

# Tali Bitan - CV

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## Education

- 1992 BA (Magna cum Laude), Department of Behavioral Sciences, Ben Gurion University, Be'er Sheva
- 1996 MA (Summa cum Laude, Neuropsychology, Department of Psychology, Hebrew University of Jerusalem
- 2004 Ph.D, Brain Research Center, Department of Neurobiology, Weizmann Institute of Science, Rehovot
- 2003-2006 Post-doctoral fellow, Department of Communication Sciences and Disorders, Northwestern University, IL USA

## Professional Diplomas

- 1997 - Registered Psychologist, Israel Ministry of Health
- 2003 - Registered specialist in Rehabilitation Psychology, Israel Ministry of Health

## Academic Ranks in Institutes of Higher Education

- 2019 - present Associate professor, Psychology Department, University of Haifa
- 2015 - present Associate professor, Department of Speech Language Pathology, University of Toronto
- 2015 – present Member of the Institutie for
- 2015 - 2019 Senior Lecturer (tenured), Psychology Department, University of Haifa
- 2014 - 2015 Visiting Scientist, Rotman Research Institute, Baycrest, Toronto
- 2013 - 2015 Visiting Professor, Department of Speech Language Pathology, University of Toronto
- 2011 - 2015 Senior Lecturer (tenured), Department of Communication Sciences and Disorders, University of Haifa
- 2006-2011 Lecturer, Department of Communication Sciences and Disorders, University of Haifa
- 2003-2006 Post doctoral fellow, James Booth's lab, Dept. of Communication Sciences and Disorders, Northwestern University, IL USA

## **Clinical Experience**

1995-2003      Neuropsychologist, The neuropsychological unit for treatment and rehabilitation, Tel Aviv. Internship in Rehabilitation Psychology. Cognitive, emotional, and vocational evaluation and interventions of adults and children, following traumatic brain injury, neurological diseases and developmental deficits

## **Membership in Academic Institutions**

2017 - present Member in the Integrated Brain and Behavior Research Center (IBBR), University of Haifa  
2015 - present Member of the Institute for Information Processing and Decision Making (IIPDM), University of Haifa  
2015 - present Member and head of the Community committee of the University of Haifa Neuroimaging Forum (UHNF)

## **Offices in Academic Administration**

2017 - present Head of the MA committee, Psychology Department, University of Haifa  
2016 - present Head of the clinical neuropsychology graduate program, Psychology Department, University of Haifa  
2015 - present Member of committee for promoting excellence of Arab students, Psychology Department, University of Haifa  
2016 - 2017 Member of BA committee, Psychology Department, University of Haifa  
2015 - 2016 Member of ethics committee, Psychology Department, University of Haifa  
2008 - 2013 Head of committee for student affairs, Department of Communication Sciences and Disorders, University of Haifa  
2008 - 2013 Member of admittance committee, Department of Communication Sciences and Disorders, University of Haifa

## **Research Grants**

2019-2024      (Collaborator). With R. Helms-Park (PI), A.K. Namasivayan (CI), M.C. Petrescu (CI) M. Molnar (CI). Social Studies & Humanities Research Council of Canada. Trilingualism in French immersion: predictors of reading success and reading difficulty in a third language.  
2019              (Co-PI) with Eviatar Z. and Peleg O. ISF workshop Workshop on Literacy and Writing Systems: Cultural, Neuropsychological & Psycholinguistic Perspectives. 70,000NIS  
2018-2020      (Co-PI) with Booth J.R. and Dronjic V.) BSF-BSF joint program. The neural mechanisms of language transfer in morphological learning. \$200,000

