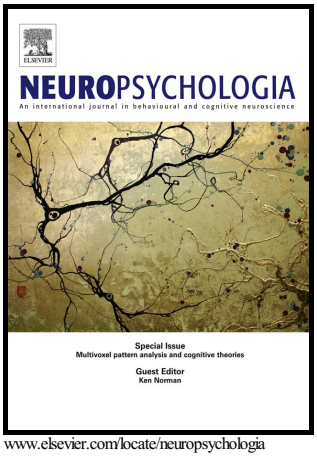
Author's Accepted Manuscript

The neural bases of the learning and generalization of morphological inflection

Michael Nevat, Michael T. Ullman, Zohar Eviatar, Tali Bitan



www.elsevier.com/locate/neuropsychologia

PII: S0028-3932(16)30318-9
DOI: http://dx.doi.org/10.1016/j.neuropsychologia.2016.08.026
Reference: NSY6117

To appear in: *Neuropsychologia*

Received date: 29 January 2016
Revised date: 15 August 2016
Accepted date: 25 August 2016

Cite this article as: Michael Nevat, Michael T. Ullman, Zohar Eviatar and Tal Bitan, The neural bases of the learning and generalization of morphologica inflection, *Neuropsychologia* http://dx.doi.org/10.1016/j.neuropsychologia.2016.08.026

This is a PDF file of an unedited manuscript that has been accepted fo publication. As a service to our customers we are providing this early version o the manuscript. The manuscript will undergo copyediting, typesetting, an review of the resulting galley proof before it is published in its final citable form Please note that during the production process errors may be discovered whic could affect the content, and all legal disclaimers that apply to the journal pertain

ACCEPTED MANUSCRIPT

The neural bases of the learning and generalization of morphological inflection

Michael Nevat[a], Michael T. Ullman[b], Zohar Eviatar[c] and Tali Bitan[a,c*]

[a]Language and Brain Plasticity lab, IIPDM, University of Haifa

[b]Department of Neuroscience, Georgetown University

[c]Department of Psychology, University of Haifa

[*]Corresponding author. +972(54)4490012. tbitan@research.haifa.ac.il

Accepted manuscript

Abstract

Affixal inflectional morphology has been intensively examined as a model of productive aspects of language. Nevertheless, little is known about the neurocognition of the learning and generalization of affixal inflection, or the influence of certain factors that may affect these processes. In an event-related fMRI study, we examined the neurocognition of the learning and generalization of plural inflections in an artificial language, as well as the influence of both affix type frequency (the proportion of words receiving a given affix) and affix predictability (based on phonological cues in the stem). Adult participants were trained in three sessions, and were scanned after the first and last while inflecting trained and untrained words. Untrained words yielded more activation than trained words in medial frontal (including pre-SMA) and left inferior frontal cortices, which have previously shown activation in compositional grammatical processing. A reliance on phonological cues for untrained word inflection correlated positively with pre-SMA activation, but negatively with activation in the pars triangularis. Thus, pre-SMA may be involved in phonological cue-based composition, while the pars triangularis underlies alternative processes. Inflecting trained items yielded activation in the caudate head bilaterally, only in the first session, consistent with a role for procedural memory in learning grammatical regularities. The medial frontal and left inferior regions activated by untrained items were also activated by trained items, but more weakly than untrained items, and least of all by trained items with high-frequency affixes. This suggests less involvement of compositional processes for inflecting trained than untrained items, and least of all for trained inflected forms with high-frequency affixes, consistent with the

دریافت فوری ← متن کامل مقاله

ISIArticles
مرجع مقالات تخصصی ایران

✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
✓ امکان دانلود نسخه ترجمه شده مقالات
✓ پذیرش سفارش ترجمه تخصصی
✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
✓ دانلود فوری مقاله پس از پرداخت آنلاین
✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات