Tip-of-the-tongue states across the lifespan: Different problems for different ages?

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Introduction

Tip-of-the-tongue (TOT) states:
• Temporary word finding failures for familiar words, increase with age
• Previous evidence suggests TOTs reflect language-specific lexical access deficit
• TOT resolution may rely on domain-general processes
• Older adults worry their TOTs reflect domain-general cognitive decline

Do language-specific and domain-general processes predict TOTs differently across the lifespan?

Method

Behavioural tasks and measures

1. Picture naming
   - Proportion correct
   - Semantic errors
   - Phonological facilitation
   - Null responses
   - Naming response time

2. Picture–picture priming
   - Semantic interference
   - Phonological facilitation

3. Verbal fluency
   - Category fluency
   - Letter fluency

Participants

• Cam-CAN cohort, population-based recruitment
• N=577 (N=534 for MRI)
• Age 18-88 (M=54.4, SD=18.4)
• 290 males, 287 female

MRI details

• T1-weighted sequence (MPRAGE): repetition time (TR) = 2,300 ms, echo time (TE) = 2.98 ms, average flip angle (FA) = 9°. Field of view (FOV): 256 x 256 x 256, resolution: 1 mm3, spatial resolution: 1.1 mm3.
• 3D structural T1 images were acquired for T1 and a multi-channel segmentation (SMP32) segment, based on “New segment,” created by the FreeSurfer protocol. Each subject had a mean of 50 to 500 T1 images.
• Preprocessing was conducted with SPM12. In addition to the typical T1 images, individual normalized images were smoothed (3 mm full width at half maximum (FWHM) Gaussian kernel).

Results: Age and Grey matter

TOTs & Grey matter

Accuracy

Fluency

Priming

Factors & TOTs x Age

Younger
Middle
Older

Factors & TOTs x Grey matter

High
Middle
Lower

Summary

• TOTs → domain-general and language-specific processes
• Factors relate differently to age and grey matter
• General factors widely predictive of TOTs for older adults or low grey matter
• Supports language-specific model of older adults' TOTs

References

3. Reiss, Anthony D. Wagner, and Daniel L.
4. TOTs strongly related to grey matter in middle age

Online Reprints:
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