

References

- Boersma, P., & Weenink, D. (2015). *Praat: doing phonetics by computer* [Computer program]. Version 5.4.08. Retrieved March 30, 2015, from <http://www.praat.org>.
- Delattre, P. (1980). Vowel color and voice quality. In J. Large (Ed.), *Contributions of Voice Research to Singing* (pp. 373–384). Houston, TX: College Hill Press. (Reprinted from *The Bulletin of the National Association of Teachers of Singing, 1958, XV*, 4–7.)
- Diehl, R. L., Lindblom, B., Hoemeke, K. A., & Fahey, R. P. (1996). On explaining certain male-female differences in the phonetic realization of vowel categories. *Journal of Phonetics, 24*(2), 187–208.
- Fant, G. (1959). Acoustic analysis and synthesis of speech with applications to Swedish. *Ericsson Technics, 1*, 1–106.
- Fant, G. (1960). *Acoustic theory of speech production*. The Hague: Mouton.
- Fant, G., Carlson, R., & Granström, B. (1974). The [e]-[ø] ambiguity. In *Speech Communication Seminar* (pp. 117–121).
- Fant, G., Henningsson, G., & Stalhammar, U. (1969). Formant frequencies of Swedish vowels. *Speech Transmission Laboratory Quarterly Progress and Status Report, 10*(4), 26–31.
- Friedrichs, D., Maurer, D., & Dellwo, V. (2015). The phonological function of vowels is maintained at fundamental frequencies up to 880 Hz. *The Journal of the Acoustical Society of America, 138*(1), EL36–EL42.
- Friedrichs, D., Maurer, D., Suter, H., & Dellwo, V. (2015). Vowel identification at high fundamental frequencies in minimal pairs. In *Proceedings of the 18th International Congress of Phonetic Sciences* (no. 0434, pp. 1–4).
- Fulop, S. A. (2011). *Speech spectrum analysis*. Berlin: Springer Science & Business Media.
- Gelfer, M. P., & Bennett, Q. E. (2013). Speaking fundamental frequency and vowel formant frequencies: Effects on perception of gender. *Journal of Voice, 27*(5), 556–566.

- von Helmholtz, H. L. F. (1954). *On the sensations of tone*. New York, NY: Dover. (Republication of the 2nd edition of the Ellis translation of *Die Lehre von den Tonempfindungen*, Longman & Co., 1885.)
- Hillenbrand, J. (n.d.). *The physics of sound*. Retrieved October 1, 2015, from <http://homepages.wmich.edu/~hillenbr/206/ac.pdf>
- Hillenbrand, J., Getty, L. A., Clark, M. J., & Wheeler, K. (1995). Acoustic characteristics of American English vowels. *The Journal of the Acoustical Society of America*, 97(5), 3099–3111.
- Hollien, H., Mendes-Schwartz, A. P., & Nielsen, K. (2000). Perceptual confusions of high-pitched sung vowels. *Journal of Voice*, 14(2), 287–298.
- Howie, J., & Delattre, P. (1962). An experimental study of the effect of pitch on the intelligibility of vowels. *The National Association of Teachers of Singing Bulletin*, 18(4), 6–9.
- Iivonen, A. (1986). A set of German stressed monophthongs analyzed by RTA, FFT, and LPC. In R. Channon & L. Shockey (Eds.), *In honour of Ilse Lehiste* (pp. 125–138). Dordrecht: Foris.
- Iivonen, A. (1970). *Experimente zur Erklärung der spektralen Variation deutscher Phonemrealisationen* (Commentationes Humanarum Litterarum, vol. 45). Helsinki: Societas Scientiarum Fennica.
- Joliveau, E., Smith, J., & Wolfe, J. (2004). Vocal tract resonances in singing: The soprano voice. *The Journal of the Acoustical Society of America*, 116(4), 2434–2439.
- Jørgensen, H. P. (1969). Die gespannten und ungespannten Vokale in der norddeutschen Hochsprache mit einer spezifischen Untersuchung der Struktur ihrer Formantfrequenzen. *Phonetica*, 19, 217–245.
- Kent, R. D., & Read, C. (2002). *The acoustic analysis of speech* (2nd ed.). Clifton Park, NY: Delmar, Cengage Learning.
- Ladefoged, P. (1996). *Elements of acoustic phonetics* (2nd ed.). Chicago: The University of Chicago Press.
- Ladefoged, P. (2003). *Phonetic data analysis: An introduction to field-work and instrumental techniques*. Malden, MA: Wiley-Blackwell.
- Maurer, D. (2013). *Akustik des Vokals – Präliminarien*. subTexte 08, A. Rey (Ed.). Zurich: Institute for the Performing Arts and Film, Zurich University of the Arts.

