

Behavioural Responses to Music-Evoked Autobiographical Memories (MEAMs) in Alzheimer's Disease

MUSIC COGNITION LAB, DEPARTMENT OF PSYCHOLOGY

ANDREW BELYEA, SEAN BAI, JODI CHAN, ANJA-XIAOXING CUI,

RITU SIKKA, ASHLEY D. VANSTONE, & LOLA L. CUDDY

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Outline

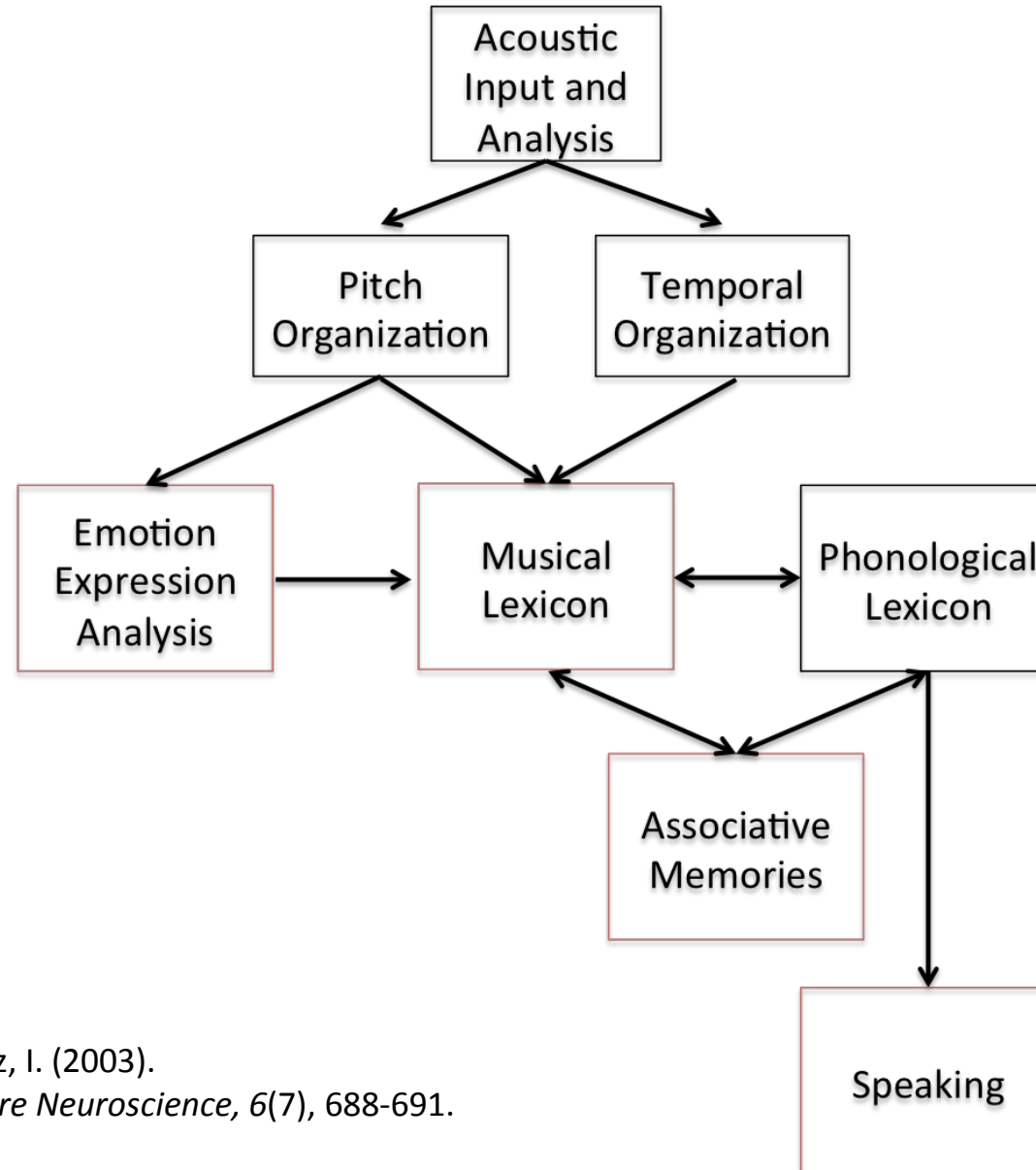
- Project background
- What are MEAMs?
- What can we learn from MEAMs?
- Participant videos
- Exploring visible reactions to MEAMs (present work)

Project Background

- In 2005, we tested a single AD participant's response to music:
 - Musical Discrimination
 - Error Recognition
- Unconventional behavioural assessment
 - Traditional measure of musical memory – verbal communication
 - Highlights contrasting participant MMSE and responses
- Patient's musical memory was spared

Music-Evoked Autobiographical Memories (MEAMs)

- MEAM = a memory from ones life derived from listening to a particular tune
- Involuntary
- Different neural networks
- Preservation of involuntary memories in AD? Accessed through music?



Adapted from: Coltheart, M., & Peretz, I. (2003).
Modularity of music processing. *Nature Neuroscience*, 6(7), 688-691.

Study Methods

- 20 older adult controls (OA) and 20 Alzheimer's disease (AD) participants
- Video recorded with consent
- Listened to 12 different familiar tunes, 30 seconds each
 - E.g., Bridal March, Vivaldi's Four Seasons
- Asked to describe what, if anything, came to mind following tune (e.g., memory, association)
- Rated valence of memory (scales: 0 to 3), vividness, and age

MEAM Investigations

Prior Work:

1. Are the memories episodic or semantic?
2. Grammatical complexity of responses (e.g., length of response, lexical analysis)
3. Content analysis (positivity/negativity of memories)
 - Positivity Effect

MEAM Investigations

Current Work:

- Visible responses?
 - Musical vs social responses

Tunes

Sabre Dance

In the Mood

Irish Washerwoman

Boccherini's Minuet

La Raspa

Sorcerer's Apprentice

Chicken Dance

Trepak

Vivaldi's Spring

Blue Danube

Bridal March

Beethoven's No. 5

Scoring and Analysis

Primary Reaction

- Grouped as **musical** or **social** reactions
 - Musical Reaction – engaging with a rhythmic element of the music (e.g., tapping, swaying, nodding)
 - Social Reaction – NOT engaging with a rhythmic element of the music (e.g., smiling, laughing)
- Determined **variety** and **probability**

Results – Reactions without MEAM

- Tunes **did not** elicit a memory
- Variety of reactions
 - Social reactions: AD = Control ($p=.666$)
 - Musical reactions: AD = Control ($p=.142$)
- Probability of a reaction
 - Social reactions: AD = Control ($p=.781$)
 - Musical reactions: AD = Control ($p=.418$)

Results – Reactions with MEAM

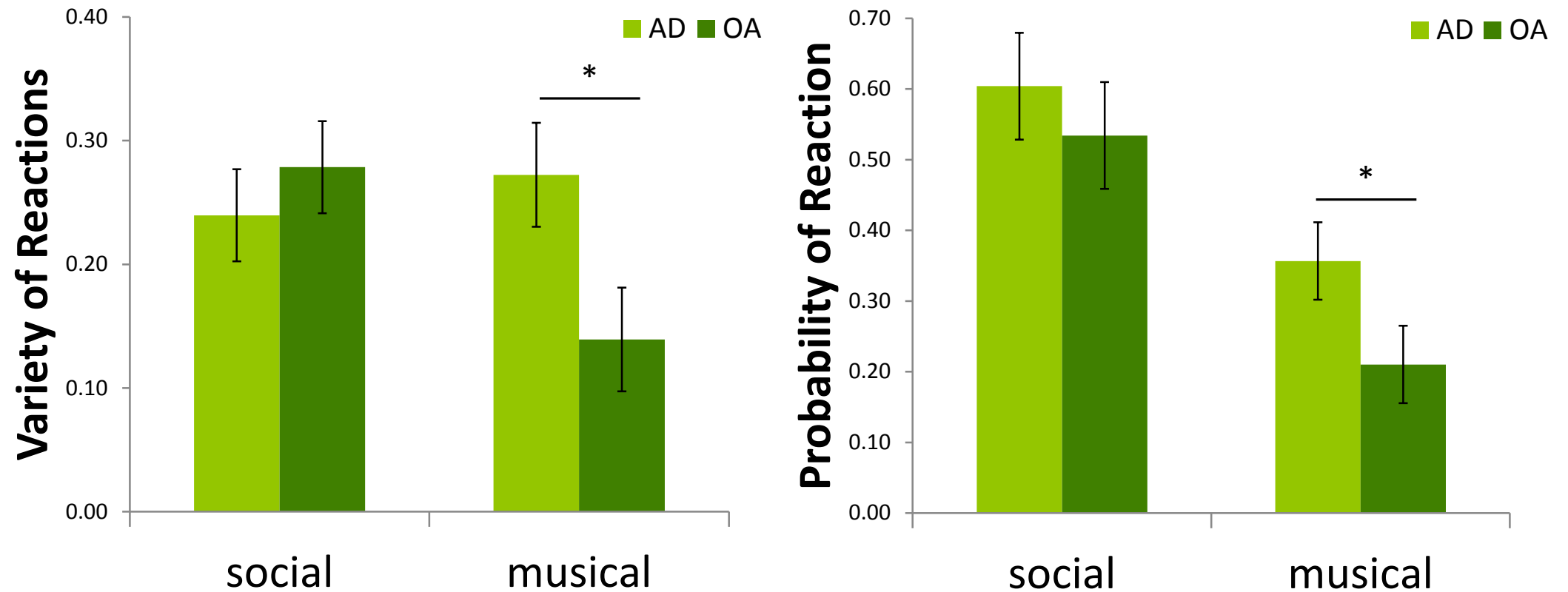
- Reactions could be due to memory **and/or** music
- Variety of reactions
 - Social reactions: AD = Control ($p=.583$)
 - Musical reactions: AD have **greater variety** compared to Control ($p=.030$)
- Probability of a reaction
 - Social reactions: AD = Control ($p=.319$)
 - Musical reactions: AD have **greater probability** compared to Control ($p=.047$)

Take Home

Without MEAM		
	Social	Musical
Variety	AD=Control	AD=Control
Probability	AD=Control	AD=Control

With MEAM		
	Social	Musical
Variety	AD=Control	AD>Control
Probability	AD=Control	AD>Control

Take Home: With MEAM



Now Asking...

- Musical Reactions and MEAMs?
- Disinhibition of behavioural regulation?
- Behavioural assessment?
- Therapeutic value?

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