

References

A

- Anderson, S. R. (2008). The logical structure of linguistic theory. *Language* 84: 795-814.
- Assmann, P. F. and Nearey, T. M. (2008). Identification of frequency-shifted vowels. *Journal of the Acoustical Society of America* 124: 3203-3212.

B

- Ballentijn, M. R. and ten Cate, C. (1998). Sound production in the collared dove: a test of the 'whistle' hypothesis. *Journal of Experimental Biology* 201: 1637-1649.
- Baptista, L. F. and Schuchmann, K. L. (1990). Song learning in the Anna hummingbird (*Calypte anna*). *Ethology* 84: 15-26.
- Beckers, G. J. L., Suthers, R. A. and ten Cate, C. (2003). Pure-tone birdsong by resonance filtering of harmonic overtones. *Proceedings of the National Academy of Sciences USA* 100: 7372-7376.
- Beckers, G. J. L., Nelson, B. S. and Suthers, R. A. (2004). Vocal-tract filtering by lingual articulation in a parrot. *Current Biology* 14: 1592-1597.
- Boersma, P. (2001). PRAAT, a system for doing phonetics by computer. *Glott International* 5: 341-345.
- Bolhuis, J. J., Okanoya, K. and Scharff, C. (2010). Twitter evolution: converging mechanisms in birdsong and human speech. *Nature Reviews Neuroscience* 11: 747-759.
- Braaten, R. F. and Reynolds, K. (1999). Auditory preference for conspecific song in isolation-reared zebra finches. *Animal Behaviour* 58: 105-111.
- Brenowitz, E. A., Perkel, D. J. and Osterhout, L. (2010). Language and birdsong: introduction to the special issue. *Brain and Language* 115: 1-2.
- Burdick, C. K. and Miller, J. D. (1975). Speech perception by the chinchilla: discrimination of sustained /a/ and /i/. *Journal of the Acoustical Society of America* 58: 415-427.

C

- Castro, L., Medina, A. and Toro, M. A. (2004). Hominid cultural transmission and the evolution of language. *Biology and Philosophy* 19: 721-737.
- Clayton, N. S. (1989). The effects of cross-fostering on selective song learning in estrildid finches. *Behaviour* 109: 163-175.
- Clench, M. H. (1978). Tracheal elongation in birds-of-paradise. *Condor* 80: 423-430.
- Collins, S. A. (2000). Men's voices and women's choices. *Animal Behaviour* 60: 773-780.

- Creelman, C. D. (1957). Case of the unknown talker. *Journal of the Acoustical Society of America* 29: 655.
- Curtin, S., Fennell, C. and Escudero, P. (2009). Weighting of vowel cues explains patterns of word-object associative learning. *Developmental Science* 12: 725-731.

D

- Daley, M. and Goller, F. (2004). Tracheal length changes during zebra finch song and their possible role in upper vocal tract filtering. *Journal of Neurobiology* 59: 319-330.
- Dent, M. L., Brittan-Powell, E. F., Dooling, R. J. and Pierce, A. (1997). Perception of synthetic /ba/-/wa/ speech continuum by budgerigars (*Melopsittacus undulatus*). *Journal of the Acoustical Society of America* 102: 1891-1897.
- Diehl, R. L., Lotto, A. J. and Holt, L. L. (2004). Speech perception. *Annual Review of Psychology* 55: 149-179.
- Dooling, R. J. (2004). Audition: can birds hear everything they sing? In *Nature's Music. The Science of Birdsong*. (P. Marler and H. Slabbekoorn, eds), 206-225. San Diego: Elsevier Academic Press.
- Dooling, R. J., Okanoya, K. and Brown, S. D. (1989). Speech perception by budgerigars (*Melopsittacus undulatus*): the voiced-voiceless distinction. *Perception and Psychophysics* 46: 65-71.
- Dooling, R. J. and Brown, S. D. (1990). Speech perception by budgerigars (*Melopsittacus undulatus*): spoken vowels. *Perception and Psychophysics* 47: 568-574.
- Dooling, R. J. Best, C. T. and Brown, S. D. (1995). Discrimination of synthetic full-formant and sinewave /ra-la/ continua by budgerigars (*Melopsittacus undulatus*) and zebra finches (*Taeniopygia guttata*). *Journal of the Acoustical Society of America* 97: 1839-1846.
- Doupe, A. J. and Kuhl, P. K. (1999). Birdsong and human speech: common themes and mechanisms. *Annual Review of Neuroscience* 22: 567-631.
- Dunbar, R. I. M. (2003). The origin and subsequent evolution of language. In *Language Evolution* (M. H. Christiansen and S. Kirby, eds), pp. 219-234. Oxford: Oxford University Press.

