

Bibliography

- [1] B. Macwhinney and P. Li, “Neurolinguistic computational models,” *Handbook of the Neuroscience of Language*, pp. 229–236, 2008.
- [2] A. D. Friederici, “The brain basis of language processing: from structure to function,” *Physiological reviews*, vol. 91, no. 4, pp. 1357–1392, 2011.
- [3] E. Gregersen, “The editors of encyclopaedia britannica,” *World Wide Web <https://www.britannica.com/topic/World-Wide-Web> (20.06. 2021.)*, 2019.
- [4] Y. Grodzinsky and A. Santi, “The battle for broca’s region,” *Trends in cognitive sciences*, vol. 12, no. 12, pp. 474–480, 2008.
- [5] I. Despotović, B. Goossens, and W. Philips, “Mri segmentation of the human brain: challenges, methods, and applications,” *Computational and mathematical methods in medicine*, vol. 2015, 2015.
- [6] G. Dogil, H. Ackermann, W. Grodd, H. Haider, H. Kamp, J. Mayer, A. Riecker, and D. Wildgruber, “The speaking brain: a tutorial introduction to fmri experiments in the production of speech, prosody and syntax,” *Journal of Neurolinguistics*, vol. 15, no. 1, pp. 59–90, 2002.
- [7] C. J. Price, “A review and synthesis of the first 20 years of pet and fmri studies of heard speech, spoken language and reading,” *Neuroimage*, vol. 62, no. 2, pp. 816–847, 2012.

-
- [8] A. C. Gouvea, “current advances in neurolinguistics: the use of electroencephalography (eeg) to study language,” *Revista Linguística*, vol. 7, no. 2, 2011.
- [9] Y. Yu, S. Lu, W. Zhu, C. Li, Z. Lin, and J. Wu, “Application of erp in neurolinguistics: A review of recent studies,” *Neuroscience and Biomedical Engineering (Discontinued)*, vol. 4, no. 3, pp. 195–201, 2016.
- [10] N. Geschwind, “Specializations of the human brain,” *Scientific American*, vol. 241, no. 3, pp. 180–201, 1979.
- [11] R. Shiffrin and D. Norman, “Models of human memory,” 1970.
- [12] J. L. McClelland and D. E. Rumelhart, “An interactive activation model of context effects in letter perception: I. an account of basic findings.” *Psychological review*, vol. 88, no. 5, p. 375, 1981.
- [13] D. E. Rumelhart, J. L. McClelland, P. R. Group *et al.*, *Parallel distributed processing*. IEEE New York, 1988, vol. 1.
- [14] T. Kohonen, *Self-organizing maps*. Springer Science & Business Media, 2012, vol. 30.
- [15] R. Miikkulainen, J. A. Bednar, Y. Choe, and J. Sirosh, *Computational maps in the visual cortex*. Springer Science & Business Media, 2006.
- [16] P. Li, X. Zhao, and B. Mac Whinney, “Dynamic self-organization and early lexical development in children,” *Cognitive science*, vol. 31, no. 4, pp. 581–612, 2007.
- [17] J. L. Elman, E. Bates, M. Johnson, A. Karmiloff-Smith, D. Parisi, and K. Plunkett, “Rethinking innateness: A connectionist perspective,” *Development*, 1996.

-
- [18] M. C. MacDonald, N. J. Pearlmutter, and M. S. Seidenberg, "The lexical nature of syntactic ambiguity resolution." *Psychological review*, vol. 101, no. 4, p. 676, 1994.
- [19] B. MacWhinney and B. MacWhinney, "The competition model," *Mechanisms of language acquisition*, pp. 249–308, 1987.
- [20] J. A. Bullinaria and N. Chater, "Connectionist modelling: Implications for cognitive neuropsychology," *Language and Cognitive Processes*, vol. 10, no. 3-4, pp. 227–264, 1995.
- [21] D. C. Plaut and T. Shallice, "Deep dyslexia: A case study of connectionist neuropsychology," *Cognitive neuropsychology*, vol. 10, no. 5, pp. 377–500, 1993.
- [22] J. L. Elman, "Distributed representations, simple recurrent networks, and grammatical structure," *Machine learning*, vol. 7, no. 2, pp. 195–225, 1991.
- [23] C. Davatzikos, "Why voxel-based morphometric analysis should be used with great caution when characterizing group differences," *Neuroimage*, vol. 23, no. 1, pp. 17–20, 2004.
- [24] V. N. Vapnik, "The nature of statistical learning," *Theory*, 1995.
- [25] B. Scholkopf and A. Smola, "Learning with kernels: support vector machines, regularization, optimization," 2001.
- [26] Z. Lao, D. Shen, Z. Xue, B. Karacali, S. M. Resnick, and C. Davatzikos, "Morphological classification of brains via high-dimensional shape transformations and machine learning methods," *Neuroimage*, vol. 21, no. 1, pp. 46–57, 2004.
- [27] Y. Fan, D. Shen, R. C. Gur, R. E. Gur, and C. Davatzikos, "Compare: classification of morphological patterns using adaptive regional elements," *IEEE transactions on medical imaging*, vol. 26, no. 1, pp. 93–105, 2006.

-
- [28] T. E. Hudson, L. T. Maloney, and M. S. Landy, “Optimal compensation for temporal uncertainty in movement planning,” *PLoS computational biology*, vol. 4, no. 7, p. e1000130, 2008.
- [29] R. A. Jacobs, “Optimal integration of texture and motion cues to depth,” *Vision research*, vol. 39, no. 21, pp. 3621–3629, 1999.
- [30] D. Goldreich, “A bayesian perceptual model replicates the cutaneous rabbit and other tactile spatiotemporal illusions,” *PloS one*, vol. 2, no. 3, p. e333, 2007.
- [31] D. George and J. Hawkins, “Towards a mathematical theory of cortical micro-circuits,” *PLoS computational biology*, vol. 5, no. 10, p. e1000532, 2009.
- [32] T. Warren, M. W. Dickey, and C. M. Lei, “Structural prediction in aphasia: evidence from either,” *Journal of Neurolinguistics*, vol. 39, pp. 38–48, 2016.
- [33] S. Hanne, F. Burchert, R. De Bleser, and S. Vasishth, “Sentence comprehension and morphological cues in aphasia: what eye-tracking reveals about integration and prediction,” *Journal of Neurolinguistics*, vol. 34, pp. 83–111, 2015.
- [34] M. Cruice, M. Pritchard, and L. Dipper, “Verb use in aphasic and non-aphasic personal discourse: what is normal?” *Journal of Neurolinguistics*, vol. 28, pp. 31–47, 2014.
- [35] D. Rosa, P. A., M. Canini, V. M. Borsa, P. Marien, S. F. Cappa, and J. Abutalebi, “Functional recovery in subcortical crossed and standard aphasia,” *Journal of Neurolinguistics*, vol. 27, no. 1, pp. 103–118, 2014.
- [36] L. Tuomiranta, A. M. Gronroos, N. Martin, and M. Laine, “Vocabulary acquisition in aphasia: modality can matter,” *Journal of Neurolinguistics*, vol. 32, pp. 42–58, 2014.

