Meta-analyzing the cortical networks for language and semantics in children

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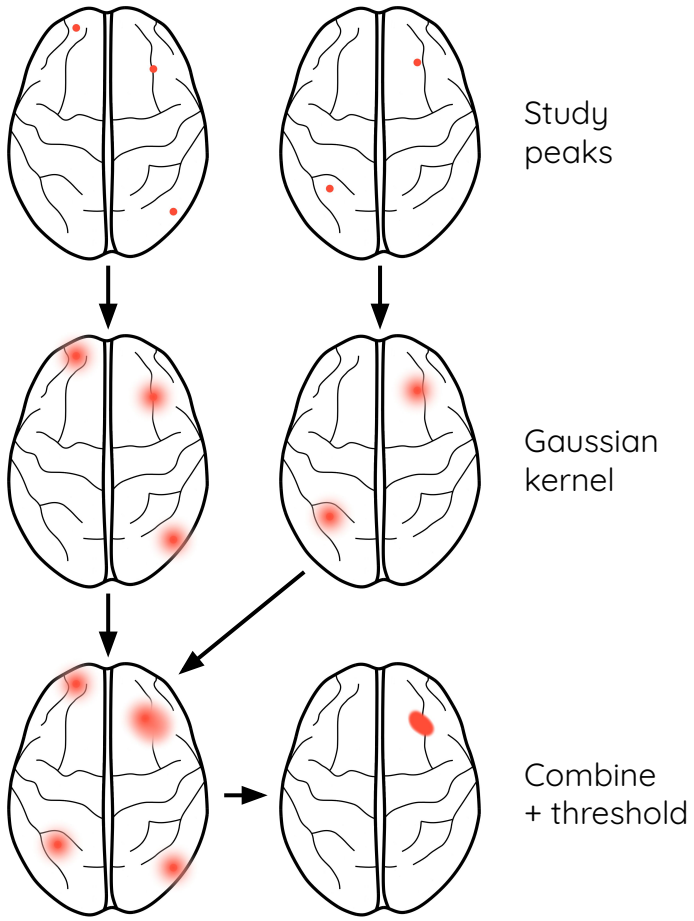
SNL Annual Meeting
8 October, 2022

SKEIDELAB

COORDINATE-BASED META-ANALYSIS

Synthesize activation peaks from imaging studies to overcome:

- Spurious findings
- Low statistical power
- Limited generalizability



Button et al. 2017; Samartsidis et al. 2017; Wager et al. 2007; Yarkoni 2020

METHOD

1. LITERATURE SEARCH

PubMed

AMERICAN PSYCHOLOGICAL ASSOCIATION

Scopus

2. META-ANALYSIS

NiMARE:
Neuroimaging Meta-Analysis Research Environment

SDM

3. GROUP COMPARISONS

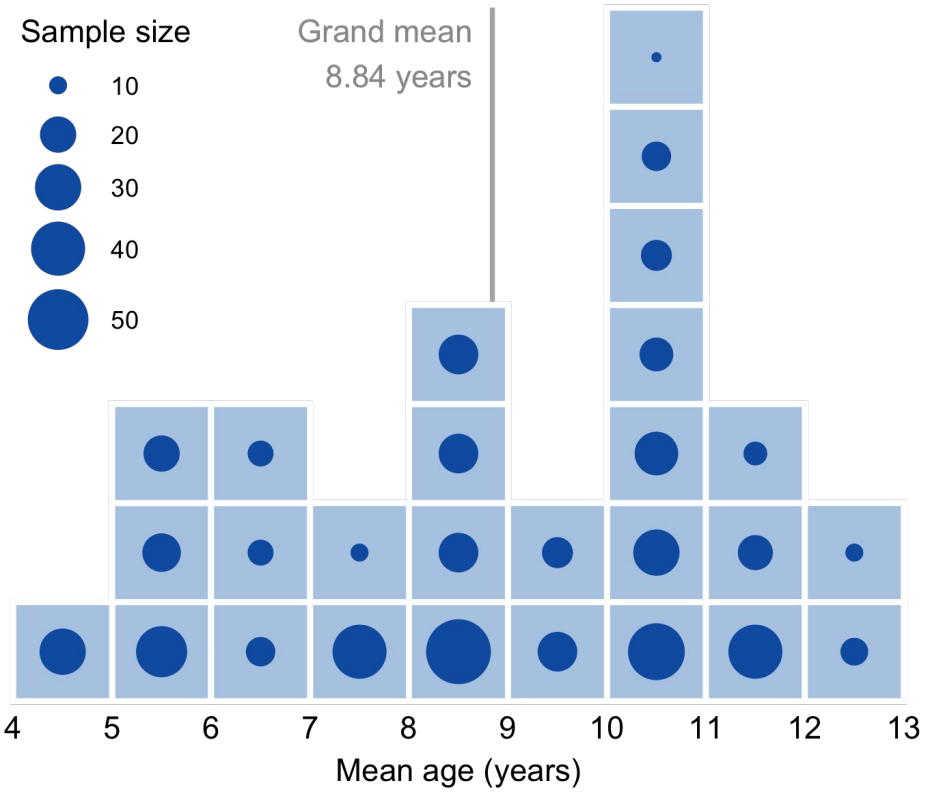
Task types
Age groups
Adult data

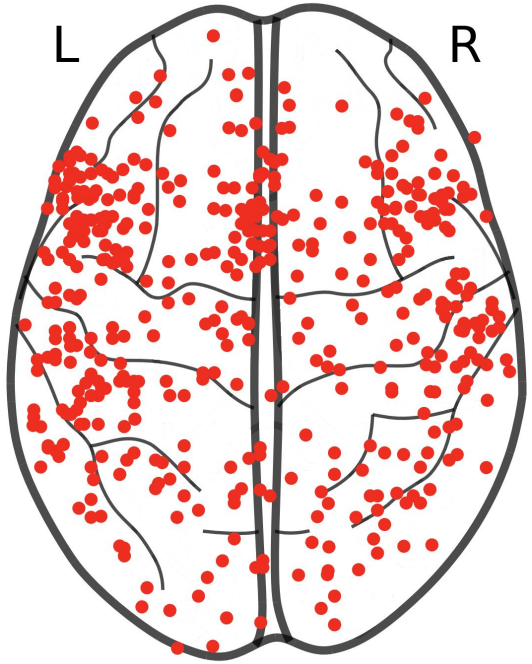
4. ROBUSTNESS CHECKS

Jackknife
(leave-one-out)
Fail safe N

Acar et al. 2018; Albajes-Eizagirre et al. 2019; Eickhoff et al. 2012; Salo et al. 2022