E

- Eriksson, J. L. and Villa, A. E. P. (2006). Learning of auditory equivalence classes for vowels by rats. *Behavioural Processes* 73: 348-359.

Escudero, P., Benders, T. and Lipski, S. C. (2009). Native, nonnative and L2 perceptual cue weighting for Dutch vowels: the case of Dutch, German and Spanish listeners. *Journal of Phonetics* 37: 452-465.

F

Fant, G. (1960). *Acoustic theory of speech production*. The Hague: Mouton.

Fitch, W. T. (1999). Acoustic exaggeration of size in birds via tracheal elongation: comparative and theoretical analyses. *Journal of Zoology* 248: 31-48.

Fitch, W. T. (2000). The evolution of speech: a comparative review. *Trends in Cognitive Sciences* 4: 258-267.

Fitch, W. T. (2010). *The Evolution of Language*. Cambridge: Cambridge University Press.

Fitch, W. T. and Kelley, J.P. (2000). Perception of vocal tract resonances by whooping cranes, *Grus americana*. *Ethology* 106: 559-574.

Fitch, W. T. and Reby, D. (2001). The descended larynx is not uniquely human. *Proceedings of the Royal Society of London Series B- Biological Sciences* 268: 1669-1675.

Fletcher, N. H. and Tarnopolsky, A. (1999). Acoustics of the avian vocal tract. *Journal of the Acoustical Society of America* 105: 35-49.

G

Gentner, T. Q., Fenn, K. M., Margoliash, D. and Nusbaum, H. C. (2006). Recursive syntactic pattern learning by songbirds. *Nature* 440: 1204-1207.

Ghazanfar, A. A., Turesson, H. K., Maier, J. X., van Dinther, R., Patterson, R. D. & Logothetis, N. K. (2007). Vocal-tract resonances as indexical cues in rhesus monkeys. *Current Biology* 17: 425-430.

Ghazanfar, A. A. and Rendall D. (2008). Evolution of human vocal production. *Current Biology* 18: R457-R460.

Goller, F., and Larsen, O. N. (1997). A new mechanism of sound generation in songbirds. *Proceedings of the National Academy of Sciences USA* 94: 14787-14791.

Goller, F. and Cooper, B. G. (2004). Peripheral motor dynamics of song production in the zebra finch. *Annals of the New York Academy of Sciences* 1016: 130-152.

Goller, F., Mallinckrodt, M. J. and Torti, S. D. (2004). Beak gape dynamics during song in the zebra finch. *Journal of Neurobiology* 59: 289-303.

Greenewalt, C. H. (1968). *Bird song: acoustics and physiology*. Washington: Smithsonian Institution Press.