-
- [37] H. Wang, M. Yoshida, and C. K. Thompson, “Parallel functional category deficits in clauses and nominal phrases: the case of english agrammatism,” *Journal of Neurolinguistics*, vol. 27, no. 1, pp. 75–102, 2014.
- [38] D.-B. den Ouden, S. Fix, T. B. Parrish, and C. K. Thompson, “Argument structure effects in action verb naming in static and dynamic conditions,” *Journal of Neurolinguistics*, vol. 22, no. 2, pp. 196–215, 2009.
- [39] R. Sebastian, S. Kiran, and C. Sandberg, “Semantic processing in spanish-english bilinguals with aphasia,” *Journal of Neurolinguistics*, vol. 25, no. 4, pp. 240–262, 2012.
- [40] A. Karni, I. A. Morocz, T. Bitan, S. Shaul, T. Kushnir, and Z. Breznitz, “An fmri study of the differential effects of word presentation rates (reading acceleration) on dyslexic readers’ brain activity patterns,” *Journal of Neurolinguistics*, vol. 18, no. 2, pp. 197–219, 2005.
- [41] R. Oren and Z. Breznitz, “Reading processes in l1 and l2 among dyslexic as compared to regular bilingual readers: behavioral and electrophysiological evidence,” *Journal of Neurolinguistics*, vol. 18, no. 2, pp. 127–151, 2005.
- [42] A. Shiran and Z. Breznitz, “The effect of cognitive training on recall range and speed of information processing in the working memory of dyslexic and skilled readers,” *Journal of Neurolinguistics*, vol. 24, no. 5, pp. 524–537, 2011.
- [43] T. L. Richards, E. H. Aylward, V. W. Berninger, K. M. Field, A. C. Grimme, A. L. Richards, and W. Nagy, “Individual fmri activation in orthographic mapping and morpheme mapping after orthographic or morphological spelling treatment in child dyslexics,” *Journal of Neurolinguistics*, vol. 19, no. 1, pp. 56–86, 2006.
- [44] T. V. Leeuwen, P. Been, M. V. Herten, F. Zwarts, B. Maassen, and A. V. der Leij, “Two-month-old infants at risk for dyslexia do not discriminate /bak/

-
- from /dak/: a brain-mapping study,” *Journal of Neurolinguistics*, vol. 21, no. 4, pp. 333–348, 2008.
- [45] S. Dandache, J. Wouters, and P. Ghesquière, “Development of reading and phonological skills of children at family risk for dyslexia: A longitudinal analysis from kindergarten to sixth grade,” *Dyslexia*, vol. 20, p. 4, 2014.
- [46] K. L. Sakai, “Language acquisition and brain development,” *Science* (, vol. 310, no. 5749, pp. 815–819, 2005.
- [47] E. H. Lenneberg, *The biological foundations of language:*, pp. 154–155, 1967.
- [48] E. L. Newport and N. York, “Language development, critical periods in,” *Encycl. Cogn. Sci*, pp. 737–740, 2003.
- [49] J. R. Hurford, “The evolution of the critical period for language-acquisition,” *Cognition*, vol. 40, no. 3, pp. 159–201, 1991.
- [50] J. Gallaso, “First and second language acquisition,” 2003.
- [51] B. F. Skinner, “Cognitive science and behaviourism,” *British Journal of Psychology*, vol. 76, no. 3, pp. 291–301, 1985.
- [52] N. Chomsky, “Verbal behaviour,” *Language (Baltim).*, vol. 35, no. 1, pp. 26–58, 1959.
- [53] K. Plunkett, “Theories of early language acquisition,” *Trends in cognitive sciences*, vol. 1, no. 4, pp. 146–153, 1997.
- [54] P. M. Lightbown and N. Spada, *How languages are learned*. Oxford: Oxford University Press, 2006.
- [55] M. Walton, D. Dewey, and C. Lebel, “Brain white matter structure and language ability in preschool-aged children,” *Brain Lang*, vol. 176, pp. 19–25, September 2018.

-
- [56] J. M. Carroll, B. Maughan, R. Goodman, and H. Meltzer, “Literacy difficulties and psychiatric disorders: Evidence for comorbidity,” *J. Child Psychol. Psychiatry Allied Discip.*, vol. 46, no. 5, pp. 524–532, 2005.
- [57] M. Smits, L. C. Jiskoot, and J. M. Papma, “White matter tracts of speech and language,” *Semin. Ultrasound CT MRI*, vol. 35, no. 5, pp. 504–516, 2014.
- [58] I. Kovelman, K. Mascho, L. Millott, A. Mastic, B. Moiseff, and M. H. Shalinsky, “At the rhythm of language: Brain bases of language-related frequency perception in children,” *Neuroimage*, vol. 60, no. 1, pp. 673–682, 2012.
- [59] U. Goswami, “A temporal sampling framework for developmental dyslexia,” *Trends Cogn. Sci.*, vol. 15, pp. 3–10, 2011.
- [60] L. A. Petitto, *How the brain begets language: on the neural tissue underlying human language acquisition*. Cambridge, UK: The Cambridge Companion to Chomsky. Cambridge University Press, 2005.
- [61] L. Giraud, A. Kleinschmidt, D. Poeppel, T. E. Lund, R. S. Frackowiak, and H. Laufs, “Endogenous cortical rhythms determine cerebral specialization for speech perception and production,” *Neuron*, vol. 56, pp. 1127–1134, 2007.
- [62] H. Luo, Z. Liu, and D. Poeppel, “Auditory cortex tracks both auditory and visual stimulus dynamics using low-frequency neuronal phase modulation,” *PLoS Biol.*, vol. 8, 2010.
- [63] B. Morillon, *Neurophysiological origin of human brain asymmetry for speech and language*. Pnas, 2010.
- [64] A. Shusterman and P. Li, “Frames of reference in spatial language acquisition,” *Cognitive psychology*, vol. 88, pp. 115–161, 2016.
- [65] S. C. Levinson, “Frames of reference and molyneux’s question: Cross-linguistic evidence,” in *Language and space*, P. Bloom, L. N. Peterson, and M. F. Garrett, Eds. Cambridge: MIT Press, 1996, pp. 109–169.

-
- [66] —, *Space in language and cognition: Explorations in cognitive diversity*. Cambridge, UK: Cambridge University Press, 2003.
- [67] A. Majid, M. Bowerman, S. Kita, D. B. Haun, and S. C. Levinson, “Can language restructure cognition? the case for space,” *Trends in cognitive sciences*, vol. 8, no. 3, pp. 108–114, 2004.
- [68] E. Pederson, E. Danziger, D. Wilkins, S. Levinson, S. Kita, and G. Senft, “Semantic typology and spatial conceptualization,” *Language (Baltim)*., vol. 74, no. 3, pp. 557–589, 1998.
- [69] D. B. M. Haun, C. J. Rapold, J. Call, G. Janzen, and S. C. Levinson, “Cognitive cladistics and cultural override in hominid spatial cognition,” in *Proceedings of the National Academy of Sciences of the United States of America* pp, pp. 17 568–17 573, 2006.
- [70] J. Pyers, A. Shusterman, A. Senghas, E. A. Spelke, and K. Emmorey, “Evidence from users of an emerging sign language reveals that language supports spatial cognition,” in *Proceedings of the National Academy of Sciences* pp, pp. 12 116–12 120, 2010.
- [71] E. Partanen, A. Leminen, S. de Paoli, A. Bundgaard, O. S. Kingo, P. Krøjgaard, and Y. Shtyrov, “Flexible, rapid and automatic neocortical word form acquisition mechanism in children as revealed by neuromagnetic brain response dynamics,” *Neuroimage*, vol. 155, pp. 450–459, April 2017.
- [72] S. Pénicaud, D. Klein, R. J. Zatorre, J. K. Chen, P. Witcher, K. Hyde, and R. I. Mayberry, “Structural brain changes linked to delayed first language acquisition in congenitally deaf individuals,” *Neuroimage*, vol. 66, pp. 42–49, 2013.
- [73] R. I. Mayberry, J. K. Chen, P. Witcher, and D. Klein, “Age of acquisition effects on the functional organization of language in the adult brain,” *Brain Lang*, vol. 119, no. 1, pp. 16–29, 2011.

