

Academic year 2023-24 (תשפ"ד)

Course title (English): The frontal lobe in language processing

Course title (Hebrew): האונה הפרונטאלית בעיבוד שפה

Course number: 0-133-2-0177

Course slot (semester/s, weekday/s, hours): yearly, tuesday, 10-12

Lecturer: Dr Dorit Ben Shalom

Lecturer's conference hour and contact details: wednesday 12, by appointment

Course description & objectives: The role of the frontal lobe in the construction of phonological, syntactic, and semantic hierarchical linguistic structures: the constructions of syllables and the prosodic hierarchy in BA 44, the construction of syntactic trees in BA 45, and the construction of semantic trees in BA 47. This course is part of a series of courses about the contribution of the temporal lobe to linguistic whole items, the parietal lobe to the extraction of linguistic features, and the frontal lobe to the construction of linguistic hierarchical structures.

Course requirements:

Attendance:	% 0	required
Quizzes:	% 20	
Final paper:	% 80	

You have to pass both quizzes in order to pass the course

Topics & bibliography:

1. Rong, F., Isenberg, A. L., Sun, E., & Hickok, G. (2018). The neuroanatomy of speech sequencing at the syllable level. *PloS one*, 13(10), e0196381.
2. Kuhn, S., Brass, M., & Gallinat J. (2013). Imitation and speech: commonalities within Broca's area. *Brain Structure & Function*, 218, 1419-27.
3. Horwitz, B., Amunts, K., Bhattacharyya, R., Patkin, D., Jeffries, K., Zilles, K., & Braun A. R. (2003). Activation of Broca's area during the production of spoken and signed language: a combined cytoarchitectonic mapping and PET analysis. *Neuropsychologia*, 41, 1868-76.

4. Lappe, C., Steinsträter, O., & Pantev, C. (2013). A beamformer analysis of MEG data reveals frontal generators of the musically elicited mismatch negativity. *PLoS one*, 8(4), e61296.
5. Pattamadilok, C., Dehaene, S., & Pallier C. (2016). A role for left inferior frontal and posterior superior temporal cortex in extracting a syntactic tree from a sentence. *Cortex*, 75, 44-55.
6. Segaert, K., Menenti, L., Weber, K., Petersson, K. M., & Hagoort, P. (2012). Shared syntax in language production and language comprehension--an fMRI study. *Cerebral cortex (New York, N.Y. : 1991)*, 22(7), 1662–1670.
7. Allen, J. S., Emmorey, K., Bruss, J., & Damasio H. (2013). Neuroanatomical differences in visual, motor, and language cortices between congenitally deaf signers, hearing signers, and hearing non-signers. *Frontiers in Neuroanatomy*, 2;7:26.
8. Jiang, L., Zhang, R., Tao, L., Zhang, Y., Zhou, Y., & Cai, Q. (2023). Neural mechanisms of musical structure and tonality, and the effect of musicianship. *Frontiers in psychology*, 14, 1092051.
9. Kemmerer, D., Tranel, D., & Zdzanzyk C. (2009). Knowledge of the semantic constraints on adjective order can be selectively impaired. *Journal of Neurolinguistics*, 22, 91-108.
10. Butorina, A. V., Pavlova, A. A., Nikolaeva, A. Y., Prokofyev, A. O., Bondarev, D. P., & Stroganova, T. A. (2017). Simultaneous Processing of Noun Cue and to-be-Produced Verb in Verb Generation Task: Electromagnetic Evidence. *Frontiers in human neuroscience*, 11, 279.
11. Stroh, A. L., Rösler, F., Dormal, G., Salden, U., Skotara, N., Hänel-Faulhaber, B., & Röder, B. (2019). Neural correlates of semantic and syntactic processing in German Sign Language. *NeuroImage*, 200, 231–241.
12. Mandell, J., Schulze, K., & Schlaug, G. (2007). Congenital amusia: an auditory-motor feedback disorder? *Restorative Neurology and Neuroscience*, 25, 323-34.