



Universiteit  
Leiden  
The Netherlands

**Sound of mind: electrophysiological and behavioural evidence for the role of context, variation and informativity in human speech processing**  
Nixon, J.S.

**Citation**

Nixon, J. S. (2014, October 14). *Sound of mind: electrophysiological and behavioural evidence for the role of context, variation and informativity in human speech processing*. Retrieved from <https://hdl.handle.net/1887/29299>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/29299>

**Note:** To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/29299> holds various files of this Leiden University dissertation.

**Author:** Nixon, Jessie Sophia

**Title:** Sound of mind: electrophysiological and behavioural evidence for the role of context, variation and informativity in human speech processing

**Issue Date:** 2014-10-14

---

## References

---

- Agus, T. R., Thorpe, S. J. & Pressnitzer, D. (2010). Rapid formation of robust auditory memories: Insights from noise. *Neuron*, *66*(4), 610–618.
- Alloppenna, P. D., Magnuson, J. S. & Tanenhaus, M. K. (1998). Tracking the time course of spoken word recognition using eye movements: Evidence for continuous mapping models. *Journal of memory and language*, *38*(4), 419–439.
- Ashby, J., Sanders, L. D. & Kingston, J. (2009). Skilled readers begin processing sub-phonemic features by 80 ms during visual word recognition: Evidence from ERPs. *Biological psychology*, *80*(1), 84–94.
- Aslin, R. N., Saffran, J. R. & Newport, E. L. (1998). Computation of conditional probability statistics by 8-month-old infants. *Psychological science*, *9*(4), 321–324.
- Baayen, R. H. (2008). *Analyzing linguistic data: A practical introduction to statistics using R*. Cambridge University Press.
- Baayen, R. H., Davidson, D. J. & Bates, D. M. (2008). Mixed-effects modelling with crossed random effects for subjects and items. *Journal of Memory and Language*, *59*(4), 390–412.
- Baayen, R. H., Hendrix, P. & Ramscar, M. (2013). *Sidestepping the Combinatorial Explosion: An Explanation of n-gram Frequency Effects Based on Naïve Discriminative Learning*. Language and Speech.
- Baayen, R. H. & Milin, P. (2010). Analyzing reaction times. *International Journal of Psychological Research*, *3*(2), 12–28.
- Baayen, R. H., Piepenbrock, R. & van Rijn, H. (1993). *The CELEX lexical database*. Linguistic Data Consortium, University of Pennsylvania, Philadelphia.
- Barr, D. J., Levy, R., Scheepers, C. & Tily, H. J. (2013). Random effects

- structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language*, 68(3), 255–278.
- Barren, R. W. (1978). Access to the meaning of printed words: Some implications for reading and learning to read. In F. B. Murray (Ed.), *The recognition of words: IRA series on the development of the reading process* (pp. 34–56). Newark, DE: International Reading Association.
- Bates, D., Maechler, M. & Bolker, B. (2013). *lme4: Linear mixed-effects models using S4 classes*. R package version 0. Retrieved from <http://CRAN.R-project.org/package=lme4>
- Baumann, M. (1995). *The production of syllables in connected speech*. Unpublished Ph. D.
- Biederman, I. & Tsao, Y. C. (1979). On processing Chinese ideographs and English words: Some implications from Stroop-test results. *Cognitive Psychology*, 11, 125–132.
- Boersma, P. & Weenink, D. (2012). *Praat* (Vol. 5.).
- Bonte, M., Parviainen, T., Hytönen, K. & Salmelin, R. (2006). Time course of top-down and bottom-up influences on syllable processing in the auditory cortex. *Cerebral Cortex*, 16(1), 115–123.
- Brady, T. F., Konkle, T., Alvarez, G. A. & Oliva, A. (2008). Visual long-term memory has a massive storage capacity for object details. *Proceedings of the National Academy of Sciences*, 105(38), 14325.
- Bürki, A., Ernestus, M. & Frauenfelder, U. H. (2010). Is there only one “fenêtre” in the production lexicon? On-line evidence on the nature of phonological representations of pronunciation variants for French schwa words. *Journal of Memory and Language*, 62(4), 421–437.
- Cai, Q. & Brysbaert, M. (2010). Subtlex-ch: Chinese word and character frequencies based on film subtitles. *PLoS ONE*, 5(6), e10729.
- Carreiras, M., Perea, M., Vergara, M. & Pollatsek, A. (2009). The time course of orthography and phonology: ERP correlates of masked priming effects in Spanish. *Psychophysiology*, 46(5), 1113–1122.
- Chen, J. Y., Chen, T. M. & Dell, G. S. (2002). Word-form encoding in Mandarin Chinese as assessed by the implicit priming task. *Journal of Memory and Language*, 46.
- Chen, Y., Shen, R. & Schiller, N. O. (2011). *Representation of allophonic tone sandhi variants*. Proceedings of Psycholinguistics Representation of Tone.
- Chládková, K. (2014). *Finding phonological features in perception*.
- Chomsky, N. & Halle, M. (1968). *The sound pattern of English*.
- Clark, H. H. (1973). The language-as-fixed-effect fallacy: A critique of language statistics in psychological research. *Journal of verbal learning and verbal behavior*, 12(4), 335–359.