-
- [74] E. Plante, D. Patterson, R. Gómez, K. R. Almryde, M. G. White, and A. E. Asbjørnsen, “The nature of the language input affects brain activation during learning from a natural language,” *J. Neurolinguistics*, vol. 36, pp. 17–34, 2015.
- [75] V. Havas, M. Laine, and A. R. Fornells, “Brain signatures of early lexical and morphological learning of a new language,” *Neuropsychologia*, vol. 101, pp. 47–56, April 2017.
- [76] E. S. Nichols and M. F. Joanisse, “Functional activity and white matter microstructure reveal the independent effects of age of acquisition and proficiency on second-language learning,” *Neuroimage*, vol. 143, pp. 15–25, 2016.
- [77] P. Li, J. Legault, and K. A. Litcofsky, “Neuroplasticity as a function of second language learning: anatomical changes in the human brain,” *Cortex*, vol. 58, pp. 301–324, 2014.
- [78] J. A. Newman and A. Tremblay, “The influence of language proficiency on lexical semantic processing in native and late learners of english,” *J. Cogn. Neurosci.*, vol. 24, no. 5, pp. 1205–1223, 2012.
- [79] J. Mårtensson, J. Eriksson, N. C. Bodammer, M. Lindgren, M. Johansson, L. Nyberg, and M. L’oüvdén, “Growth of language-related brain areas after foreign language learning,” *Neuroimage*, vol. 63, no. 1, pp. 240–244, 2012.
- [80] M. Stein, A. Federspiel, T. Koenig, M. Wirth, W. Strik, R. Wiest, D. Brandeis, and T. Dierks, “Structural plasticity in the language system related to increased second language proficiency,” *Cortex*, vol. 48, no. 4, pp. 458–465, 2012.
- [81] M. Wei, A. A. Joshi, M. Zhang, L. Mei, F. R. Manis, Q. He, R. L. Beattie, G. Xue, D. W. Shattuck, R. M. Leahy, F. Xue, S. M. Houston, C. Chen, Q. Dong, and Z. L. Lu, “How age of acquisition influences brain architecture in bilinguals,” *J. Neurolinguistics*, vol. 36, pp. 35–55, 2015.

-
- [82] L. Zou, G. Ding, J. Abutalebi, H. Shu, and D. Peng, “Structural plasticity of the left caudate in bimodal bilinguals,” *Cortex*, vol. 48, no. 9, pp. 1197–1206, 2012.
- [83] V. Ressel, C. Pallier, N. Ventura-Campos, B. Diaz, A. Roessler, C. Avila, and N. Sebastian-Galles, “An effect of bilingualism on the auditory cortex,” *J. Neurosci.*, vol. 32, no. 47, pp. 16 597–16 601, 2012.
- [84] P. A. D. Rosa, G. Videsott, V. M. Borsa, M. Canini, B. S. Weekes, R. Franceschini, and J. Abutalebi, “A neural interactive location for multilingual talent,” *Cortex*, vol. 49, no. 2, pp. 605–608, 2013.
- [85] I. Antón-Méndez, E. M. Ellis, W. Coventry, B. Byrne, and V. H. Van Daal, “Markers of success: A study of twins’ instructed second language acquisition,” *Learning and Individual Differences*, vol. 42, pp. 44–52, 2015.
- [86] M. Coventry, I. Anton-Mendez, E. M. Elis, C. Levisen, B. Byrne, and V. H. O. V. Daal, “The etiology of individual differences in second language acquisition in australian school students: A behavior-genetic study,” *Lang. Learn.*, vol. 62, no. 3, pp. 880–901, 2012.
- [87] O. Kepinska, M. de Rover, J. Caspers, and N. O. Schiller, “Whole-brain functional connectivity during acquisition of novel grammar: Distinct functional networks depend on language learning abilities,” *Behav. Brain Res.*, vol. 320, pp. 333–346, 2017.
- [88] R. I. Mayberry, “When timing is everything: Age of first language acquisition effects on second language learning,” *Appl. Psycholinguist.*, vol. 2820, pp. 537–549, 2007.
- [89] —, “Early language acquisition and adult language ability: What sign language reveals about the critical,” *The Oxford handbook of deaf studies, language, and education*, vol. 2, p. 281, 2010.

-
- [90] J. Kassubek, G. Hickok, and P. Erhard, “Involvement of classical anterior and posterior language areas in sign language production, as investigated by 4 t functional magnetic resonance imaging,” *Neurosci. Lett.*, vol. 364, pp. 168–172, 2004.
- [91] S. McCullough, K. Emmorey, and M. Sereno, “Neural organization for recognition of grammatical and emotional facial expressions in deaf asl signers and hearing nonsigners,” *Cogn. Brain Res*, vol. 22, pp. 193–203, 2005.
- [92] K. L. Sakai, Y. Tatsuno, K. Suzuki, H. Kimura, and Y. Ichida, “Sign and speech: Amodal commonality in left hemisphere dominance for comprehension of sentences,” *Brain*, vol. 128, pp. 1407–1417, 2005.
- [93] J. A. Berken, V. L. Gracco, and D. Klein, “Early bilingualism, language attainment, and brain development,” *Neuropsychologia*, vol. 98, pp. 220–227, 2017.
- [94] M. Butz, I. D. Steenbuck, and A. V. Ooyen, “Homeostatic structural plasticity increases the efficiency of small-world networks,” *Front. Synaptic Neurosci.*, vol. 6, pp. 1–14, 2014.
- [95] G. Li, J. Nie, L. Wang, F. Shi, W. Lin, J. H. Gilmore, and D. Shen, “Mapping region- specific longitudinal cortical surface expansion from birth to 2 years of age,” *Cereb. Cortex*, vol. 23, no. 11, pp. 2724–2733, 2013.
- [96] E. Wenger, C. Brozzoli, U. Lindenberger, and M. L’ovdén, “Expansion and renormalization of human brain structure during skill acquisition,” *Trends Cogn. Sci*, vol. 21, no. 12, pp. 930–939, 2017.
- [97] H. Makino, E. J. Hwang, N. G. Hedrick, and T. Komiyama, “Circuit mechanisms of sensorimotor learning,” *Neuron*, vol. 92, no. 4, pp. 713–727, 2010.
- [98] P. K. Kuhl, “Brain mechanisms in early language acquisition,” *Neuron*, vol. 67, no. 5, pp. 713–727, 2010.

-
- [99] —, “Early language acquisition?,” *vol.*, vol. 5, November 2004.
- [100] A. Fengler, L. Meyer, and A. D. Friederici, “Brain structural correlates of complex sentence comprehension in children,” *Developmental cognitive neuroscience*, vol. 15, pp. 48–57, 2015.
- [101] M. d. V. I. Moreno, I. León, M. Bastiaansen, A. G. Lewis, and L. Magyari, “Brain dynamics in the comprehension of action-related language. a time-frequency analysis of mu rhythms,” *Neuroimage*, vol. 109, pp. 50–62, 2015.
- [102] F. L. A. Moreno, S. Dehaene, and C. Pallier, “Brain correlates of constituent structure in sign language comprehension,” *Neuroimage*, vol. 167, pp. 151–161, April 2018.
- [103] L. Liu, X. Yan, J. Liu, M. Xia, C. Lu, K. Emmorey, M. Chu, and G. Ding, “Graph theoretical analysis of functional network for comprehension of sign language,” *Brain Res*, vol. 1671, pp. 55–66, 2017.
- [104] J. Newman, T. Supalla, N. Fernandez, E. L. Newport, and D. Bavelier, “Neural systems supporting linguistic structure , linguistic experience , and symbolic communication in sign language and gesture,” *p*, pp. 1–6, 2015.
- [105] S. Grey and J. G. van Hell, “Foreign-accented speaker identity affects neural correlates of language comprehension,” *J. Neurolinguistics*, vol. 42, pp. 93–108, 2017.
- [106] R. Metusalem, M. Kutas, T. P. Urbach, and J. L. Elman, “Hemispheric asymmetry in event knowledge activation during incremental language comprehension: A visual half- field erp study,” *Neuropsychologia*, vol. 84, pp. 252–271, 2016.
- [107] D. Freunberger and M. S. Nieuwland, “Incremental comprehension of spoken quantifier sentences: Evidence from brain potentials,” *Brain Res*, vol. 1646, pp. 475–481, 2016.