H

- Haesler, S, Rochefort, C., Georgi, B., Licznanski, P., Osten, P. and Scharff C. (2007). Incomplete and inaccurate vocal imitation after knockdown of FoxP2 in songbird basal ganglia nucleus Area X. *PLoS Biology* 5: e321.
- Hausberger, M., Black, J. M. and Richard, J-P. (1991). Bill opening and sound spectrum in barnacle goose loud calls: individuals with 'wide mouths' have higher pitched voices. *Animal Behaviour* 42: 319-322.
- Hauser, M. D., Chomsky, N. and Fitch, W. T. (2002). The faculty of language: what is it, who has it and how did it evolve? *Science* 298: 1569-1579.
- Hauser, M. D. and Fitch, W. T. (2003). What are the uniquely human components of the language faculty? In *Language Evolution* (M. H. Christiansen and S. Kirby, eds), pp. 158-181. Oxford: Oxford University Press.
- Heidweiller, J. and Zweers, G. A. (1990). Drinking mechanisms in the zebra finch and the Bengalese finch. *Condor* 92: 1-28.
- Hienz, R. D., Sachs, M. B. and Sinnott, J. M. (1981). Discrimination of steady-state vowels by blackbirds and pigeons. *Journal of the Acoustical Society of America* 70: 699-706.
- Hienz, R. D. and Brady, J. V. (1988). The acquisition of vowel discriminations by nonhuman primates. *Journal of the Acoustical Society of America*. 84: 186-194.
- Hienz, R. D., Aleszczyk, C. M. and May, B. J. (1996). Vowel discrimination in cats: acquisition, effects of stimulus level, and performance in noise. *Journal of the Acoustical Society of America* 99: 3656-3668.
- Hoese, W. J., Podos, J., Boetticher, N. C. and Nowicki, S. (2000). Vocal tract function in birdsong production: experimental manipulation of beak movements. *Journal of Experimental Biology* 203: 1845-1855.
- Homberger, D. G. (1986). The lingual apparatus of the African grey parrot, *Psittacus erithacus* Linne (*Aves: Psittacidae*): description and theoretical mechanical analysis. *Ornithological Monographs* 39: iii-xi, 1-233.

J

- Janik, V. M. and Slater, P. J. B. (1997). Vocal learning in mammals. *Advances in the Study of Behaviour* 26: 59-99.
- Jarvis, E. D. (2004). Learned birdsong and the neurobiology of human language. *Annals of the New York Academy of Sciences* 1016: 749-777.

Jones, E., Oliphant, T., Peterson, P. *et al.* (2001). Open source scientific tools for python. Available: <http://www.scipy.org/>.

K

Kluender, K. R., Diehl, R. L. and Killeen, P. R. (1987). Japanese quail can learn phonetic categories. *Science* 237: 1195-1197.

Kuhl, P. K. (1981). Discrimination of speech by nonhuman animals: basic auditory sensitivities conducive to the perception of speech-sound categories. *Journal of the Acoustical Society of America* 70: 340-349.

Kuhl, P. K. and Miller, J. D. (1975). Speech perception by the chinchilla: voiced-voiceless distinction in alveolar plosive consonants. *Science* 190: 69-72.

Kuhl, P. K. and Miller, J. D. (1978). Speech perception by the chinchilla: identification functions for synthetic VOT stimuli. *Journal of the Acoustical Society of America* 63: 905-917.

Kuhl, P. K. and Padden, D. M. (1982). Enhanced discriminability at the phonetic boundaries for the voicing feature in macaques. *Perception and Psychophysics* 32: 542-550.

L

Lacerda, F. (1993). Sonority contrasts dominate young infants' vowel perception. *Journal of the Acoustical Society of America* 93: 2372.

Lacerda, F. (1994). The asymmetric structure of the infant's perceptual vowel space. *Journal of the Acoustical Society of America* 95: 3016.

Lachlan, R. F., Peters, S., Verhagen, S. L. and ten Cate, C. (2010). Are there species-universal categories in bird song phonology and syntax? A comparative study of chaffinches (*Fringilla coelebs*), zebra finches (*Taeniopygia guttata*) and swamp sparrows (*Melospiza georgiana*). *Journal of Comparative Psychology* 124: 92-108.

Ladefoged, P. (2006). *A Course in Phonetics*. Boston: Thomson Wadsworth.