- Clayards, M., Tanenhaus, M. K., Aslin, R. N. & Jacobs, R. A. (2008). Perception of speech reflects optimal use of probabilistic speech cues. *Cognition*, 108(3), 804–809.
- Coleman, E. B. (1964). Generalizing to a language population. *Psychological Reports*, 14(1), 219–226.
- Coltheart, M. (1977). *Access to the internal lexicon*. The psychology of reading.
- Coltheart, M. (1978). Lexical access in simple reading tasks. In G. Underwood (Ed.), *Strategies of information processing* (pp. 151–216). New York: Academic Press.
- Connine, C. M. (2004). It's not what you hear but how often you hear it: On the neglected role of phonological variant frequency in auditory word recognition. *Psychonomic Bulletin and Review*, 11.
- Costa, A. & Caramazza, A. (2002). The production of noun phrases in English and Spanish: Implications for the scope of phonological encoding in speech production. *Journal of Memory and Language*, 46(1), 178–198.
- Creel, S. C., Aslin, R. N. & Tanenhaus, M. K. (2012). Word learning under adverse listening conditions: Context-specific recognition. *Language and Cognitive Processes*, 1021–1038.
- Cristià, A., McGuire, G. L., Seidl, A. & Francis, A. L. (2011). Effects of the distribution of acoustic cues on infants' perception of sibilants. *Journal of phonetics*, 39(3), 388–402.
- Da, J. (2004). A corpus-based study of character and bigram frequencies in Chinese e-texts and its implications for Chinese language instruction: Studies on the theory and methodology of digitalized Chinese teaching to foreigners. In P. Zhang, T. Xie & J. Xu (Eds.), *Proceedings of the fourth international conference on new technologies in teaching and learning chinese* (pp. 501–511). Beijing: Tsinghua University Press.
- Dahan, D., Drucker, S. J. & Scarborough, R. A. (2008). Talker adaptation in speech perception: Adjusting the signal or the representations? *Cognition*, 108(3), 710–718. doi: 10.1016/j.cognition.2008.05.005.
- Damian, M. F. & Martin, R. C. (1999). Semantic and phonological codes interact in single word production. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 25(2), 345–361.
- Davis, M. H. & Johnsruide, I. S. (2007). *Hearing speech sounds: Top-down influences on the interface between audition and speech perception*. *Hearing Research*, 229(12), 132–147. doi:10.1016/j.heares.2007.05.005.
- Dell, G. S. (1986). A spreading-activation theory of retrieval in sentence production. *Psychological Review*, 93(3), 273–315.
- Dell, G. S. (1988). The retrieval of phonological forms in production: Tests of predictions from a connectionist model. *Journal of Memory and Language*, 27(2), 123–147.