-
- [108] K. Lidzba, E. Schwilling, W. Grodd, I. Krügeloh-Mann, and M. Wilke, “Language comprehension vs. language production: Age effects on fmri activation,” *Brain Lang*, vol. 119, no. 1, pp. 6–15, 2011.
- [109] C. Brodbeck and L. Pykkänen, “Language in context: Characterizing the comprehension of referential expressions with meg,” *Neuroimage*, vol. 147, pp. 447–460, 2017.
- [110] P. Román, J. González, N. Ventura-Campos, A. Rodríguez-Pujadas, A. Sanjuán, and C. Ávila, “Neural differences between monolinguals and early bilinguals in their native language during comprehension,” *Brain and language*, vol. 150, pp. 80–89, 2015.
- [111] P. Chen, S. C. Bobb, N. Hoshino, and V. Marian, “Neural signatures of language co-activation and control in bilingual spoken word comprehension,” *Brain Res*, vol. 1665, pp. 50–64, 2017.
- [112] R. Alemi, S. A. H. Batouli, E. Behzad, M. Ebrahimpoor, and M. A. Oghabian, “Not single brain areas but a network is involved in language: Applications in presurgical planning,” *Clin. Neurol. Neurosurg.*, vol. 165, pp. 116–128, January 2018.
- [113] K. Rataj, A. Przekoracka-Krawczyk, and R. H. J. van der Lubbe, “On understanding creative language: The late positive complex and novel metaphor comprehension,” *Brain Res*, vol. 1678, pp. 231–244, 2018.
- [114] N. Vukovic, M. Feurra, A. Shpektor, A. Myachykov, and Y. Shtyrov, “Primary motor cortex functionally contributes to language comprehension: An online rtms study,” *Neuropsychologia*, vol. 96, pp. 222–229, January 2017.
- [115] K. Inada and A. K. Yamazaki, “Verification of amplitude enhancement effects on comprehensions of english speeches and brain functions,” *Procedia Comput. Sci*, vol. 112, pp. 1926–1934, 2017.

-
- [116] Y. Yang, J. Wang, C. Bailer, V. Cherkassky, and M. A. Just, “Commonality of neural representations of sentences across languages: Predicting brain activation during portuguese sentence comprehension using an english-based model of brain function,” *Neuroimage*, vol. 146, pp. 658–666, May 2017.
- [117] G. Lewis, L. Wang, and M. Bastiaansen, “Fast oscillatory dynamics during language comprehension: Unification versus maintenance and prediction?” *Brain Lang*, vol. 148, pp. 51–63, 2015.
- [118] D. Saur, B. Schelter, S. Schnell, D. Kratochvil, H. Küpper, P. Kellmeyer, D. Kümmerer, S. Klöppel, V. Glauche, R. Lange *et al.*, “Combining functional and anatomical connectivity reveals brain networks for auditory language comprehension,” *Neuroimage*, vol. 49, no. 4, pp. 3187–3197, 2010.
- [119] G. Lewis and M. Bastiaansen, “Sciedirect special issue?: Review a predictive coding framework for rapid neural dynamics during sentence-level language comprehension,” *vol.*, vol. 8, 2015.
- [120] Y. Xiao, A. D. Friederici, D. S. Margulies, and J. Brauer, “Development of a selective left-hemispheric fronto-temporal network for processing syntactic complexity in language comprehension,” *Neuropsychologia*, vol. 83, pp. 274–282, 2016.
- [121] N. F. Dronkers, D. P. Wilkins, R. D. V. Valin, B. B. Redfern, and J. J. Jaeger, “Lesion analysis of the brain areas involved in language comprehension,” *Cognition*, vol. 92, no. 1, pp. 145–177, 2004.
- [122] Q. Liu, H. Jiang, S. Wei, Z.-H. Ling, and Y. Hu., “Learning semantic word embeddings based on ordinal knowledge constraints,” in *Proceedings of ACL*, C. Beijing, Ed., 2015.
- [123] N. Golestani and C. Pallier, “Anatomical correlates of foreign speech sound production,” *no. April*, vol. 2007, pp. 929–934, 2018.

-
- [124] S. Ortiz-Mantilla, “M. sun choe, j,” *Flax*, P. E. Grant, and A. A. Benasich, “Associations between the size of the amygdala in infancy and language abilities during the preschool years in normally developing children,” *Neuroimage*, vol. 49, no. 3, pp. 2791–2799, 2010.
- [125] M. A. Gernsbacher and M. P. Kaschak, “Nih public access,” 2014.
- [126] G. Dehaene-Lambertz, L. Hertz-Pannier, and J. Dubois, “Nature and nurture in language acquisition: anatomical and functional brain-imaging studies in infants,” *Trends Neurosci.*, vol. 29, no. 7, pp. 367–373, 2006.
- [127] G. Dehaene-lambertz, G. Dehaene-lambertz, and S. Dehaene, “Functional neuroimaging of speech perception in infants,” *vol.*, vol. 2013, p. 2002, 2014.
- [128] W. O. Tatum, G. Rubboli, P. W. Kaplan, S. M. Mirsatari, K. Radhakrishnan, D. Gloss, M. Cook, and S. Beniczky, “Clinical neurophysiology clinical utility of eeg in diagnosing and monitoring epilepsy in adults,” *vol.*, vol. 129, pp. 1056–1082, 2018.
- [129] T. Conboy and P. K. Kuhl, “Nih public access,” *vol.*, vol. 44, no. 5, pp. 1505–1512, 2009.
- [130] D. Friederici, “Neurophysiological markers of early language acquisition: From syllables to sentences,” *Trends Cogn. Sci.*, vol. 9, no. 10, pp. 481–488, 2005.
- [131] M. Cheour, T. Imada, S. Taulu, A. Ahonen, J. Salonen, and P. Kuhl, “Magnetoencephalography is feasible for infant assessment of auditory discrimination,” *Exp. Neurol.*, vol. 190, pp. 44–51, 2004.
- [132] T. Imada, Y. Zhang, M. Cheour, S. Taulu, A. Ahonen, and P. K. Kuhl, “Infant speech perception activates broca’s area: A developmental magnetoencephalography study,” *Neuroreport*, vol. 17, no. 10, pp. 957–962, 2006.

-
- [133] R. N. Aslin, “Near-infrared spectroscopy for functional studies of brain activity in human infants?: promise , prospects , and challenges,” *vol.*, vol. 10, pp. 10–12, February 2005.
- [134] L. Bihan, C. Poupon, C. A. Clark, S. Pappata, N. Molko, and H. Chabriat, “Diffusion tensor imaging?: Concepts and applications,” *vol.*, vol. 546, pp. 534–546, 2001.
- [135] L. Bailey, W. David, P. E. Valk, M. N. Maisey, and A. Greenspan, “Positron emission tomography?: Basic orthopedic imaging?: A practical,” *vol.*, vol. 241, no. 1, pp. 45–46, 2006.
- [136] K. J. Friston, A. P. Holmes, K. J. Worsley, J.-P. Poline, C. D. Frith, and R. S. Frackowiak, “Statistical parametric maps in functional imaging: a general linear approach,” *Human brain mapping*, vol. 2, no. 4, pp. 189–210, 1994.
- [137] B. Y. D. B. Rowe and R. G. Hoffmann, *Analysis in fMRI*. no. April, 2006.
- [138] L. I. Kuncheva and J. J. Rodríguez, “Classifier ensembles for f mri data analysis?: an experiment,” *vol.*, vol. 28, pp. 583–593, 2010.
- [139] W. Shattuck, D. W. Shattuck, R. M. Leahy, and R. M. Leahy, “Brainsuite: An automated cortical surface identification tool,” *Methods*, vol. 6, pp. 129–142, 2002.
- [140] R. B. Fedorov, J. Kalpathy-Cramer, J. Finet, J.-C. Fillion-Robbin, S. Pujol, C. Bauer, D. Jennings, F. Fennessy, M. Sonka, J. Buatti, S. Aylward, J. V. Miller, S. Pieper, and R. Kikinis, “3d slicers as an image computing platform for thw quantitative imaging network,” *Magn. Reson. Imaging*, vol. 30, no. 9, pp. 1323–1341, 2012.
- [141] A. S. Whitfield-Gabrieli and A. Nieto-Castanon, “Conn?: A functional connectivity toolbox for correlated and anticorrelated brain networks,” *Brain Connect*, vol. 2, no. 3, pp. 125–141, 2012.