- 2016-2020 (PI) Israeli Science Foundation (ISF).  
The effect of sleep on the consolidation of a novel language in adults with Dyslexia (1052/16). \$200,000
- 2011 -2015 (co-PI) with Katzir T. (co-PI). Israeli Science Foundation (ISF).  
Compensatory morphological processing in brains of dyslexic adults. \$150,000
- 2011-2013 (PI). Israeli Foundation Trustees (IFT). Developmental changes in the brain involved in morphological and phonological processing during reading of Hebrew words. \$20,000
- 2011-2013 (PI). The National Institute for Psychobiology in Israel. Effects of age and sleep on learning regular and irregular morphological rules. \$50,000
- 2009-2011 (PI) with Banai K. Attias J and Shemesh R. (CIs). Ministry of Health feasibility studies. Brain plasticity induced by auditory training and fitting of hearing aids in hearing impaired individuals. 25,000 NIS.
- 2008 - 2011 (CI) with Eviatar Z & Peleg O. (PIs). Israeli Science Foundation (ISF). Inter-hemispheric integration during reading comprehension: an experimental, computational, and imaging stud: \$120,000.
- 2008 -2011 (Co-PI) with Ullman MT (co-PI). Binational Science Foundation (BSF) start-up program. The role of procedural and declarative memory systems in learning morphological inflections in a novel language: an effective connectivity fMRI study. \$60,000
- 2007-2009 (PI). Rich Foundation grant for returning scientists. Acquisition of linguistic skills, \$60,000

## Teaching

### *Psychology Department, University of Haifa*

- 2015 - Neuropsychological assessment, MA
- 2015 - Brain and Language, MA
- 2015 - Rehabilitation psychology practicum, MA
- 2016 - Introduction to Neuropsychology, BA

### *University of Toronto*

- 2015 - 2015 Literacy and reading disorders, BA, University of Toronto, St. George
- 2014 - 2014 Psychology of Language, BA, University of Toronto, Mississauga

### *Department of communication Sciences and Disorders, University of Haifa*

- 2012 - 2013 Brain plasticity in development and rehabilitation, M.A.
- 2010 - 2013 Brain and Language, M.A.
- 2006 - 2013 Introduction to Cognitive Neuroscience, B.A.
- 2006 - 2013 Introduction to Neuroanatomy B.A.
- 2006 - 2013 Research Seminar B.A.
- 2007 - 2013 Research methods & scientific writing B.A.
- 2006 - 2011 Neuropsychology and assessment, B.A.
- 2006 - 2012 Cognitive rehabilitation, B.A.

## **Supervision of Graduate Students**

### **Post doc**

Dr. Upasana Nathaniel, Transfer from L1 on L2 learning. Recipient of Vatat postdoc scholarship

### **Ph.D.**

Tammy Moshon, Effects of variability in inhibitory control training in patients with TBI.

Direct PhD program in Clinical Neuropsychology. Co-Advisor, Dr. Noam Weinbach.

Neta Weitzman, Consolidation of Working memory training in patients with TBI. Direct PhD program in Clinical Neuropsychology. Recipient of President scholarship.

Tammar Truzmann, Treatment related changes in brain connectivity in post-stroke patients with aphasia. Direct PhD program Communication Sciences and Disorders. Co-Advisor: Dr. Michal Biran. Recipient of President scholarship.

Daphna Ben-Zion, Effects of Sleep on learning and consolidation of morphological inflection in adults with Dyslexia. Direct PhD program, Dept. of Learning Disabilities. Recipient of President scholarship. Co-Advisor: Dr. Anat Prior.

Hanin Karawani, Auditory training in hearing impaired individuals. Direct PhD program. Co-Advisor: Dr. Karen Banai, Prof. Joseph Attias, Dept. of Commun. Sci. & Disorders. Completed 2017.

Yael Weiss, Morphology and orthographic transparency in typical & dyslexic Hebrew readers: fMRI study. Direct PhD program. Recipient of President scholarship for direct PhD. Completed 2015.

Completed 2015. Co-Advisor Prof. Tami Katzir, Dept. of Learning Disabilities.

Michael Nevat, Procedural and declarative memory in learning morphological rules. Completed 2013. Co-advisor: Prof. Zohar Eviatar, Dept. of Psychology. Completed 2013.

### **M.A.**

Anna Markovitch, Interpersonal interaction in language learning.

Co-advisor: Prof. Simone Shamay-Tsoory

Nofar Mizrahi Inter-hemispheric connectivity in ambiguity resolution.

Co-Advisor: Prof. Zohar Eviatar

Stav Edelstein, The effect of L1 on learning morphology in L2.

Co-advisor: Dr. Bracha Nir

Bechor Baruch, Reading acquisition in Hebrew speaking children.