- Eimas, P. D. & Corbit, J. D. (1973). Selective adaptation of linguistic feature detectors. *Cognitive Psychology*, 4(1), 99–109.
- Ernestus, M. & Baayen, R. H. (2003). *Predicting the unpredictable: Interpreting neutralized segments in Dutch*. *Language*, 79:5–38.
- Ernestus, M. & Baayen, R. H. (2004). *Analogical effects in regular past tense production in Dutch*. *Linguistics*, 42:873–903.
- Escudero, P., Benders, T. & Wanrooij, K. (2011). Enhanced bimodal distributions facilitate the learning of second language vowels. *The Journal of the Acoustical Society of America*, 130(4).
- Feldman, N., Myers, E., White, K., Griffiths, T. & Morgan, J. (2011). Learners use word-level statistics in phonetic category acquisition. In N. Danis et al. (Eds.), *Proceedings of the 35th annual Boston University Conference on Language Development* (pp. 197–209).
- Ferrand, L. & Grainger, J. (1992). Phonology and orthography in visual word recognition: Evidence from masked non-word priming. *Quarterly Journal of Experimental Psychology: Section A*, 45(3), 353–372.
- Ferrand, L. & Grainger, J. (1993). The time course of orthographic and phonological code activation in the early phases of visual word recognition. *Bulletin of the psychonomic society*, 31(2), 119–122.
- Ferrand, L. & Grainger, J. (1994). Effects of orthography are independent of phonology in masked form priming. *The Quarterly Journal of Experimental Psychology*, 47(2), 365–382.
- Forster, K. I. & Davis, C. (1991). The density constraint on form-priming in a naming task: interference effects from a masked prime. *Journal of memory and language*, 30.
- Foss, D. J. & Swinney, D. A. (1973). On the psychological reality of the phoneme: Perception, identification, and consciousness. *Journal of Verbal Learning and Verbal Behavior*, 12(3).
- Fowler, C. A. (2010). The reality of phonological forms: a reply to Port. *Language sciences*, 32(1), 56–59.
- Ganushchak, L. Y., Christoffels, I. K. & Schiller, N. O. (2011). The use of electroencephalography in language production research: a review. *Frontiers in psychology*, 2.
- Gaskell, M. G. & Marslen-Wilson, W. D. (1996). Phonological variation and inference in lexical access. *Journal of Experimental Psychology: Human perception and performance*, 22(1), 144–158.
- Goldinger, S. D. (1998). Echoes of echoes? An episodic theory of lexical access. *Psychological Review*, 105(2), 251–279.
- Goldrick, M. & Blumstein, S. E. (2006). Cascading activation from phonological planning to articulatory processes: Evidence from tongue twisters. *Language and Cognitive Processes*, 21(6), 649–683.

- Goldrick, M. & Larson, M. (2008). Phonotactic probability influences speech production. *Cognition*, 107(3), 1155–1164.
- Goldstein, L., Poupier, M., Chen, L., Saltzman, E. & Byrd, D. (2007). Dynamic action units slip in speech production errors. *Cognition*, 103(3), 386–412.
- Grainger, J., Kiyonaga, K. & Holcomb, P. J. (2006). The time course of orthographic and phonological code activation. *Psychological Science*, 17(12), 1021–1026.
- Gratton, G., Coles, M. G. H. & Donchin, E. (1983). A new method for off-line removal of ocular artifact. *Electroencephalography and Clinical Neurophysiology*, 55.
- Guenther, F. H., Ghosh, S. S. & Tourville, J. (2006). Neural modeling and imaging of the cortical interactions underlying syllable production. *Brain and language*, 96(3), 280–301.
- Guenther, F. H. & Vladusich, T. (2009). A neural theory of speech acquisition and production. *Journal of neurolinguistics*, 25(5).
- Gulian, M., Escudero, P. & Boersma, P. (2007). *Supervision hampers distributional learning of vowel contrasts*. Proceedings of the international congress of phonetic sciences.
- Hintzman, D. L. (1986).  $\hat{O}$ schema abstraction $\hat{O}$ in a multiple-trace memory model. *Psychological Review*, 93(4).
- Houde, J. F. & Jordan, M. I. (1998). Sensorimotor adaptation in speech production. *Science*, 279(5354).
- Indefrey, P. & Levelt, W. J. (2004). The spatial and temporal signatures of word production components. *Cognition*, 92(1-2), 101–144.
- Jones, J. A. & Munhall, K. G. (2002). The role of auditory feedback during phonation: studies of Mandarin tone production. *Journal of Phonetics*, 30(3).
- Jongman, A., Wayland, R. & Wong, S. (2000). Acoustic characteristics of English fricatives. *The Journal of the Acoustical Society of America*, 108(3), 1252–1263.
- Ju, M. & Luce, P. A. (2006). Representational specificity of within-category phonetic variation in the long-term mental lexicon. *Journal of Experimental Psychology: Human Perception and Performance*, 32(1), 120–138.
- Kinoshita, S. (2000). The left-to-right nature of the masked onset priming effect in naming. *Psychonomic Bulletin & Review*, 7(1), 133–141.
- Kinoshita, S. & Woollams, A. (2002). The masked onset priming effect in naming: Computation of phonology or speech planning? *Memory & Cognition*, 30(2), 237–245.
- Kleinschmidt, D. & Jaeger, T. F. (2012). A continuum of phonetic adaptation: Evaluating an incremental belief-updating model of recalibration and selective adaptation. In *Proceedings of the 34th*