-
- [142] L. Umr and I. Université, *EEGNET manual*. “SPM - Statistical Parametric Mapping.” .FMRIB Analysis Group, “FSL - FslWiki.”“NITRC.”: FreeSurfer.” .W. T. C. for Neuroimaging, 2012.
- [143] N. Chomsky, *Language and problems of knowledge: the Managua lectures*. Cambridge, Mass: MIT Press, 1988.
- [144] L. A. Petitto and P. F. Marentette, “Babbling in the manual mode: Evidence for the ontogeny of language,” *Science*, vol. 251, no. 5000, pp. 1493–1496, 2007.
- [145] P. Karanth and M. G. Suchitra, “Literacy acquisition and grammaticality judgments in children,” in *Literacy and language analysis*, R. J. Scholes, Ed. Hillsdale, NJ: Erlbaum, 1993.
- [146] R. J. Scholes, “Utterance acceptability criteria: A follow-up to karanth and suchitra,” in *Literacy and language analysis*, R. Scholes, Ed. Hiltsdale, NJ: Erlbaum, 1993.
- [147] S. Mumtaz and G. W. Humphreys, “The effects of bilingualism on learning to read english: evidence from the contrast between urdu-english bilingual and english monolingual children,” *Reading*, vol. 24, p. 2, 2001.
- [148] C. E. Erneling, *Understanding language acquisition: The framework of learning*. SUNY Press, 1993.
- [149] H. D. Brown, “The optimal distance model of second language acquisition,” *TESOL quarterly*, pp. 157–164, 1980.
- [150] A. Siyanova-Chanturia and A. E. Pellicer-Sanchez, *Understanding formulaic language: A second language acquisition perspective*. Routledge, 2018.
- [151] R. Ellis, *Understanding second language acquisition (Vol. 31)*. Oxford: Oxford university press, 1989.
- [152] J. R. Beech, “Ehri’s model of phases of learning to read: a brief critique,” *Literacy*, vol. 28, no. 1, pp. 50–58, 2005.

-
- [153] J. Acha, I. Laka, and M. Perea, "Reading development in agglutinative languages: Evidence from beginning, intermediate, and adult basque readers," *Journal of Experimental Child Psychology*, vol. 105, no. 4, pp. 359–375, 2010.
- [154] U. Frith, "Beneath the surface of developmental dyslexia," in K. E. Patterson, J. C. Marshall, and M. Coltheart, Eds. *Surface Dyslexia*. London: Erlbaum, 1985, pp. 301–330.
- [155] L. C. Ehri, "Development of the ability to read words: Update," *Reading*, pp. 1–35, 1994.
- [156] L. C. Ehri and L. S. Wilce, "Does learning to spell help beginners learn to read words?" *Reading Research Quarterly*, vol. 18, pp. 47–65, 1987.
- [157] L. C. Ehri, "Reconceptualizing the development of sight word reading and its relationship to recoding," in P. B. Gough, L. C. Ehri, and R. Treiman, Eds. *Reading acquisition*. Hillsdale, NJ: Erlbaum. Cited in Ehri, 1994, 1992, pp. 107–143.
- [158] P. B. Gough and M. L. Hillinger, "Learning to read: An unnatural act," *Bulletin of the Orton Society*, vol. 30, pp. 180–196, 1980.
- [159] E. J. . Monaghan, *April*. Montreal, Quebec, Canada. Cited in Ehri: A four-year study of the acquisition of letter-sound correspondences. Paper presented at the meeting of the American Educational Research Association, 1994.
- [160] G. Marsh, M. Friedman, V. Welch, and P. Desberg, "A cognitive-developmental theory of reading acquisition," in *Reading research: Advances in theory and practice (Vol. 3)*, G. E. Mackinnon and T. G. Waller, Eds. 3, . New York: Academic. Cited in Ehri, 1994, 1981, pp. 199–221.
- [161] R. K. Wagner and J. K. Torgesen, "The nature of phonological processing and its causal role in the acquisition of reading skills," *Psychological Bulletin*, vol. 101, no. 2, pp. 192–212, 1987.

-
- [162] M. Mody, “Phonological basis in reading disability: A review and analysis of the evidence,” *Reading and Writing*, vol. 16, no. 1, pp. 21–39, 2003.
- [163] T. Jay, *The Psychology of Language*. Upper Saddle River, New Jersey, USA: Pearson Education, 2003.
- [164] P. Reitsma and L. Verhoeven, “Acquisition of written dutch: An introduction,” in *Acquisition of reading in Dutch*, P. Reitsma and L. Verhoeven, Eds. Dordrecht, the Netherlands: Foris Publications. Cited in de Jong, 1999, 1990, pp. 1–13.
- [165] M. Aro and W. H. L. to read, “English in comparison to six more regular orthographies,” *Applied Psycholinguistics*, vol. 24, p. 04, 2003.
- [166] M. S. Seidenberg and M. J. A. distributed, “developmental model of word recognition and naming,” *Psychological Review*, vol. 96, pp. 523–568, 1989.
- [167] C. Perrya, J. C. Zieglerb, and Z. M. B. single syllables, “Large-scale modeling of reading aloud with the connectionist dual process (cdp++) model,” *Cognitive Psychology*, vol. 61, no. 2, pp. 106–151, 2010.
- [168] M. Coltheart, K. Rastle, C. Perry, R. Langdon, and Z. J. Drc, “a dual route cascaded model of visual word recognition and reading aloud,” *Psychological Review*, vol. 108, no. 1, pp. 204–56, 2001.
- [169] M. Coltheart, “Lexical access in simple reading tasks,” in *Strategies of information processing*, G. Underwood, Ed. New York: Academic Press. Cited in Jay, 2003, pp. 151–216.
- [170] K. Rayner, “Eye movements in reading and information processing: 20 years of research,” *Psychological Bulletin*, vol. 124, no. 3, pp. 372–422, 1998.
- [171] A. Lévy-Schoen, “Flexible and/or rigid control of oculomotor scanning behavior,” in *Eye movements: Cognition and visual perception*, D. F. Fisher, R. A.

-
- Monty, and J. W. Senders, Eds. Hillsdale, NJ: Erlbaum. Cited in Rayner, 1998, 1981, pp. 299–316.
- [172] P. A. Carpenter and M. A. Just, “What your eyes do while your mind is reading,” in *Eye movements in reading: Perceptual and language processes*, K. Rayner, Ed. New York: Academic Press. Cited in Rayner, 1998, 1983, pp. 275–307.
- [173] K. Rayner and S. A. Duffy, “On-line comprehension processes and eye movements in reading,” in M. G. E. M. Daneman and T. G. W. (Ms.), Eds. New York: Academic Press, 1988, pp. 13–66.
- [174] K. Rayner and A. D. Well, “Effects of contextual constraint on eye movements in reading: A further examination,” *Psychonomic Bulletin Review*, vol. 3, pp. 504–509, 1996.
- [175] K. Rayner, A. D. Well, and A. Pollatsek, “Asymmetry of the effective visual field in reading,” *Perception Psychophysics*, vol. 27, pp. 537–544, 1980.
- [176] K. Rayner, A. D. Well, A. Pollatsek, and J. H. Bertera, “The availability of useful information to the right of fixation in reading,” *Perception Psychophysics*, vol. 31, pp. 537–550, 1982.
- [177] G. W. McConkie and D. Zola, “Visual attention during eye fixations while reading,” in *Attention and performance (Vol. 12)*, M. Coltheart, Ed. London: Erlbaum. Cited in Rayner, 1998, 1987, pp. 385–401.
- [178] J. K. O’Regan and A. Levy-Schoen, “Eye movement strategy and tactics in word recognition and reading,” in *Attention and performance: Vol. 12. The psychology of reading*, M. Coltheart, Ed. Hillsdale, NJ: Erlbaum. Cited in Rayner, 1998, 1987, pp. 363–383.
- [179] J. A. Fiez, D. Tranel, D. Seager-Frerichs, and H. Damasio, “Specific reading and phonological processing deficits are associated with damage to the left frontal operculum,” *Cortex*, vol. 42, pp. 624–643, 2006.

