Resisting Attraction: The Role of Executive Control in Monolingual, Bilingual, and Bi-Dialectal Children

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Introduction

Attraction in subject-verb agreement production:
- Number of head noun drives number of verb 
  “The key to the cabinets is missing”
- Number of local noun drives number of verb 
  “The key to the cabinets are missing”

Verb is ‘attracted’ to local noun instead of head noun.

Hypothesis

- Working memory (WM) is needed to keep head noun number activated.
- Inhibitory control is needed to resist attraction from local noun.

Studies have shown that bilinguals have better executive control than monolinguals.

Agreement Production Task

- Elicited production cued by simple pictures
- Entire sentence generated by participant
- 18 items (circle/star/triangle, blue/yellow/red)
- 102 trials (30 practice, 72 experimental)
- 2x2 design

Participants (10-12 years old):
- 46 monolingual Dutch speakers
- 48 bilingual French-Dutch speakers
- 51 bi-dialectal West-Flemish-Dutch speakers

Tasks:
- Agreement production task (see below)
- Verbal WM task (Digit span task)
- Non-verbal WM task (Corsi blocks task)
- Attentional Networks task (Fish task)
- Switching task (Color Shape task)

Results

Across language groups, agreement is influenced by:
- Verbal working memory
- Inhibitory control

Correlations (controlling for age and SES):
- Agreement x verbal WM: β = -0.30, p < 0.01
- Agreement x Inhibition: β = -0.21, p < 0.05

LMER (controlling for head noun number, age, SES, language group, non-verbal WM, and language proficiency):
- Main effect of verbal WM: β = -0.35, SE = 0.10, p < 0.001
- Main effect of inhibitory control: β = -0.27, SE = 0.11, p < 0.05

Discussion & Conclusion

No differences between monolinguals, bilinguals, and bi-dialectals (when controlling for SES):
- Agreement production
- Executive control

Analysis of individual patterns of language use/switching in preparation

Effects across language groups:
- Children with a better verbal working memory make fewer agreement errors
- Children with a better inhibitory control make fewer agreement errors

Agreement follows grammar rules, but attraction can be resisted with domain general executive control

References


More info:
Email: amv36@cam.ac.uk
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Funding: Wiener-Anspach Foundation