Completed 2018

Qamar Daher, Effects of sleep on learning an artificial language in adults.

Completed 2015.

Karin Levenberg, Effects of sleep on learning an artificial language in children.

Completed 2015. Co-Advisor: Zohar Eviatar, Dept. of Psychology

Laurice Haddad, Morphology and orthographic transparency in children.

Completed 2013.

Jasmeen Mansour, Effects of practice variability on learning to read.

Completed 2013.

Adi Leib, Inter-hemispheric connectivity in homograph reading.  
Completed 2012. Co-advisor: Zohar Eviatar, Dept. of Psychology  
Asaf Kaftory, Hemispheric asymmetry in homograph reading.  
Completed: 2011. Co-Advisor: Zohar Eviatar, Dept. of Psychology  
Einav Yehezkel, Effects of morphology and diacritics of reading during development,  
Completed: 2010. Co-Advisor: Tami Katzir, Dept. of Learning Disabilities  
Adi Morag, Effects of word length and diacritic on reading in children.  
Completed: 2010. Co-Advisor: Tami Katzir, Dept. of Learning Disabilities  
Adi Lifshitz, Effective connectivity in the auditory rhyming task in children.  
Completed: 2009. Co-Advisor: Zvia Breznitz, Dept. of Learning Disabilities  
Osnat Mussel, Effective connectivity of priming processes in visual rhyming.  
Completed: 2009. Co-Advisor: Asaf Gilboa, Dept. of Psychology

### **Training of other graduate student**

Fiona Hobler, Department of Speech-Language Pathology, University of Toronto.  
Motor learning in children who stutter. Advisor: Luc De Nil.  
Ron Chu, Department of Psychology, University of Toronto, and Rotman Institute,  
Toronto. Inter-hemispheric connectivity in post-stroke patients with Aphasia.  
Advisor: Jed Meltzer, Rotman Research Institute  
Tijana Simic, Department of Speech-Language Pathology, University of Toronto. Effects  
of Executive control processes on Treatment outcomes in Aphasia. Advisor:  
Elizabeth Rochon, Dept. of Speech Language Pathology, University of Toronto.  
Talya Sadeh, Department of Psychology, Tel-Aviv University. Effective connectivity  
analysis of recall and recognition. Advisor: Yonatan Goshen-Gottstein, Department  
of Psychology, Tel Aviv University. Completed; 2013.

## **Publications**

**Bitan, T.**, Weiss, Y., Katzir, T. and Truzman T. Morphological decomposition  
compensates for imperfections in phonological decoding. Neural evidence from  
typical and dyslexic readers of an opaque orthography. (in press) *Cortex* (34 pages).

Ben-Zion D., Nevat, M., Prior, A. and **Bitan, T.** (2019). Prior knowledge predicts  
consolidation time in second language learning. *Frontiers in Psychology*, 10(2312).  
<https://doi.org/10.3389/fpsyg.2019.02312>

Simic T., **Bitan T.**, Turner G., Chambers C., Leonard C., Rochon E. (2019). The role of  
executive control in post-stroke aphasia treatment. *Neuropsychological  
Rehabilitation*, 1-40.

Chu, R. Meltzer J. and **Bitan, T.** (2018). Interhemispheric interactions during sentence  
comprehension in patients with aphasia (2018). *Cortex*. 109, 74-91.