-
- [180] L. Cohen, S. Lehericy, F. Chochon, C. Lemer, S. Rivaud, and S. Dehaene, “Language- specific tuning of visual cortex?” *Functional properties of the Visual Word Form Area*, vol. 125, no. 5, pp. 1054–69, 2002.
- [181] L. Cohen, S. Dehaene, L. Naccache, S. Lehericy, G. Dehaene-Lambertz, M. Hénaff, and F. Michel, “The visual word form area: Spatial and temporal characterization of an initial stage of reading in normal subjects and posterior split-brain patients,” *Brain*, vol. 123, no. 2, pp. 291–307, 2000.
- [182] B. B. Powell, *Writing: theory and history of the technology of civilization*. John Sons: Wiley, 2009.
- [183] S. Dehaene, *Reading in the brain: The new science of how we read*. Penguin, 2009.
- [184] L. Cohen, S. Lehericy, F. Chochon, C. Lemer, S. Rivaud, and S. Dehaene, “Language?specific tuning of visual cortex?” *Functional properties of the Visual Word Form Area*, vol. 125, no. 5, pp. 1054–1069, 2002.
- [185] C. J. Price and J. T. Devlin, “The myth of the visual word form area,” *Neuroimage*, vol. 19, no. 3, pp. 473–481, 2003.
- [186] D. Kemmerer, *Cognitive Neuroscience of Language*. Psychology Press, 2014.
- [187] M. J. Tainturier and B. Rapp, “Is a single graphemic buffer used in reading and spelling?” *Aphasiology*, vol. 17, no. 6-7, pp. 537–562, 2003.
- [188] M. Lorch, “Written language production disorders: historical and recent perspectives,” *Current Neurology and Neuroscience Reports*, vol. 13, no. 8, p. 369, 2013.
- [189] J. Dejerine, “Sur un cas eccite verbale avec agraphie, suivi d’autopsie,” *C.R. Societe du Biologie*, vol. 43, pp. 197–201, 1891.
- [190] J. R. Hanley and J. Kay, “Monsieur c: Dejerine’s case of alexia without agraphia,” *Classic cases in neuropsychology*, vol. 2, pp. 57–73, 2003.

-
- [191] J. C. Marshall and F. Newcombe, “Patterns of paralexia: A psycholinguistic approach,” *Journal of psycholinguistic research*, vol. 2, no. 3, pp. 175–199, 1973.
- [192] G. Assal, G. Chapuis, and E. Zander, “Isolated writing disorders in a patient with stenosis of the left internal carotid artery,” *Cortex*, vol. 6, no. 2, pp. 241–248, 1970.
- [193] J. Gerstmann, “Zur symptomatologie der herderkrankungen in der ”Übergangsregion der unteren parietal-und mittleren okzipitalhirnwindung,” *Deutsche Zeitschrift f”ur Nervenheilkunde*, vol. 116, no. 1-6, pp. 46–49, 1930.
- [194] D. N. Levine, R. B. Mani, and R. Calvanio, “Pure agraphia and gerstmann’s syndrome as a visuospatial-language dissociation: An experimental case study,” *Brain and Language*, vol. 35, no. 1, pp. 172–196, 1988.
- [195] S. H. Auerbach and M. P. Alexander, “Pure agraphia and unilateral optic ataxia associated with a left superior parietal lobule lesion,” *Journal of Neurology, Neurosurgery Psychiatry*, vol. 44, no. 5, pp. 430–432, 1981.
- [196] M. Kinsbourne and D. B. Rosenfield, “Agraphia selective for written spelling: An experimental case study,” *Brain and Language*, vol. 1, no. 3, pp. 215–225, 1974.
- [197] F. E. Roux, J. B. Durand, E. Réhault, S. Planton, L. Draper, and J. F. Démonet, “The neural basis for writing from dictation in the temporoparietal cortex,” *Cortex*, vol. 50, pp. 64–75, 2014.
- [198] S. Exner, *Untersuchungen über die Localisation der Functionen in der Grosshirnrinde des Menschen*. Braumüller, 1881.
- [199] F. E. Roux, O. Dufor, C. Giussani, Y. Wamain, L. Draper, M. Longcamp, and J. F. Démonet, “The graphemic/motor frontal area exner’s area revisited,” *Annals of neurology*, vol. 66, no. 4, pp. 537–545, 2009.

-
- [200] T. Laine and R. J. Marttila, “Pure agraphia: a case study,” *Neuropsychologia*, vol. 19, no. 2, pp. 311–316, 1981.
- [201] O. Tanridag and H. S. Kirshner, “Aphasia and agraphia in lesions of the posterior internal capsule and putamen,” *Neurology*, vol. 35, no. 12, pp. 1797–1797, 1985.
- [202] C. J. Price and K. J. Friston, “Functional imaging studies of neuropsychological patients: applications and limitations,” *Neurocase*, vol. 8, no. 5, pp. 345–354, 2002.
- [203] C. J. Price, M. L. Gorno-Tempini, K. S. Graham, N. Biggio, A. Mechelli, K. Patterson, and U. Noppeney, “Normal and pathological reading: converging data from lesion and imaging studies,” *Neuroimage*, vol. 20, pp. S30–S41, 2003.
- [204] E. Ripamonti, S. Aggujaro, F. Molteni, G. Zonca, M. Frustaci, and C. Luzzatti, “The anatomical foundations of acquired reading disorders: a neuropsychological verification of the dual-route model of reading,” *Brain and language*, vol. 134, pp. 44–67, 2014.
- [205] P. E. Turkeltaub, G. F. Eden, K. M. Jones, and T. A. Zeffiro, “Meta-analysis of the functional neuroanatomy of single-word reading: method and validation,” *Neuroimage*, vol. 16, no. 3, pp. 765–780, 2002.
- [206] J. Mani, B. Diehl, Z. Piao *et al.*, “(2008),” *Evidence for a basal temporal visual language center Cortical stimulation producing pure alexia. Neurology*, vol. 71, no. 20, pp. 1621–1627.
- [207] G. Jobard, F. Crivello, and N. Tzourio-Mazoyer, “Evaluation of the dual route theory of reading: a metanalysis of 35 neuroimaging studies,” *Neuroimage*, vol. 20, no. 2, pp. 693–712, 2003.
- [208] K. Nakamura, W. J. Kuo, F. Pegado, L. Cohen, O. J. Tzeng, and S. Dehaene, “Universal brain systems for recognizing word shapes and handwriting gestures

-
- during reading,” *Proceedings of the National Academy of Sciences*, vol. 109, no. 50, pp. 20 762–20 767, 2012.
- [209] A. Mechelli, M. L. Gorno-Tempini, and C. J. Price, “Neuroimaging studies of word and pseudoword reading: consistencies, inconsistencies, and limitations,” *Journal of cognitive neuroscience*, vol. 15, no. 2, pp. 260–271, 2003.
- [210] B. Rapp and O. Dufor, “The neurotopography of written word production: an fmri investigation of the distribution of sensitivity to length and frequency,” *Journal of cognitive neuroscience*, vol. 23, no. 12, pp. 4067–4081, 2011.
- [211] B. Rapp, S. Fischer-Baum, and M. Miozzo, “Modality and morphology: What we write may not be what we say,” *Psychological science*, vol. 26, no. 6, pp. 892–902, 2015.
- [212] R. Starrfelt and T. Shallice, *What’s in a name? The characterization of pure alexia*, 2014.
- [213] J. Purcell, P. E. Turkeltaub, G. F. Eden, and B. Rapp, “Examining the central and peripheral processes of written word production through meta-analysis,” *Frontiers in psychology*, vol. 2, p. 239, 2011.
- [214] S. Planton, M. Jucla, F. E. Roux, and J. F. Démonet, “The “handwriting brain”: a meta-analysis of neuroimaging studies of motor versus orthographic processes,” *Cortex*, vol. 49, no. 10, pp. 2772–2787, 2013.
- [215] K. Tsapkini and B. Rapp, “The orthography-specific functions of the left fusiform gyrus: Evidence of modality and category specificity,” *Cortex*, vol. 46, no. 2, pp. 185–205, 2010.
- [216] L. E. Philipose, R. F. Gottesman, M. Newhart, J. T. Kleinman, E. H. Herskovits, M. A. Pawlak, E. B. Marsh, C. Davis, J. Heidler-Gary, and A. E. Hillis, “Neural regions essential for reading and spelling of words and pseudowords,” *Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society*, vol. 62, no. 5, pp. 481–492, 2007.