- annual meeting of the Cognitive Science Society (CogSci12) (pp. 107–115).
- Kraljic, T. & Samuel, A. G. (2005). Perceptual learning for speech: Is there a return to normal? *Cognitive psychology*, *51*(2), 141–178.
- Kraljic, T. & Samuel, A. G. (2007). Perceptual adjustments to multiple speakers. *Journal of Memory and Language*, *56*(1), 1–15.
- Kraljic, T. & Samuel, A. G. (2011). Perceptual learning evidence for contextually-specific representations. *Cognition*, *121*(3), 459–465.
- Kraljic, T., Samuel, A. G. & Brennan, S. E. (2008). First impressions and last resorts how listeners adjust to speaker variability. *Psychological science*, *19*(4), 332–338.
- Levelt, W. J., Schriefers, H., Vorberg, D., Meyer, A. S., Pechmann, T. & Havinga, J. (1991). The time course of lexical access in speech production: A study of picture naming. *Psychological review*, *98*(1), 122–142.
- Levelt, W. J. M. (2001). Spoken word production: A theory of lexical access. *Proceedings of the National Academy of Sciences*, *98*(23), 13464.
- Levelt, W. J. M., Roelofs, A. & Meyer, A. S. (1999). A theory of lexical access in speech production. *Behavioral and Brain Sciences*, *22*. Retrieved from [http://journals.cambridge.org/article\\_S0140525X99001776](http://journals.cambridge.org/article_S0140525X99001776)
- Liberman, A. & Whalen, D. (2000). On the relation of speech to language. *Trends in Cognitive Sciences*, *4*(5).
- Lisker, L. & Abramson, A. S. (1964). *A cross-language study of voicing in initial stops: acoustical measurements*. Word 20.
- Liu, L. & Kager, R. (2011). How do statistical learning and perceptual reorganization alter dutch infant’s perception to lexical tones? In *Icphs* (Vol. 17, pp. 1270–1273).
- Luce, P. A. & Pisoni, D. B. (1998). Recognizing spoken words: The neighborhood activation model. *Ear and hearing*, *19*(1).
- Lupker, S. J. (1982). The role of phonetic and orthographic similarity in picture-word interference. *Canadian Journal of Psychology*, *36*, 349–367.
- Mann, V. A. & Repp, B. H. (1980). *Influence of vocalic context on perception of the [S]-[s] distinction*. Perception and Psychophysics, *28*(3):213–228.
- Marian, V., Bartolotti, J., Chabal, S. & Shook, A. (2012). Clearpond: Cross-linguistic easy-access resource for phonological and orthographic neighborhood densities. *PLoS ONE*.
- Marslen-Wilson, W. (1989). Lexical representation and process. In W. Marslen-Wilson (Ed.), (pp. 3–24).
- Marslen-Wilson, W. (1990). Activation, competition, and frequency in lexical access. In *Cognitive models of speech processing* (pp.