- Maurer, D. (n.d.). *Acoustic characteristics of voice in music and straight theatre – towards a systematic empirical foundation. Project description*. Retrieved October 1, 2015, from <http://www.phones-and-phonemes.org/project-1.html>.
- Maurer, D., Cook, N., Landis, T., & d’Heureuse, C. (1991). Are measured differences between the formants of men, women and children due to F0 differences? *Journal of the International Phonetic Association*, 21(2), 66–79.
- Maurer, D., & Landis, T. (1995). F0-dependence, number alteration, and non-systematic behaviour of the formants in German vowels. *International Journal of Neuroscience*, 83(1–2), 25–44.
- Maurer, D., & Landis, T. (1996). Intelligibility and spectral differences in high-pitched vowels. *Folia Phoniatrica et Logopaedica*, 48(1), 1–10.
- Maurer, D., & Landis, T. (2000). Formant pattern ambiguity of vowel sounds. *International Journal of Neuroscience*, 100(1–4), 39–76.
- Maurer, D., Landis, T., & d’Heureuse, C. (1991). Formant movement and formant number alteration with rising F0 in real vocalisations of the German vowels [u:], [o:] and [a:]. *International Journal of Neuroscience*, 57(1–2), 25–38.
- Maurer, D., Mok, P., Friedrichs, D., & Dellwo, V. (2014). Intelligibility of high-pitched vowel sounds in the singing and speaking of a female Cantonese Opera singer. In *Proceedings of the 15th Conference of the International Speech Communication Association, Interspeech 2014* (pp. 2132–2133). (For an extended version including additional material, see the related internet presentation online at <http://is2014.phones-and-phonemes.org>, retrieved October 1, 2015.)
- Maurer, D., Suter, H., Friedrichs, D., & Dellwo, V. (2015). Acoustic characteristics of voice in music and straight theatre: topics, conceptions, questions. In A. Leemann, M-J. Kolly, S. Schmid, & V. Dellwo (Eds.), *Trends in Phonetics and Phonology. Studies from German-speaking Europe* (pp. 256–265). Bern/Frankfurt: Peter Lang.
- Moore, G. D. (2006). *The physics and psychophysics of music* (course page for Physics 224, lecture 28, p. 11). Retrieved November 1, 2015, from <http://www.physics.mcgill.ca/~guymoore/ph224/notes/lecture28.pdf>.