-
- [217] J. V. Baldo, N. Kacinik, C. Ludy, S. Paulraj, A. Moncrief, V. Piai, B. Curran, T. Herron, N. F. Dronkers *et al.*, “Voxel-based lesion analysis of brain regions underlying reading and writing,” *Neuropsychologia*, vol. 115, pp. 51–59, 2018.
- [218] B. Rapp and K. Lipka, “The literate brain: the relationship between spelling and reading,” *Journal of Cognitive Neuroscience*, vol. 23, no. 5, pp. 1180–1197, 2011.
- [219] J. J. Purcell, E. M. Napoliello, and G. F. Eden, “A combined fmri study of typed spelling and reading,” *Neuroimage*, vol. 55, no. 2, pp. 750–762, 2011.
- [220] A. G. Huth, S. Nishimoto, A. T. Vu, and J. L. Gallant, “A continuous semantic space describes the representation of thousands of object and action categories across the human brain,” *Neuron*, vol. 76, no. 6, pp. 1210–1224, 2012.
- [221] T. A. Carlson, R. A. Simmons, N. Kriegeskorte, and L. R. Slevc, “The emergence of semantic meaning in the ventral temporal pathway,” *Journal of cognitive neuroscience*, vol. 26, no. 1, pp. 120–131, 2014.
- [222] A. J. Anderson, E. Bruni, U. Bordignon, M. Poesio, and M. Baroni, “Of words, eyes and brains: Correlating image-based distributional semantic models with neural representations of concepts,” *In EMNLP*, pp. 1960–1970, 2013.
- [223] A. Fyshe, P. P. Talukdar, B. Murphy, and T. M. Mitchell, “Interpretable semantic vectors from a joint model of brain-and text-based meaning,” *In Proceedings of the conference*, vol. 2014, 2014.
- [224] Y. P. Ruan, Z. H. Ling, and Y. . Hu, “November). exploring semantic representation in brain activity using word embeddings,” in *Proceedings of the Conference on Empirical Methods in Natural Language Processing*, 2016, pp. 669–679.
- [225] T. M. Mitchell, S. V. Shinkareva, A. Carlson, K.-M. Chang, and V. L. Malave, “Predicting human brain activity associated with the meanings of nouns,” *Department of Psychology, Paper (*, vol. 225, 2008.

-
- [226] K. min Kevin Chang, T. Mitchell, and M. A. Just, “Quantitative modeling of the neural representation of objects: How semantic feature norms can account for fmri activation,” *NeuroImage, Paper*(, vol. 56, pp. 716–727, 2011.
- [227] M. A. Just, V. L. Cherkassky, S. Aryal, and T. M. Mitchell, “A neurosemantic theory of concrete noun representation based on the underlying brain codes,” *Department of Psychology, Paper* (, vol. 319, 2010.
- [228] M. van Gerven and I. Simanova, “Concept classification with Bayesian multi-task learning,” *NAACL HLT*, vol. 2010, pp. 10–17, 2010.
- [229] B. Murphy, P. Talukdar, and T. Mitchell, “Selecting corpus-semantic models for neurolinguistic decoding,” in *First Joint Conference on Lexical and Computational Semantics*, 2012, pp. 114–123.
- [230] P. Pandey, B. K. Jha, and N. . Sinha, “January),” *Analyzing the Cognitive States Using fMRI Data*, pp. 35–41.
- [231] H. I. Sair, S. Agarwal, and J. J. Pillai, “Application of resting-state functional mr imaging to presurgical mapping: language mapping,” *Neuroimaging Clinics*, vol. 27, no. 4, pp. 635–644, 2017.
- [232] E. Kaan and S. TY., “The brain circuitry of syntactic comprehension,” *Trends Cogn Sci*, vol. 6, p. 8, 2002.
- [233] A. Fiveash, W. F. Thompson, N. A. Badcock, and G. McArthur, “Syntactic processing in music and language: Effects of interrupting auditory streams with alternating timbres,” *International Journal of Psychophysiology*, vol. 129, pp. 31–40, 2018.
- [234] S. Feng, R. Qi, J. Yang, A. Yu, and Y. Yang, “Neural correlates for nouns and verbs in phrases during syntactic and semantic processing: An fmri study,” *Journal of Neurolinguistics*, vol. 53, p. 10086, 2020.

-
- [235] L. Meyer and A. D. Friederici, “Neural systems underlying the processing of complex sentences,” in *Neurobiology of language*, 2016, pp. 597–606.
- [236] C. Rogalsky, “The role of the anterior temporal lobe in sentence processing,” in *Neurobiology of Language*, 2016, pp. 587–595.
- [237] S. Yokoyama, H. Maki, Y. Hashimoto, M. Toma, and R. Kawashima, “Mechanism of case processing in the brain: an fmri study,” *PLoS One*, vol. 7, p. 7, 2012.
- [238] L. Haegeman, – 1995 *The syntax of negation*. Cambridge University Press: Cambridge.
- [239] R. Mayo, Y. Schul, and E. Burnstein, “I am not guilty,” vs “I am innocent”: Successful negation may depend on the schema used for its encoding, vol. 40, no. 4, pp. 433–449, 2004.
- [240] R. A. Zwaan, “The experiential view of language comprehension: How is negation represented,” *Higher level language processes in the brain: Inference and comprehension processes*, vol. 255, 2012.
- [241] P. A. Carpenter, M. A. Just, T. A. Keller, W. F. Eddy, and K. R. Thulborn, “Time course of fmri-activation in language and spatial networks during sentence comprehension,” *Neuroimage*, vol. 10, no. 2, pp. 216–224, 1999.
- [242] M. Hasegawa, P. A. Carpenter, and M. A. Just, “An fmri study of bilingual sentence comprehension and workload,” *Neuroimage*, vol. 15, no. 3, pp. 647–660, 2002.
- [243] M. Tettamanti, R. Manenti, D. Rosa, P. A., A. Falini, D. Perani, S. F. Cappa, and A. Moro, “Negation in the brain: Modulating action representations,” *Neuroimage*, vol. 43, no. 2, pp. 358–367, 2008.

-
- [244] K. R. Christensen, “Negative and affirmative sentences increase activation in different areas in the brain,” *Journal of Neurolinguistics*, vol. 22, no. 1, pp. 1–17, 2009.
- [245] J. Bahlmann, J. L. Mueller, M. Makuuchi, and A. D. Friederici, “Perisylvian functional connectivity during processing of sentential negation,” *Frontiers in Psychology*, vol. 2, p. 104, 2011.
- [246] U. Kumar, P. Padakannaya, R. K. Mishra, and C. L. Khetrapal, “Distinctive neural signatures for negative sentences in hindi: an fmri study,” *Brain imaging and behavior*, vol. 7, no. 2, pp. 91–101, 2013.
- [247] [Online]. Available: <http://www.cs.cmu.edu/afs/cs.cmu.edu/project/theo-81/www/>
- [248] K. O. Gupta and P. N. Chatur, “Gradient self-weighting linear collaborative discriminant regression classification for human cognitive states classification,” *Machine Vision and Applications*, vol. 31, pp. 1–16, 2020.
- [249] Z. Wen, T. Yu, Z. Yu, and Y. Li, “Grouped sparse Bayesian learning for voxel selection in multivoxel pattern analysis of fmri data,” *NeuroImage*, vol. 184, pp. 417–430, 2019.
- [250] N. K. Kasabov, “Deep learning and deep knowledge representation of fmri data,” in *Time-Space, Spiking Neural Networks and Brain-Inspired Artificial Intelligence . . . , Heidelberg*. Berlin: Springer, 2019, pp. 361–395.
- [251] X. Wang and T. Mitchell, “Detecting cognitive states using machine learning,” 2002, iterim working paperWhiteld ML, Sherlock G, Saldanha A, Murray JI, Ball CA, Alexander KE, Matese JC, Perou CM, Hurt MM, Brown PO, Botstein.
- [252] W. Eddy, M. Fitzgerald, C. Genovese, N. Lazar, A. Mockus, and J. Welling, “The challenge of functional magnetic resonance imaging,” *Journal of Computational and Graphical Statistics*, vol. 8, no. 3, pp. 545–558, 1999.