- 148–172).
- Marslen-Wilson, W. D. (1987). Functional parallelism in spoken word-recognition. *Cognition*, 25(1), 71–102.
- Maye, J. & Gerken, L. (2000). *Learning phonemes without minimal pairs*. Proceedings of the 24th Annual Boston University Conference on Language Development.
- Maye, J., Weiss, D. & Aslin, R. (2008). Statistical phonetic learning in infants: Facilitation and feature generalization. *Developmental Science*, 11(1).
- Maye, J., Werker, J. F. & Gerken, L. (2002). Infant sensitivity to distributional information can affect phonetic discrimination. *Cognition*, 82(3).
- McClelland, J. L. & Elman, J. L. (1986). The TRACE model of speech perception. *Cognitive psychology*, 18(1), 1–86.
- McLennan, C. T., Luce, P. A. & Charles-Luce, J. (2003). Representation of lexical form. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 29(4).
- McLennan, C. T., Luce, P. A. & Charles-Luce, J. (2005). Representation of lexical form: Evidence from studies of sublexical ambiguity. *Journal of Experimental Psychology: Human Perception and Performance*, 31(6), 1308–1314.
- McMillan, C. T. & Corley, M. (2010). Cascading influences on the production of speech: Evidence from articulation. *Cognition*, 117(3), 243–260.
- McMurray, B., Aslin, R. N. & Toscano, J. C. (2009). Statistical learning of phonetic categories: insights from a computational approach. *Developmental Science*, 12(3), 369–378.
- McMurray, B. & Jongman, A. (2011). What information is necessary for speech categorization? Harnessing variability in the speech signal by integrating cues computed relative to expectations. *Psychological review*, 118(2), 219–246.
- McQueen, J. M., Cutler, A. & Norris, D. (2006). Phonological abstraction in the mental lexicon. *Cognitive Science*, 30(6), 1113–1126.
- Meyer, A. S. (1990). The time course of phonological encoding in language production: The encoding of successive syllables of a word. *Journal of Memory and Language*, 29(5).
- Meyer, A. S. (1991). The time course of phonological encoding in language production: Phonological encoding inside a syllable. *Journal of Memory and Language*, 30(1), 69–89.
- Meyer, A. S. & Schriefers, H. (1991). Phonological facilitation in picture-word interference experiments: Effects of stimulus onset asynchrony and types of interfering stimuli. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 17(6), 1146–1160.

- Miller, G. A. & Nicely, P. E. (1955). *An analysis of perceptual confusions among some english consonants*. *Journal of the Acoustical Society of America*, 27(2):338–352.
- Mitterer, H. (2006). Is vowel normalization independent of lexical processing? *Phonetica*, 63(4). 209-229. doi:10.1159/000097306.
- Mitterer, H., Chen, Y. & Zhou, X. (2011). Phonological abstraction in processing lexical-tone variation: Evidence from a learning paradigm. *Cognitive Science*, 35(1).
- Mousikou, B., Roon, K. & Rastle, K. (2014). Masked primes activate feature representations in reading aloud. *Journal of Experimental Psychology: Learning, Memory, and Cognition*.
- Mousikou, P., Coltheart, M., Finkbeiner, M. & Saunders, S. (2010). Can the dual-route cascaded computational model of reading offer a valid account of the masked onset priming effect? *The Quarterly Journal of Experimental Psychology*, 63(5), 984–1003.
- Newman, R. S., Clouse, S. A. & Burnham, J. L. (2001). The perceptual consequences of within-talker variability in fricative production. *The Journal of the Acoustical Society of America*, 109(3).
- Newport, E. L. & Aslin, R. N. (2004). Learning at a distance I. *Statistical learning of non-adjacent dependencies*. *Cognitive psychology*, 48(2), 127–162.
- Nielsen, K. (2011). Specificity and abstractness of VOT imitation. *Journal of Phonetics*, 39(2), 132–142.
- Nixon, J. S., Chen, Y. & Schiller, N. O. (2014). Multi-level processing of phonetic variants in speech production and visual word processing: evidence from mandarin lexical tones. *Language, Cognition and Neuroscience*, 10..
- Nixon, J. S., Timmer, K., Linke, K., Schiller, N. O. & Chen, Y. (submitted). Early negativity reveals rapid sub-phonemic processing during reading aloud.
- Nixon, J. S., van Rij, J., Mok, P., Baayen, R. H. & Chen, Y. (submitted). Eye movements reflect acoustic cue informativity and statistical noise.
- Norris, D. (1994). Shortlist: A connectionist model of continuous speech recognition. *Cognition*, 52(3), 189–234.
- Norris, D., McQueen, J. M. & Cutler, A. (2003). Perceptual learning in speech. *Cognitive psychology*, 47(2), 204–238.
- Pajak, B. (2012). *Inductive Inference in Non-Native Speech Processing and Learning (Doctoral dissertation, University of California, San Diego)*.
- Pelucchi, B., Hay, J. F. & Saffran, J. R. (2009a). Learning in reverse: Eight-month-old infants track backward transitional probabilities. *Cognition*, 113(2), 244–247.