- van Nierop, D. J. P. J., Pols, L. C. W., & Plomp, R. (1973). Frequency analysis of Dutch vowels from 25 female speakers. *Acta Acustica united with Acustica*, 29(2), 110–118.
- Pätzold, M., & Simpson, A. (1997). Acoustic analysis of German vowels in the Kiel Corpus of Read Speech. *Arbeitsberichte des Instituts für Phonetik und Digitale Sprachverarbeitung der Universität Kiel (AI-PUK)*, 32, 215–247.
- Peterson, G. E., & Barney, H. L. (1952). Control methods used in a study of the vowels. *The Journal of the Acoustical Society of America*, 24(2), 175–184.
- Pickett, J. M. (1999). *The acoustics of speech communication: fundamentals, speech perception theory, and technology*. Boston, MA: Allyn & Bacon.
- Pols, L. C. W., Tromp, H. R. C., & Plomp, R. (1973). Frequency analysis of Dutch vowels from 50 male speakers. *The Journal of the Acoustical Society of America*, 53(4), 1093–1101.
- Potter, R. K., & Steinberg, J. C. (1950). Toward the specification of speech. *The Journal of the Acoustical Society of America*, 22(6), 807–820.
- Ramers, K. H. (1988). *Vokalquantität und -qualität im Deutschen*. Linguistische Arbeiten 213. Tübingen: Niemeyer.
- Rausch, A. (1972). Untersuchungen zur Vokalartikulation im Deutschen. In H. Kelz & A. Rausch (Eds.), *Beiträge zur Phonetik* (IPK-Forschungsberichte, vol. 30, pp. 35–82). Hamburg: Buske.
- Schroeder, M. R., & Strube, H. W. (1986). Flat-spectrum speech. *The Journal of the Acoustical Society of America*, 79(5), 1580–1583.
- Sharifzadeh, H. R., McLoughlin, I. V., & Russell, M. J. (2012). A comprehensive vowel space for whispered speech. *Journal of Voice*, 26(2), e49–56.
- Sundberg, J. (1978). Synthesis of singing. *Swedish Journal of Musicology*, 60(1), 107–112.
- Sundberg, J. (1987). *The Science of the Singing Voice*. DeKalb, Ill.: Northern Illinois University Press.
- Sundberg, J. (2013). Perception of singing. In D. Deutsch (Ed.), *The psychology of music* (3rd ed., pp. 69–105). San Diego, CA: Elsevier.

- Swerdlin, Y., Smith, J., & Wolfe, J. (2010). The effect of whisper and creak vocal mechanisms on vocal tract resonances. *The Journal of the Acoustical Society of America*, 127(4), 2590–2598.
- Trask, R. L. (1996). *A dictionary of phonetics and phonology*. New York, NY: Routledge.
- Titze, I. R., Baken, R. J., Bozeman, K. W., Granqvist, S., Henrich, N., Herbst, C. T., ... & Wolfe, J. (2015). Toward a consensus on symbolic notation of harmonics, resonances, and formants in vocalization. *The Journal of the Acoustical Society of America*, 137(5), 3005–3007.
- Traunmüller, H. (n.d.). *The role of F_0 in vowel perception*. Retrieved November 1, 2015, from <http://www2.ling.su.se/staff/hartmut/i.htm>.
- Traunmüller, H., & Eriksson, A. (1997). A method of measuring formant frequencies at high fundamental frequencies. In *Proceedings of Euro-speech* (Vol. 97, No. 1, pp. 477–480).
- Traunmüller, H., & Eriksson, A. (2000). Acoustic effects of variation in vocal effort by men, women, and children. *The Journal of the Acoustical Society of America*, 107(6), 3438–3451.
- Wängler, H.-H. (1981). *Atlas deutscher Sprachlaute*. Berlin: Akademie-Verlag.
- Wolfe, J. (n.d.). *Formant: what is a formant?* Retrieved November 1, 2015, from <http://www.phys.unsw.edu.au/jw/formant.html>.
- Wolfe, J., Garnier, M., & Smith, J. (2009). Vocal tract resonances in speech, singing, and playing musical instruments. *Human Frontier Science Program Journal*, 3(1), 6–23.
- Wood, S. (1989). The precision of formant frequency measurement from spectrograms and by linear prediction. *Speech Transmission Laboratory Quarterly Progress and Status Report*, 30(1), 91–93.
- Zee, E. (2003). Frequency analysis of the vowels in Cantonese from 50 male and 50 female speakers. In *Proceedings of the 15th International Congress of Phonetic Sciences* (pp. 1117–1120).