-
- [253] B. Azhagusundari and A. S. Thanamani, "Feature selection based on information gain," *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*, vol. 2, no. 2, pp. 18–21, 2013.
- [254] C. Lee and G. G. Lee, "Information gain and divergence-based feature selection for machine learning-based text categorization," *Information processing management*, vol. 42, no. 1, pp. 155–165, 2006.
- [255] F. Pernkopf, "Bayesian network classifiers versus selective k-nn classifier," *Pattern recognition*, vol. 38, no. 1, pp. 1–10, 2005.
- [256] M. Dash and H. Liu, "Feature selection for classification," *Intelligent data analysis*, vol. 1, no. 3, pp. 131–156, 1997. [Online]. Available: [https://doi.org/10.1016/s1088-467x\(97\)00008-5](https://doi.org/10.1016/s1088-467x(97)00008-5)
- [257] M. A. Hall, *Correlation-based feature subset selection for machine learning*. Thesis submitted in partial fulfillment of the requirements of the degree of Doctor of Philosophy at the University of Waikato, 1998.
- [258] I. Tsamardinos, G. Borboudakis, P. Katsogridakis, P. Pratikakis, and V. Christophides, "A greedy feature selection algorithm for big data of high dimensionality," *Machine learning*, vol. 108, no. 2, pp. 149–202, 2019.
- [259] I. Saini, D. Singh, and A. Khosla, "Qrs detection using k-nearest neighbor algorithm (knn) and evaluation on standard ecg databases," *Journal of advanced research*, vol. 4, no. 4, pp. 331–344, 2013.
- [260] D. W. Ruck, S. K. Rogers, M. Kabrisky, M. E. Oxley, and B. W. Suter, "The multilayer perceptron as an approximation to a Bayes optimal discriminant function," *IEEE Transactions on Neural Networks*, vol. 1, no. 4, pp. 296–298, 1990. [Online]. Available: <https://doi.org/10.1109/72.80266>
- [261] L. Pyllk"anen, "The neural basis of combinatory syntax and semantics," *Science*, vol. 366, no. 6461, pp. 62–66, 2019.

-
- [262] S. Koelsch, “Neural substrates of processing syntax and semantics in music,” *Music that works*, pp. 143–153, 2009.
- [263] L. Wehbe, B. Murphy, P. Talukdar, A. Fyshe, A. Ramdas, and T. Mitchell, “Simultaneously uncovering the patterns of brain regions involved in different story reading subprocesses,” *PloS one*, vol. 9, p. 11, 2014.
- [264] J. Bingel, M. Barrett, and A. . Søgaard, “August),” *Extracting token-level signals of syntactic processing from fMRI-with an application to PoS induction*, vol. 54, pp. 747–755.
- [265] J. Shuster, “On the inverse Gaussian distribution function,” *Journal of the American Statistical Association*, vol. 63, no. 324, pp. 1514–1516, 1968.
- [266] K. Cooray, “Generalized gumbel distribution,” *Journal of Applied Statistics*, vol. 37, no. 1, pp. 171–179, 2010.
- [267] B. Srinivasa-Desikan, *Natural Language Processing and Computational Linguistics: A practical guide to text analysis with Python, Gensim, spaCy, and Keras*. Packt Publishing Ltd, 2018.
- [268] F. Wang, *Emotional Psychology*. Beijing: Health Press, 2018.
- [269] A. S. Cowen and D. Keltner, “Self-report captures 27 distinct categories of emotion bridged by continuous gradients,” *Proc Natl Acad Sci USA*, vol. 114, no. 38, pp. E7900–E7909, 2017.
- [270] A. Ohman, “The role of the amygdala in human fear: automatic detection of threat,” *Psychoneuroendocrinology*, vol. 30, pp. 953–958, 2005.
- [271] B. Wicker, C. Keysers, J. Plailly, J. P. Royet, V. Gallese, G. Rizzolatti *et al.*, “(2003),” *Both of us disgusted in My insula: the common neural basis of seeing and feeling disgust*, vol. 40, pp. 655–664.

-
- [272] F. C. Murphy, I. Nimmo-Smith, and A. D. Lawrence, "Functional neuroanatomy of emotions: a meta-analysis," *Cognit. Affect*, vol. 3, pp. 207–233, 2003.
- [273] K. Lindquist, T. Wager, H. Kober, E. Bliss-Moreau, and L. Barrett, "The brain basis of emotion: a meta-analytic review," *Behav. Brain Sci*, vol. 35, pp. 121–143, 2012.
- [274] E. Clark-Polner, T. D. Johnson, and L. F. Barrett, "Multivoxel pattern analysis does not provide evidence to support the existence of basic emotions," *Cereb. Cortex*, vol. 27, pp. 1944–1948, 2017.
- [275] R. Horlings, D. Datcu, and L. J. . Rothkrantz, "(June). emotion recognition using brain activity," in *Proceedings of the 9th international conference on computer systems and technologies and workshop for PhD students in computing* (pp. II-1.
- [276] E. M. Fraedrich, K. Lakatos, and G. Spangler, "Brain activity during emotion perception: the role of attachment representation," *Attachment Human Development*, vol. 12, no. 3, pp. 231–248, 2010.
- [277] Behroozi, M., & Daliri, M. R. (2015). RDLPFC area of the brain encodes sentence polarity: a study using fMRI. *Brain imaging and behavior*, 9(2), 178-189
- [278] Dobarjeh, M. G., Capecchi, E., & Kasabov, N. (2014, December). Classification and segmentation of fMRI spatio-temporal brain data with a NeuCube evolving spiking neural network model. In *2014 IEEE Symposium on Evolving and Autonomous Learning Systems (EALS)* (pp. 73-80). IEEE.
- [279] Kasabov, N. K. (2014). NeuCube: A spiking neural network architecture for mapping, learning and understanding of spatio-temporal brain data. *Neural Networks*, 52, 62-76.
- [280] Ranjan A., Singh A.K., Thakur A.K., Mishra R.B., Singh V.P. (2021) Sentential Negation Identification of FMRI Data Using k-NN. *Machine Intelligence and Smart Systems. Algorithms for Intelligent Systems*. Springer, Singapore.https://doi.org/10.1007/978-981-33-4893-6_54

- [281] Ranjan, A., Singh, V.P., Singh, A.K., Thakur, A.K., Mishra, R.B. (2020). Classifying brain state in sentence polarity exposure: An ANN model for fMRI data. *Revue d'Intelligence Artificielle*, Vol. 34, No. 3, pp. 361-368. <https://doi.org/10.18280/ria.340315>
- [282] Ranjan, A., Singh, V. P., Mishra, R. B., Thakur, A. K., & Singh, A. K. (2021). Sentence polarity detection using stepwise greedy correlation based feature selection and random forests: An fMRI study. *Journal of Neurolinguistics*, 59, 100985.

Appendix A

LIST OF PUBLICATIONS

The work mentioned in this thesis pertains to the following peer-reviewed papers:

SCI INDEXED JOURNAL

1. **Ranjan, A.**, Singh, V. P., Mishra, R. B., Thakur, A. K., Singh, A. K. (2021). Sentence polarity detection using stepwise greedy correlation-based feature selection and random forests: An fMRI study. *Journal of Neurolinguistics*, 59, 100985.

SCOPUS INDEXED JOURNAL

2. **Ranjan, A.**, Singh, V.P., Singh, A.K., Thakur, A.K., Mishra, R.B. (2020). Classifying brain state in sentence polarity exposure: An ANN model for fMRI data. *Revue d'Intelligence Artificielle*, Vol. 34, No. 3, pp. 361-368.

SCOPUS INDEXED CONFERENCES

3. **Ranjan, A.**, Mishra, R. B., Singh, A. K. (2017, March). Intelligent computing methods in language processing by brain. In the International Conference on Advanced Informatics for Computing Research (pp. 31-41). Springer, Singapore
4. **Ranjan A.**, Singh A.K., Thakur A.K., Mishra R.B., Singh V.P. (2021) Sentential Negation Identification of FMRI Data Using k-NN. In: Agrawal S., Kumar Gupta K., H. Chan J., Agrawal J., Gupta M. (eds) Machine Intelligence and Smart Systems. Algorithms for Intelligent Systems. Springer, Singapore