Lai, C. S. L., Fisher, S. E., Hurst, J. A., Vargha-Khadem, F. and Monaco, A. P. (2001). A forkhead-domain gene is mutated in a severe speech and language disorder. *Nature* 413: 519-523.

Larsen, O. N. and Goller, F. (2002). Direct observation of syringeal muscle function in songbirds and a parrot. *Journal of Experimental Biology* 205: 25-35.

Liberman, A. M. (1982). On finding that speech is special. *American Psychologist* 37: 148-167.

- Lieberman, A. M., Cooper, F. S., Shankweiler, D. P. and Studdert-Kennedy, M. (1967). Perception of the speech code. *Psychological Review* 74: 431-461.
- Lieberman, A. M. and Mattingly, I. G. (1985). The motor theory of speech revised. *Cognition* 21: 1-36.
- Lieberman, A. M. and Whalen, D. H. (2000). On the relation of speech to language. *Trends in Cognitive Sciences* 4: 187-196.
- Lieberman, P., Klatt, D. H. and Wilson, W. H. (1969). Vocal tract limitations on the vowel repertoires of rhesus monkey and other nonhuman primates. *Science* 164: 1185-1187.
- Lieberman, P. (1975). *On the origins of language. An introduction to the evolution of human speech*. New York: Macmillan.
- Lieberman, P. (1984). *The biology and evolution of language*. Cambridge: Harvard University Press.

M

- Macmillan, N. A. and Creelman, C. D. (2005). *Detection Theory. A User's Guide*. Mahwah: Lawrence Erlbaum Associates.
- Magnuson, J. S. and Nusbaum, H. C. (2007). Acoustic differences, listener expectations, and the perceptual accommodation of talker variability. *Journal of Experimental Psychology- Human Perception and Performance* 35: 391-409.
- Marler, P. (1976). An ethological theory of the origin of vocal learning. *Annals of the New York Academy of Sciences* 280: 386-395.
- Martella, M. B. and Bucher, E. H. (1990). Vocalizations of the monk parakeet. *Bird Behaviour* 8: 101-110.
- Mayo, C., Scobbie, J. M., Hewlett, N. and Waters, D. (2003). The influence of phonemic awareness development on acoustic cue weighting strategies in children's speech perception. *Journal of Speech and Hearing Research* 46: 1184-1196.
- Mayo, C. and Turk, A. (2004). Adult-child differences in acoustic cue weighting are influenced by segmental context: Children are not always perceptually biased towards transitions. *Journal of the Acoustical Society of America* 115: 3184-3194.
- Mullennix, J. W., Pisoni, D. B. and Martin, C. S. (1989). Some effects of talker variability on spoken word recognition. *Journal of the Acoustical Society of America* 85: 365-378.

N

- Nearey, T. M. (1989). Static, dynamic, and relational properties in vowel perception. *Journal of the Acoustical Society of America* 85: 2088-2133.
- Nelson, B. S., Beckers, G. J. L. and Suthers, R. A. (2005). Vocal tract filtering and sound radiation in a songbird. *Journal of Experimental Biology* 208: 297-308.
- Nishimura, T., Mikami, A., Suzuki, J. and Matsuzawa, T. (2006). Descent of the hyoid in chimpanzees: evolution of face flattening and speech. *Journal of Human Evolution* 51: 244-254.
- Nittrouer, S. (1996). The relation between speech perception and phonemic awareness: evidence from low-SES children and children with chronic OM. *Journal of Speech and Hearing Research* 39: 1059-1070.
- Nittrouer, S. and Lowenstein, J. H. (2009). Does harmonicity explain children's cue weighting of fricative-vowel syllables? *Journal of the Acoustical Society of America* 125: 1679-1692.
- Nottebohm, F. (1976). Phonation in the orange-winged Amazon parrot, *Amazona amazonica*. *Journal of Comparative Physiology* 108: 157-170.
- Nowicki, S. (1987). Vocal tract resonances in oscine bird sound production: evidence from birdsongs in a helium atmosphere. *Nature* 325: 53-55.
- Nowicki, S. and Capranica, R. R. (1986). Bilateral syringeal interaction in vocal production of an oscine bird sound. *Science* 231: 1297-1299.