- Nevat, M., Ullman, M.T., Eviatar, Z., and **Bitan, T.** (2018). The role of distributional factors in learning and generalizing affixal inflection: An artificial language study. *Language, Cognition and Neuroscience*, 1-21. doi: 10.1080/23273798.2018.1465187
- Marcotte, K., Laird, L., **Bitan, T.**, Meltzer, J.A., Graham, S.J., Leonard, C. & Rochon, E. (2018). Therapy-induced neuroplasticity in chronic aphasia after phonological component analysis: A matter of intensity. *Frontiers in Neurology*, section "Stroke". 10.3389/fneur.2018.00225
- Bitan, T.**, Simic, T., Saverino, T., Jones, C., Glazer, J., Collela, B., Wiseman-Hakes, C., Green, R. and Rochon, E. (2018). Changes in resting state connectivity following melody-based therapy in a patient with aphasia. *Neural Plasticity*, (Vol. 2018), Article ID 6214095, 13 pages.
- Haddad, L., Katzir, T., Weiss, Y. and **Bitan, T.** (2018). Orthographic transparency enhances morphological segmentation in children reading Hebrew words. *Frontiers in Psychology, Language Sciences*. 8(2369)
- Adwan-Mansour, J. and **Bitan, T.** (2017). The effect of stimulus variability on learning and generalization of reading in a novel script. *Journal of Speech Language and Hearing Research*. 60(10): p. 2840-2851.
- Bitan, T.** Kaftory, A., Leib, A., Eviatar, Z. and Peleg, O. (2017). Phonological ambiguity modulates resolution of semantic ambiguity during reading: An fMRI study. *Neuropsychology*. 31(7), 759-777.
- Nevat, M., Ullman, M., Eviatar, Z. and **Bitan, T.** (2017). The neural bases of the learning and generalization of morphological inflection. *Neuropsychologia*, 98, 139-155.
- Weiss, Y. Katzir, T. and **Bitan, T.** When transparency is opaque: Effects of diacritic marks and vowel letters on dyslexic Hebrew readers (2016). *Cortex*. 83, 145-159.
- Karawani, H., **Bitan, T.**, Attias, J., & Banai, K. (2016). Auditory perceptual learning in adults with and without age-related hearing loss. *Frontiers in Psychology*, 6. doi: 10.3389/fpsyg.2015.02066
- Dronjic V. and **Bitan T.** (2016). Reading Brain and Cognition. In: X. Chen, V. Dronjic and R. Helms-Park (Eds.). *Reading in a second language: Cognitive and psycholinguistic issues*. Routledge.
- Weiss, Y. Katzir, T. and **Bitan, T.** (2015). Many ways to read your vowels - neural processing of diacritics and vowel letters in Hebrew. *NeuroImage*, 121, 10-19 .

- Weiss, Y., Katzir, T. and **Bitan, T.** (2015). The effects of orthographic transparency and familiarity on reading Hebrew words in adults with and without dyslexia. *Annals of Dyslexia*, 65(2), 84-102.
- Bitan T.** and Booth J.R. (2012) Offline improvement in learning to read a novel orthography depends on direct letter instruction. *Cognitive Science*, 36(5).
- Sadeh, T., Maril, A. **Bitan, T.** and Goshen-Gottstein, Y. (2012). Putting Humpty Together and Pulling Him Apart: Accessing and Unbinding the Hippocampal Item-Context Engram. *NeuroImage*, 60, 808-817. (selected by the Member of the Faculty of 1000 (F1000), as one of the top 2% of published articles in biology and medicine. <http://f1000.com>)
- Liu L., Vira,A., Friedman, E.B., Minus, J. Bolger, D.J. **Bitan, T.** Booth, J.R.. (2010) Children with reading disability show brain differences in effective connectivity for reading, but not listening comprehension. *PLoS One* 5(10). e13492. 1-11.
- Cao, F., Khalid, K., Zaveri, R., Bolger, D. J., **Bitan, T.**, & Booth, J. R. (2010). Neural correlates of priming effects in children during spoken word processing with orthographic demands. *Brain and Language*, 114(2), 80-89.
- Desroches, A.S., Cone, N.E., Bolger, D.J., **Bitan, T.**, Burman, D.D., & Booth, J.R. (2010). Children with reading difficulties show differences in brain regions associated with orthographic processing during spoken language processing. *Brain Research* 1356, 73-84.
- Bitan, T.**, Lifshits A., Breznitz Z., and Booth, J.R. (2010) Bidirectional connectivity between hemispheres occur at multiple levels in language processing, but depends on sex. *Journal of Neuroscience*, 30(35):11576 –11585
- Bitan, T.**, Cheon, J., Lu, D., Burman, D.D., and Booth, J.R. (2009) Developmental increase in top-down and bottom-up processing in a phonological task: An effective connectivity, fMRI study. *Journal of Cognitive Neuroscience* 21, 6, 1-11.
- Cao, F., **Bitan, T.**, Booth, J.R., (2008) Effective brain connectivity in children with reading difficulties during phonological processing. *Brain and Language*, 107, 91-101.
- Cone, N. E. Burman, D.D. **Bitan T.** and Booth J.R. (2008) Neural correlates of the interaction of phonological and orthographic processing in children during an auditory rhyme decision task. *NeuroImage*, 41, 623-35
- Burman, D.D. **Bitan T.** and Booth J.R. (2008) Sex differences in neural processing of language among children. *Neuropsychologia*, Vol 46/5 p 1349-1362.

