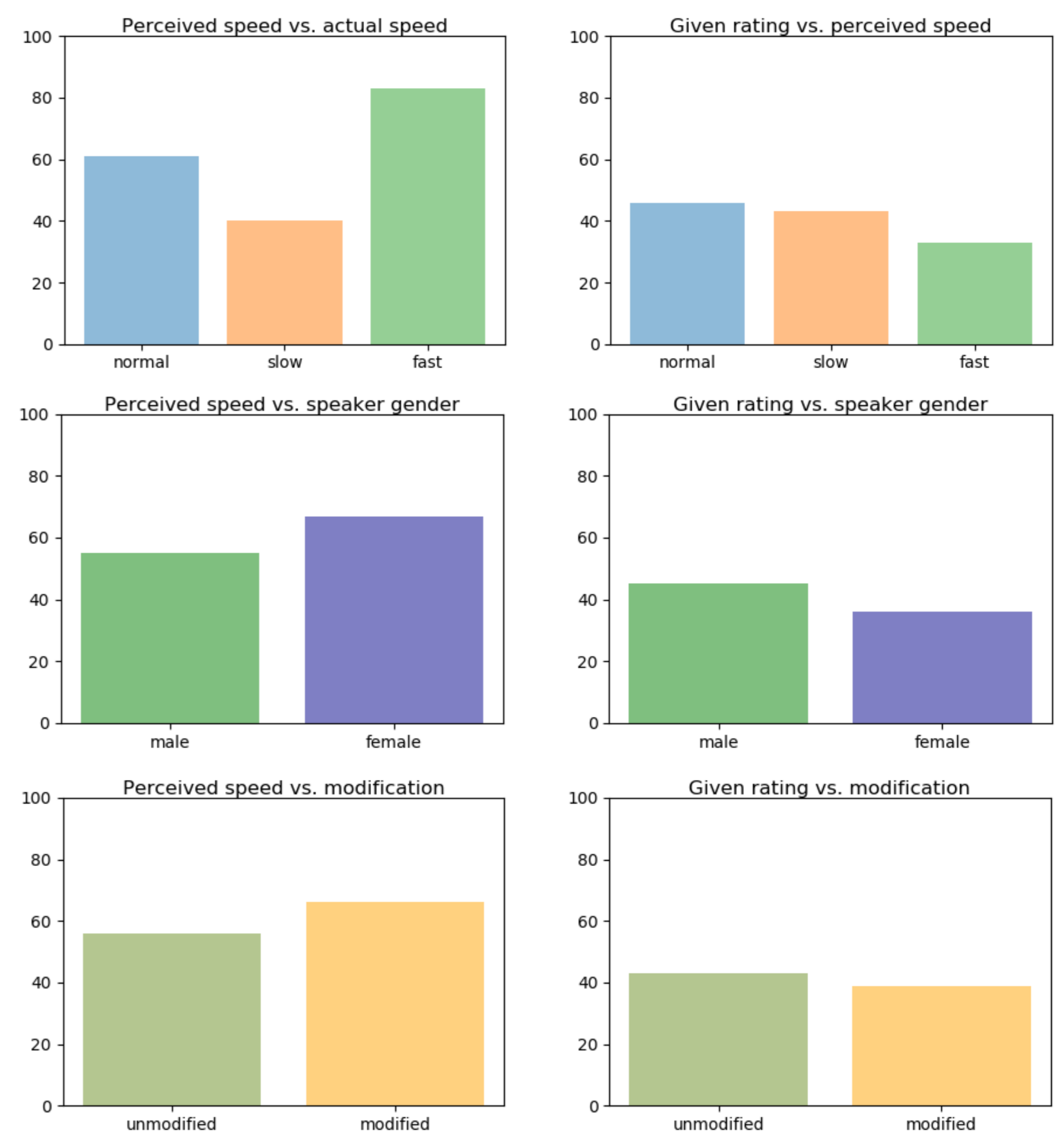


Figure 2: Comparison of different stimulus types

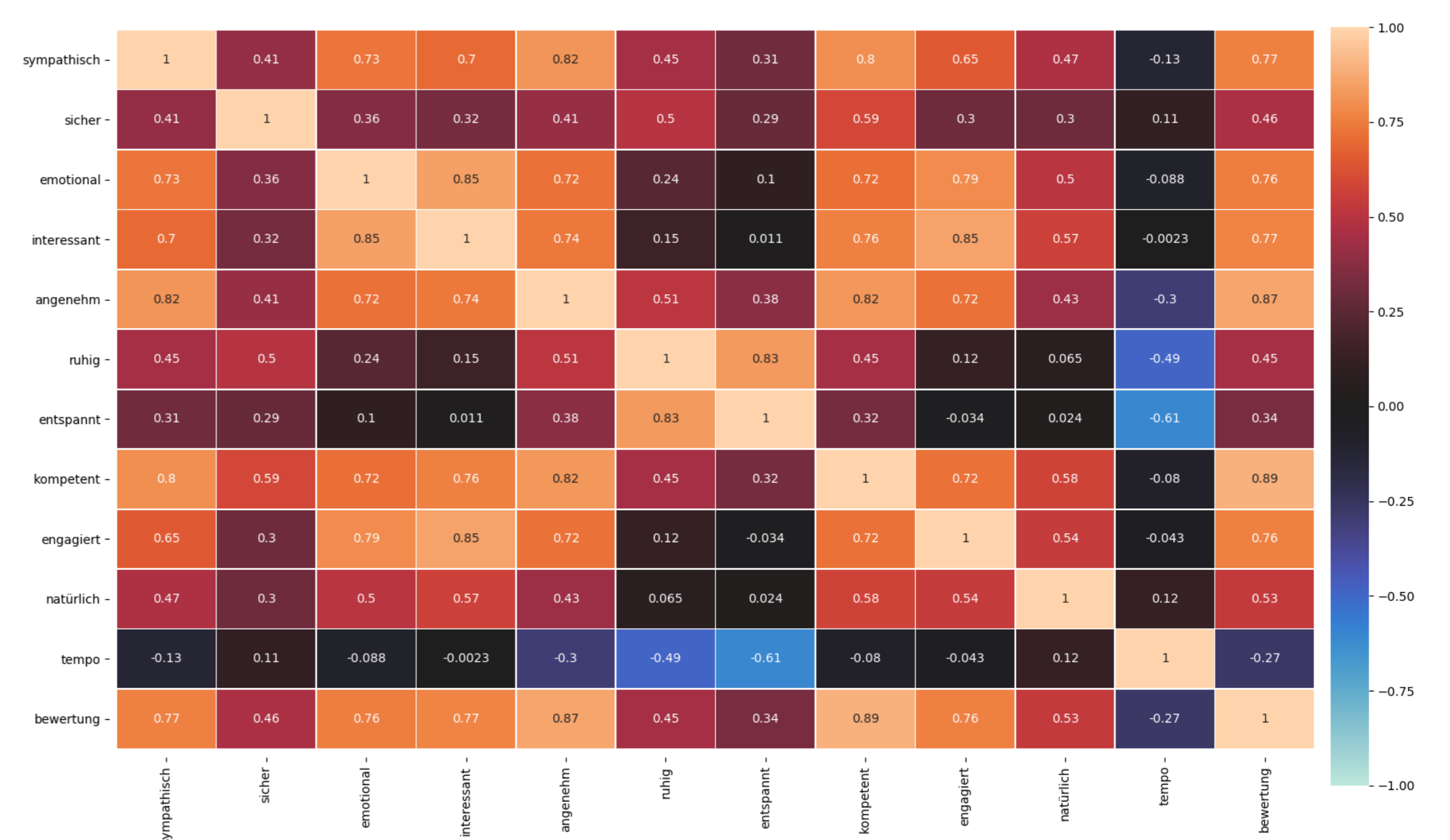


Figure 3: Correlation Matrix, displaying Pearson correlation between evaluation parameters

Conclusions

- Slower/faster recordings are consistently scored lower than normal ones; Faster recordings are scored lower than slower recordings
- Speaker gender influences perceived tempo: female speakers are perceived as speaking faster than male speakers
- Male speakers are given a greater overall score than female speakers; Male listeners have preference for male speakers, female listeners have preference for female speakers.
- Cutting pauses increases perceived tempo, and slightly reduces score
- All evaluation parameters have pos. correlation with overall score; competence and pleasantness relate the most to overall score
- Rated tempo negatively correlates with perceived speaker relaxedness, calmness, and overall score

References

- [1] B. Weiss, J. Trouvain, and F. Burkhardt. Acoustic Correlates of Likable Speakers in the NSC Database. (forthcoming).