O

- Ohms, V. R., Gill, A., van Heijningen, C. A. A., Beckers, G. J. L. and ten Cate, C. (2010). Zebra finches exhibit speaker-independent phonetic perception of human speech. *Proceedings of the Royal Society of London Series B- Biological Sciences* 277: 1003-1009.
- Ohms, V. R., Snelderwaard, P. C., ten Cate, C. and Beckers, G. J. L. (2010). Vocal tract articulation in zebra finches. *PLoS ONE* 5: e11923.

P

- Patterson, D. K. and Pepperberg, I. M. (1994). A comparative study of human and parrot phonation: acoustic and articulatory correlates of vowels. *Journal of the Acoustical Society of America* 96: 634-648.
- Pepperberg, I. M. (2010). Vocal learning in grey parrots: a brief review of perception, production and cross-species comparisons. *Brain and Language* 115: 81-91.

- Pepperberg, I. M., Howell, K. S., Banta, P. A., Patterson, D. K. and Meister, M. (1998). Measurement of grey parrot (*Psittacus erithacus*) trachea via magnetic resonance imaging, dissection and electron beam computed tomography. *Journal of Morphology* 238: 81-91.
- Peterson, G. E. and Barney, H. L. (1952). Control methods used in a study of the vowels. *Journal of the Acoustical Society of America* 24: 175-184.
- Pinker, S. and Jackendoff, R. (2005). The faculty of language: what's special about it? *Cognition* 95: 201-236.
- Pinker, S. (2010). The cognitive niche: coevolution of intelligence, sociality and language. *Proceedings of the National Academy of Sciences USA* 107: 8993-8999.
- Plummer, E. M. and Goller, F. (2008). Singing with reduced air sac volume causes uniform decrease in airflow and sound amplitude in the zebra finch. *Journal of Experimental Biology* 211: 66-78.
- Podos, J., Sherer, J. K., Peters, S. and Nowicki, S. (1995). Ontogeny of vocal tract movements during song production in song sparrows. *Animal Behaviour* 50: 1287-1296.
- Podos, J., Southall, J. A. and Rossi-Santos, M. R. (2004). Vocal mechanics in Darwin's finches: Correlation of beak gape and song frequency. *Journal of Experimental Biology* 207: 607-619.
- Polka, L. and Werker, J. F. (1994). Developmental changes in perception of nonnative vowel contrasts. *Journal of Experimental Psychology- Human Perception and Performance* 20: 421-435.
- Poole, J. H., Tyack, P. L., Stoeger-Horwath, A. S. and Watwood, S. (2005). Elephants are capable of vocal learning. *Nature* 434: 455-456.

R

- Reby, D., McComb, K., Cargnelutti, B., Darwin, C., Fitch, W. T. & Clutton-Brock, T. (2005). Red deer stags use formants as assessment cues during intrasexual agonistic interactions. *Proceedings of the Royal Society of London Series B- Biological Sciences* 272: 941-947.
- Riede, T., Beckers, G. J. L., Blevins, W. and Suthers, R. A. (2004). Inflation of the esophagus and vocal tract filtering in ring doves. *Journal of Experimental Biology* 207: 4025-4036.

Riede, T., Suthers, R. A., Fletcher, N. H and Blevins, W. E. (2006). Songbirds tune their vocal tract to the fundamental frequency of their song. *Proceedings of the National Academy of Sciences USA* 103: 5543-5548.

Riede, T. and Suthers, R. A. (2009). Vocal tract motor patterns and resonance during constant frequency song: the white-throated sparrow. *Journal of Comparative Physiology A- Neuroethology, Sensory, Neural and Behavioural Physiology* 195: 183-192.

S

Snelderwaard, P. C., de Groot, J. H. and Deban, S. M. (2002). Digital video combined with conventional radiography creates an excellent high-speed X-ray video system. *Journal of Biomechanics* 35: 1007-1009.