Booth, J.R. Mehdiratta, N., Burman D.D. and **Bitan T.** (2008) Developmental increases in effective connectivity to brain regions involved in phonological processing during tasks with orthographic demands. *Brain research*, 1189, 78-89.

**Bitan T.**, Cheon J., Lu, D., Burman, D.D., Gitelman, D.R. Mesulam M.M., and Booth J.R. (2007). Developmental changes in activation and connectivity in phonological processing *NeuroImage* 38, 564-575.

**Bitan T.**, Burman D., Chou T., Lu D., Cone, N.E. Cao, F. Bigio J.D. and Booth J.R., (2007). The interaction between orthographic and phonological information in children: an fMRI study. *Human Brain Mapping*, 28 (9), 880-892.

Booth J.R., Cho S., Burman D.D. and **Bitan T.** (2007). Neural correlates of mapping from phonology to orthography in children performing an auditory spelling task. *Developmental Science*, 10 (4): 441-51.

Booth, J.R., Wood L., Lu D., Houk J.C. and **Bitan T.** The role of the basal ganglia and cerebellum in language processing (2007). *Brain Research*, 1133, 136-144.

Booth, J.R., Bebko, G., Burman, D.D. and **Bitan T.** (2007). Children with reading disorder show modality independent brain abnormalities during semantic tasks. *Neuropsychologia*, 45, 775-783. IF=3.630

Chou T., Booth J.R., **Bitan T.**, Burman D., Bigio J.D. Cone N.E., Lu D., and Cao F. (2006) Developmental and skill effects on the neural correlates of semantic processing to visually presented words. *Human Brain Mapping*, 27 (11) 915-924.

**Bitan T.**, Burman D.D., Lu D., Cone, N.E. Gitelman D. R. and Mesulam M-M. Booth J.R., (2006). Weaker top-down modulation from the left inferior frontal gyrus in children. *NeuroImage* 33, 991-998.

Cao F. Booth J.R., **Bitan T.**, Burman D., and Chou T. (2006) Deficient Orthographic and phonological representations in developmental dyslexics, revealed by brain activation patterns. *Journal of Child Psychology and Psychiatry* 47:10, 1041-1050.

Chou T., Booth J.R., Burman D., **Bitan T.**, Lu D., Cone N.E. and Bigio J.D, (2006). Developmental changes in the neural correlates of semantic processing. *NeuroImage* 29, 1141-1149.

**Bitan T.**, Booth J.R., Choy J.J. Burman D.D., Gitelman D. R. and Mesulam M-M. (2005). Shifts of Effective Connectivity within a Language Network during Rhyming and Spelling. *Journal of Neuroscience*, 25 (22) 5397-5403.

**Bitan T.**, Manor D., Morocz I.A. and Karni A. (2005). Effects of alphabeticality, practice and type of instructions on reading artificial script: an fMRI study, *Cognitive Brain Research*, 25 (1) 90-106.

Karni A., Morocz I.A., **Bitan T.**, Shaul S., Kushnir T. & Breznitz Z. (2005) An fMRI study of the differential effects of word presentation rates ("reading acceleration") on dyslexic readers' brain activity patterns. *Journal of Neurolinguistics*, 18(2) 197-219.

**Bitan T.** and Karni A. (2004). Procedural and declarative knowledge of word recognition and letter decoding in reading an artificial script. *Cognitive Brain Research*, 19 (3) 229-243.

**Bitan T.** and Karni A. (2003). Alphabetical knowledge from whole words training: effects of explicit instruction and implicit experience on learning script segmentation. *Cognitive Brain Research*, 16, 325-339.