AUDITORY LANGUAGE PROCESSING

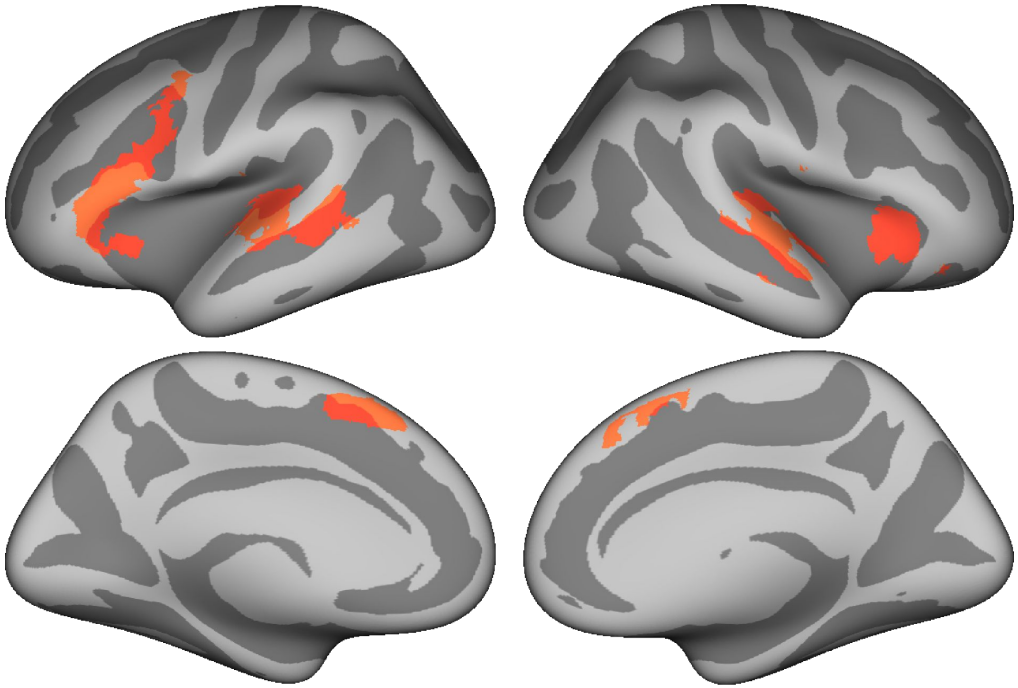




Enge, Friederici, & Skeide 2020 *NeuroImage*

AUDITORY LANGUAGE PROCESSING

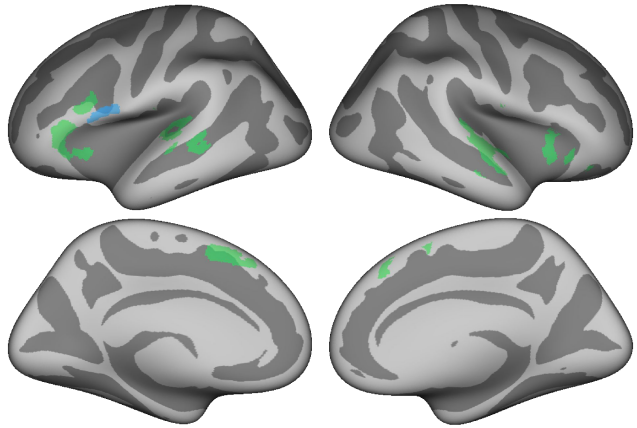
Children



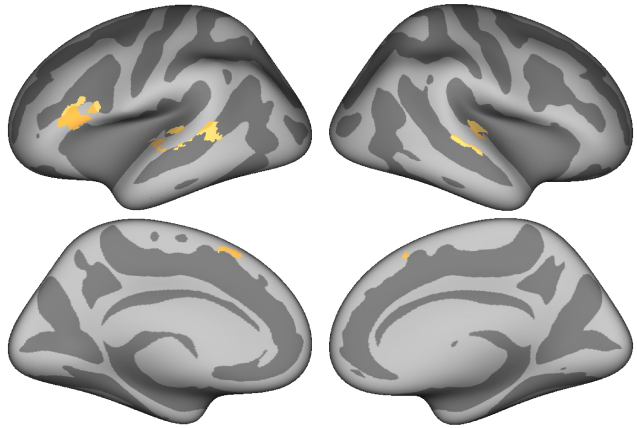
$p_{\text{cluster-FWE}} < .05$

Children > adults

Adults > children

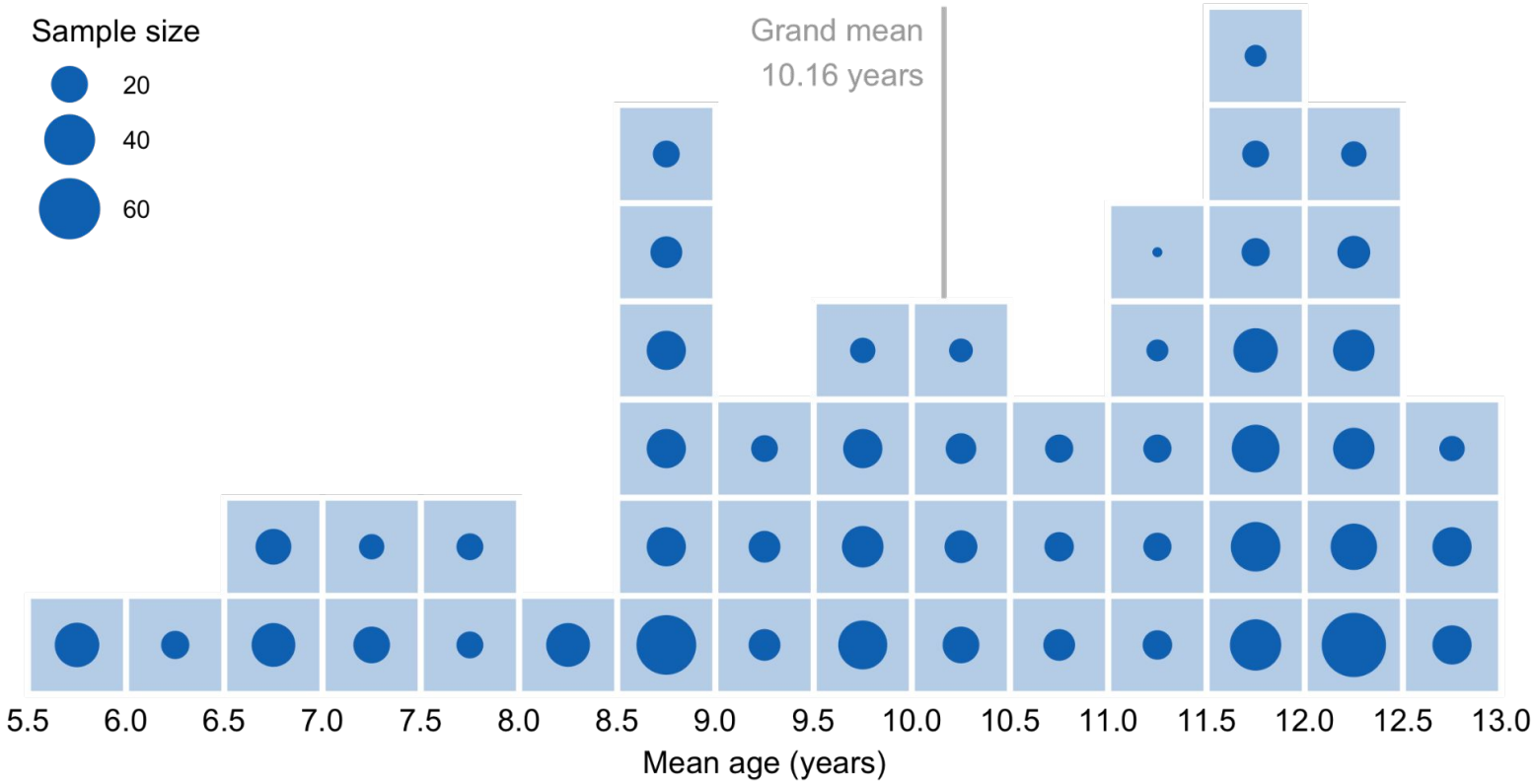


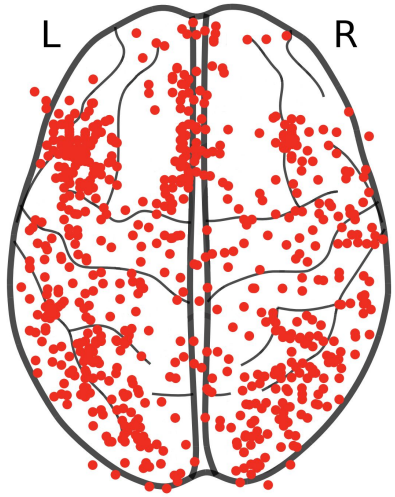