Smith, D. R. R. and Patterson, R. D. (2005). The interaction of glottal-pulse rate and vocal-tract length in judgements of speaker size, sex, and age. *Journal of the Acoustical Society of America* 118: 3177-3186.

Sokal, R. R. and Rolf, F. J. (1995). *Biometry: The Principles and Practice of Statistics in biological Research*. New York: W. H. Freeman and Company.

Suthers, R. A. (1990). Contributions to birdsong from the left and right sides of the intact syrinx. *Nature* 347: 473-477.

Suthers, R. A. (1999). Peripheral control and lateralization of birdsong. *Journal of Neurobiology* 33: 632-652.

Suthers, R. A., Goller, F. and Hartley, R. S. (1994). Motor dynamics of song production by mimic thrushes. *Journal of Neurobiology* 25: 917-936.

Suthers, R. A., Vallet, E., Tanvez, A. and Kreutzer, M. (2004). Bilateral song production in domestic canaries. *Journal of Neurobiology* 60: 381-393.

Suthers, R. A. and Zollinger, S. A. (2004). Producing song- The vocal apparatus. *Annals of the New York Academy of Sciences* 1016: 109-129.

T

Titze, I. R. (2000). *Principles of Voice Production*. Iowa City: National Center for Voice and Speech.

Trout, J. D. (2003). Biological specializations for speech: what can the animals tell us? *Current Direction in Psychological Science* 12: 155-159.

V

- van Heijningen, C. A. A., de Visser, J., Zuidema, W. and ten Cate, C. (2009). Simple rules can explain discrimination of putative recursive syntactic structures by a songbird species. *Proceedings of the National Academy of Sciences USA* 106: 20538-20543.
- Verzijden, M. N., Etman, E., van Heijningen, C. A. A., van der Linden, M. and ten Cate, C. (2007). Song discrimination learning in zebra finches induces highly divergent responses to novel songs. *Proceedings of the Royal Society of London Series B- Biological Sciences* 274: 295-301.

W

- Warren, D. K., Patterson, D. K. and Pepperberg, I. M. (1996). Mechanisms of American English vowel production in a grey parrot (*Psittacus erithacus*). *The Auk* 113: 41-58.
- Westneat, M. W., Long, J. H., Hoese, W. and Nowicki, S. (1993). Kinematics of birdsong: functional correlation of cranial movements and acoustic features in sparrows. *Journal of Experimental Biology* 182: 147-171.
- Whaling, C. S., Solis, M. M., Doupe, A. J., Soha, J. A. and Marler, P. (1997). Acoustic and neural bases for innate recognition of song. *Proceedings of the National Academy of Sciences USA* 94: 12694-12698.
- White, S. A. (2001). Learning to communicate. *Current Opinion in Neurobiology* 11: 510-520.
- Williams, H. (2001). Choreography of song, dance and beak movements in the zebra finch (*Taeniopygia guttata*). *Journal of Experimental Biology* 204: 3497-3506.

Y

- Ylinen, S., Uther, M., Latvala, A., Vepsäläinen, S., Iverson, P., Akahane-Yamada, R. and Näätänen, R. (2009). Training the brain to weight speech cues differently: a study of Finnish second-language users of English. *Journal of Cognitive Neuroscience* 22: 1319-1332.
- Yule, G. (2006). *The study of language*. Cambridge: Cambridge University Press.

Z

- Zollinger, S. A. and Suthers, R. A. (2004). Motor mechanisms of a vocal mimic: implications for birdsong production. *Proceedings of the Royal Society of London Series B- Biological Sciences* 271: 483-491.

Zollinger, S. A., Riede, T. and Suthers, R. A. (2008). Two-voice complexity from a single side of the syrinx in the northern mockingbird *Mimus polyglottos* vocalizations. *Journal of Experimental Biology* 211: 1978-1991.