

Accepted Manuscript

Influence of talker discontinuity on cortical dynamics of auditory spatial attention

Golbarg Mehraei, Barbara Shinn-Cunningham, Torsten Dau

PII: S1053-8119(18)30574-3

DOI: [10.1016/j.neuroimage.2018.06.067](https://doi.org/10.1016/j.neuroimage.2018.06.067)

Reference: YNIMG 15073

To appear in: *NeuroImage*

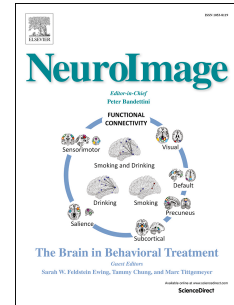
Received Date: 5 January 2018

Revised Date: 12 June 2018

Accepted Date: 25 June 2018

Please cite this article as: Mehraei, G., Shinn-Cunningham, B., Dau, T., Influence of talker discontinuity on cortical dynamics of auditory spatial attention, *NeuroImage* (2018), doi: 10.1016/j.neuroimage.2018.06.067.

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



Influence of talker discontinuity on cortical dynamics of auditory spatial attention

*Golbarg Mehraei^{a,1}, Barbara Shinn-Cunningham^{b,c,1}, Torsten Dau^{a,1}

**Corresponding author: Golbarg Mehraei*

*Ørstedes Plads Building 352 Kongens Lyngby, 2800, Denmark
email: gmehraei@alum.mit.edu*

*^aHearing Systems Group, Technical University of Denmark, Ørstedes Plads Building 352,
2800, Kongens Lyngby, Denmark*

*^bCenter for Research in Sensory Communication and Emerging Neural Technology, Boston
University, Boston, Massachusetts, 02215*

^cDepartment of Biomedical Engineering, Boston University, Boston, Massachusetts, 02215

Abstract

In everyday acoustic scenes, listeners face the challenge of selectively attending to a sound source and maintaining attention on that source long enough to extract meaning. This task is made more daunting by frequent perceptual discontinuities in the acoustic scene: talkers move in space and conversations switch from one speaker to another in a background of many other sources. The inherent dynamics of such switches directly impact our ability to sustain attention. Here we asked how discontinuity in talker voice affects the ability to focus auditory attention to sounds from a particular location as well as neural correlates of underlying processes. During electroencephalography recordings, listeners attended to a stream of spoken syllables from one direction while ignoring distracting syllables from a different talker from the opposite hemifield. On some trials, the talker switched locations in the middle of the streams, creating a discontinuity. This switch disrupted attentional modulation of cortical responses; specifically, event-related potentials evoked by syllables in the to-be-attended direction were suppressed and power in alpha oscillations (8-12 Hz) were reduced following the discontinuity. Importantly, at an individual level, the ability to maintain attention to a target stream and report its content, despite the discontinuity, correlates with the magnitude of the disruption of these

Download English Version:

<https://daneshyari.com/en/article/8686722>

Download Persian Version:

<https://daneshyari.com/article/8686722>

[Daneshyari.com](https://daneshyari.com)