Conjunction



Enge et al. 2020; Rodd et al. 2015

SEMANTIC PROCESSING

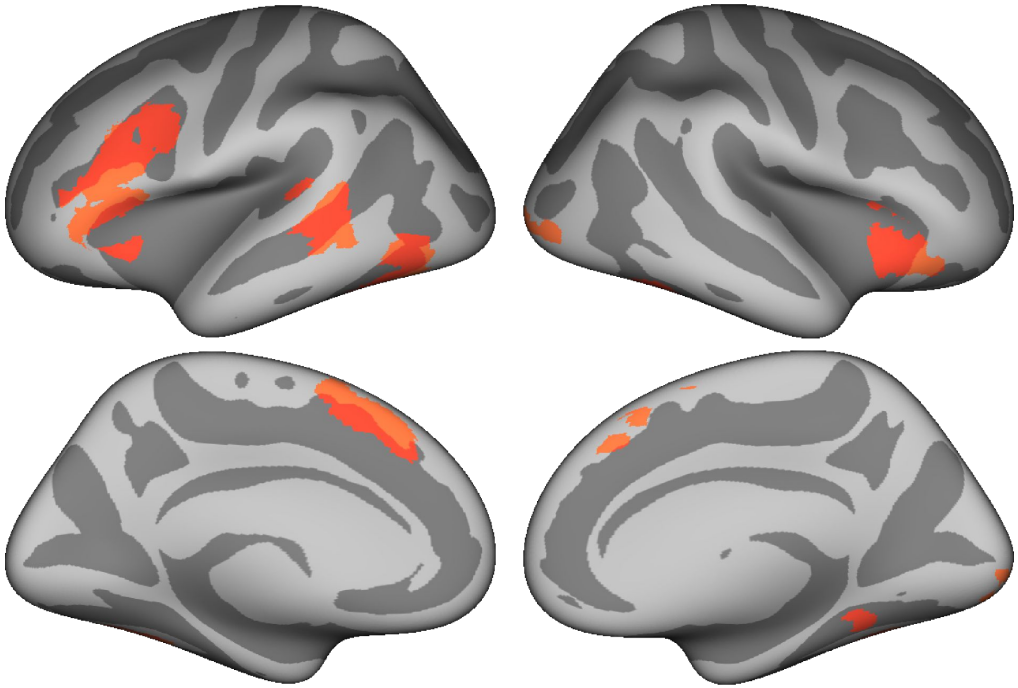




Enge, Abdel Rahman, & Skeide 2021 *NeuroImage*

SEMANTIC PROCESSING

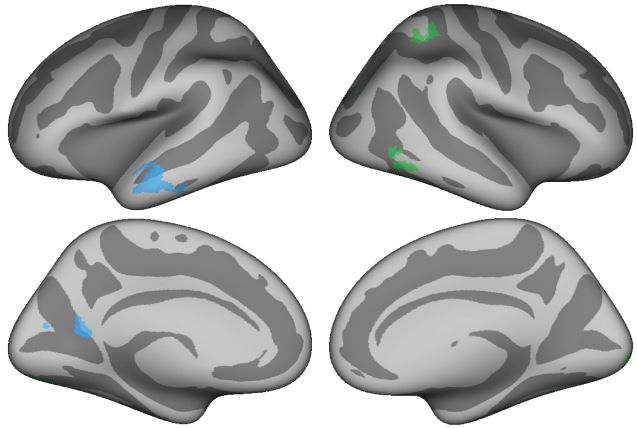
Children



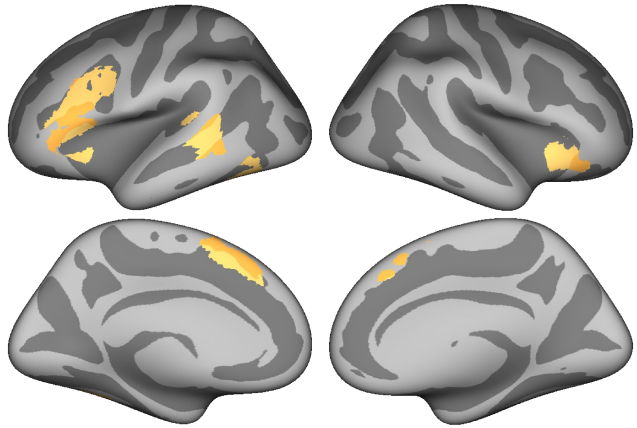
$p_{\text{cluster-FWE}} < .01$

Children > adults

Adults > children



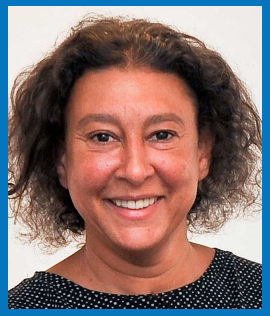
Conjunction



Enge et al. 2021; Jackson 2021

SUMMARY

- Large overlap in the cortical networks for language and semantics between children and adults
- Language processing: Dissociation in left IFG and reduced lateralization
- Semantic processing: Reduced recruitment of ATL


QUESTIONS & COMMENTS
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