- Pelucchi, B., Hay, J. F. & Saffran, J. R. (2009b). Statistical learning in a natural language by 8-month-old infants. *Child development*, *80*(3), 674–685.
- Peng, S. H. (2000). (2000) (L. versus 'phonological' representations of Mandarin sandhi tones. In M. B. Broe & J. B. Pierrehumbert, Eds.). *Acquisition and the lexicon: Papers in Laboratory Phonology V*.
- Perea, M. & Lupker, S. J. (2003). Transposed-letter confusability effects in masked form priming. In S. Kinoshita & S. J. Lupker (Eds.), *Masked priming: State of the art* (pp. 97–120). Hove, U. K.: Psychology Press.
- Perfetti, C. A. & Zhang, S. (1995). Very early phonological activation in Chinese reading. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *21*(1), 24–33.
- Purcell, D. W. & Munhall, K. G. (2006). Compensation following real-time manipulation of formants in isolated vowels. *The Journal of the Acoustical Society of America*, *119*.
- R Core Team. (2013). *R: A language and environment for statistical computing*. Retrieved from <http://www.R-project.org/>
- Ramscar, M. & Baayen, R. H. (2013). Production, comprehension, and synthesis: a communicative perspective on language. *Frontiers in psychology*, *4*.
- Ramscar, M., Dye, M. & Klein, J. (2013). Children value informativity over logic in word learning. *Psychological science*, *24*(6), 1017–1023.
- Reinisch, E., Wozny, D. R., Mitterer, H. & Holt, L. L. (2014). Phonetic category recalibration: What are the categories? *Journal of Phonetics*, *45*, 91–105.
- Roelofs, A. (1999). Phonological segments and features as planning units in speech production. *Language and Cognitive Processes*, *14*(2), 1080/016909699386338.
- Rosinski, R. R., Golinkoff, R. M. & Kukish, K. S. (1975). *Automatic semantic processing in a picture-word interference task*. *Child Development*.
- Rost, G. C. & McMurray, B. (2009). Speaker variability augments phonological processing in early word learning. *Developmental Science*, *12*(2), 339–349.
- Rost, G. C. & McMurray, B. (2010). Finding the signal by adding noise: The role of noncontrastive phonetic variability in early word learning. *Infancy*, *15*(6), 608–635.
- Saffran, J. R., Aslin, R. N. & Newport, E. L. (1996). Statistical learning by 8-month-old infants. *Science*, *274*(5294).
- Samuel, A. G. (1986). The role of the lexicon in speech perception. *Pattern recognition by humans and machines: Speech perception*,

- 1, 89–112.
- Schiller, N. O. (2004). The onset effect in word naming. *Journal of memory and language*, 50.
- Schiller, N. O. (2007). Phonology and orthography in reading aloud. *Psychonomic bulletin and review*, 14(3), 460–465.
- Schriefers, H., Meyer, A. S. & Levelt, W. J. (1990). Exploring the time course of lexical access in language production: Picture-word interference studies. *Journal of memory and language*, 29(1), 86–102.
- Severens, E., Lommel, S. V., Ratinckx, E. & Hartsuiker, R. J. (2005). Timed picture naming norms for 590 pictures in Dutch. *Acta psychologica*, 119(2), 159–187.
- Shannon, C. E. (1948). A mathematical theory of communication. *Bell System Technical Journal*, 27.
- Smith, F. (1985). *Reading without nonsense (2nd ed.)*. New York: Teachers College Press.
- Spinks, J. A., Liu, Y., Perfetti, C. A. & Tan, L. H. (2000). Reading Chinese characters for meaning: The role of phonological information. *Cognition*, 76(1).
- Starreveld, P. A., Heij, L. & W. (1996). Time-course analysis of semantic and orthographic context effects in picture naming. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 22(4), 896–918.
- Stevens, K. N. (2002). Toward a model for lexical access based on acoustic landmarks and distinctive features. *The Journal of the Acoustical Society of America*, 111(4), 1872–1891.
- Tanenhaus, M. K., Magnuson, J. S., Dahan, D. & Chambers, C. (2000). Eye movements and lexical access in spoken-language comprehension: Evaluating a linking hypothesis between fixations and linguistic processing. *Journal of Psycholinguistic Research*, 29(6), 557–580.
- Timmer, K. & Schiller, N. O. (2012). The role of orthography and phonology in English: An ERP study on first and second language reading aloud. *Brain research*, 1483, 39–53.
- Timmer, K., Vahid-Gharavi, N. & Schiller, N. O. (2012). *Reading aloud in Persian: ERP evidence for an early locus of the masked onset priming effect*. Brain and language.
- Toscano, J. C. & McMurray, B. (2012). Cue-integration and context effects in speech: Evidence against speaking-rate normalization. *Attention, Perception and Psychophysics*, 74(6), 1284–1301.
- Tremblay, A. (2013a). erp: Pre-processing and visualization of event-related brain potential and field (ERP/erf) data. *R package version 0.9. 8*, 8.(11).

- Tremblay, A. (2013b). *icaOcularCorrection: Independent Components Analysis (ICA) based artifact correction*. Retrieved from <http://CRAN.R-project.org/package=icaOcularCorrection>
- Trude, A. M. & Brown-Schmidt, S. (2012). Talker-specific perceptual adaptation during online speech perception. *Language and Cognitive Processes*, 979–1001.
- Van Rij, J. (2014). *compareML. R package version 2.0*.
- Vroomen, J., van Linden, S., de Gelder, B. & Bertelson, P. (2007). Visual recalibration and selective adaptation in auditory–visual speech perception: Contrasting build-up courses. *Neuropsychologia*, 45(3), 572–577.
- Vroomen, J., van Linden, S., Keetels, M., de Gelder, B. & Bertelson, P. (2004). Selective adaptation and recalibration of auditory speech by lipread information: dissipation. *Speech Communication*, 44(1), 55–61.
- Wang, W. S.-Y. (1973). (1973). *The Chinese language. Scientific American*, 228, 50–60.
- Wang, W. S.-Y. & Li, K. P. (1967). Tone 3 in pekinese. *Journal of Speech and Hearing Research*, 10, 629–636.
- Wang, Y. C. (2013). *jtrans: Johnson transformation for normality. R package version 1.0*. Retrieved from <http://CRAN.R-project.org/package=jtrans>
- Wanrooij, K., Boersma, P. & van Zuijen, T. L. (2014). Fast phonetic learning occurs already in 2-to-3-month old infants: an ERP study. *Frontiers in psychology*, 5..
- Wanrooij, K., Escudero, P. & Raijmakers, M. E. (2013). What do listeners learn from exposure to a vowel distribution? An analysis of listening strategies in distributional learning. *Journal of Phonetics*, 41(5), 307–319.
- Warner, N., Jongman, A., Sereno, J. & Kemps, R. (2004). Incomplete neutralization and other sub-phonemic durational differences in production and perception: Evidence from Dutch. *Journal of Phonetics*, 32(2), 251–276.
- Wong, A. W. K. & Chen, H. C. (2008). Processing segmental and prosodic information in Cantonese word production. *Journal of Experimental Psychology: Learning, Memory and Cognition. Journal of Experimental Psychology: Learning, Memory and Cognition*, 34, 1172–1190.
- Wood, S. (2006). *Generalized additive models: an introduction with R*. CRC press.
- Wood, S. (2011). Fast stable restricted maximum likelihood and marginal likelihood estimation of semiparametric generalized linear models. *Journal of the Royal Statistical Society (B)*, 73(1), 3–36.

- Yuan, J. H. & Chen, Y. (2014). 3rd tone sandhi in Standard Chinese: A corpus approach. *Journal of Chinese Linguistics*, 42.
- Zhao, Y. (2010). *Statistical inference in the learning of novel phonetic categories*. (Unpublished doctoral dissertation).
- Zhou, X. L. & Zhuang, J. (2000). Lexical tone in the speech production of Chinese words. *Stroke* 9. 8. 8, 8.(8), 9–5. Retrieved from [http://www.isca-speech.org/archive/icslp\\_2000/i00\\_](http://www.isca-speech.org/archive/icslp_2000/i00_)