

Structural priming across the lifespan

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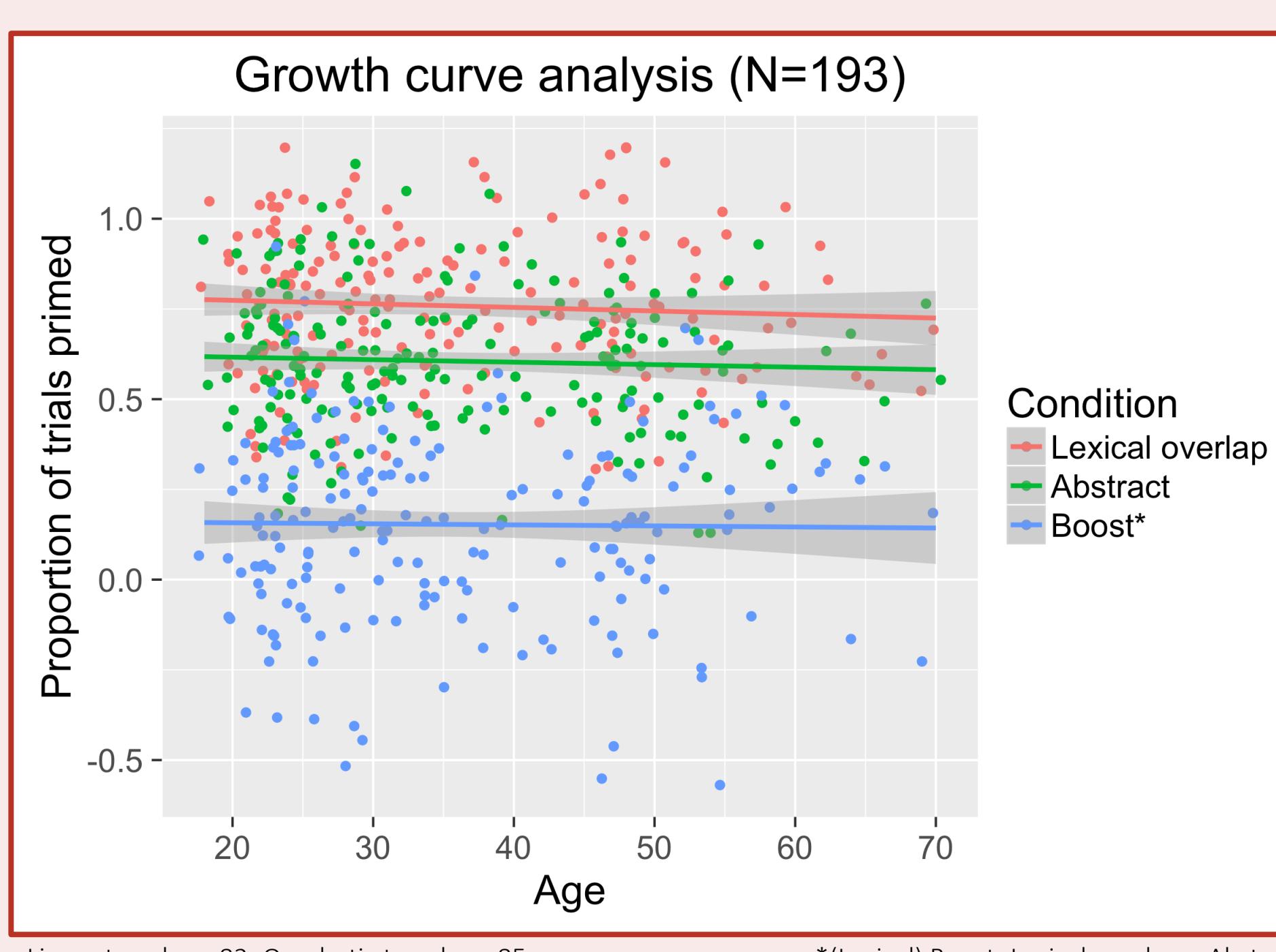
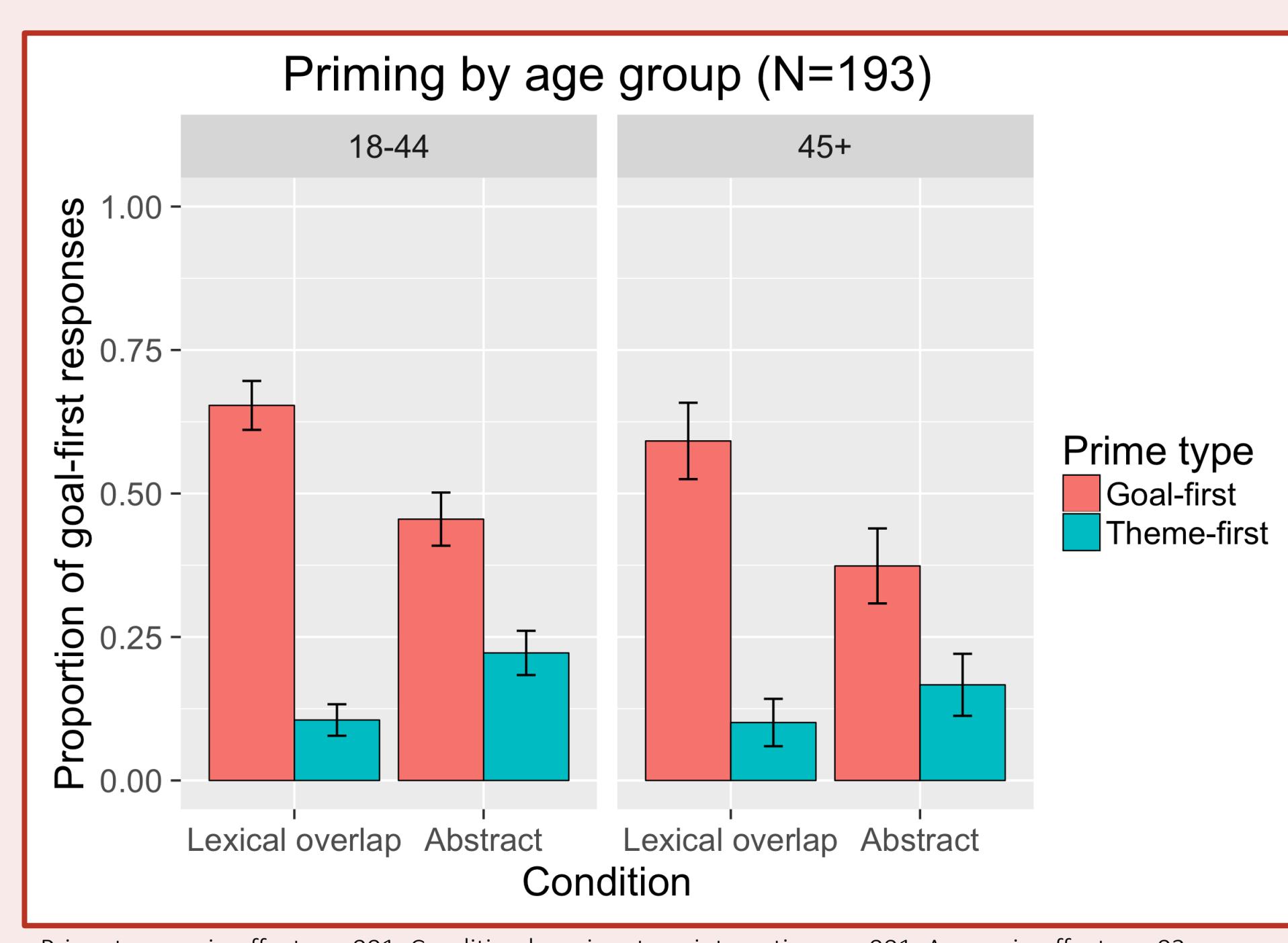
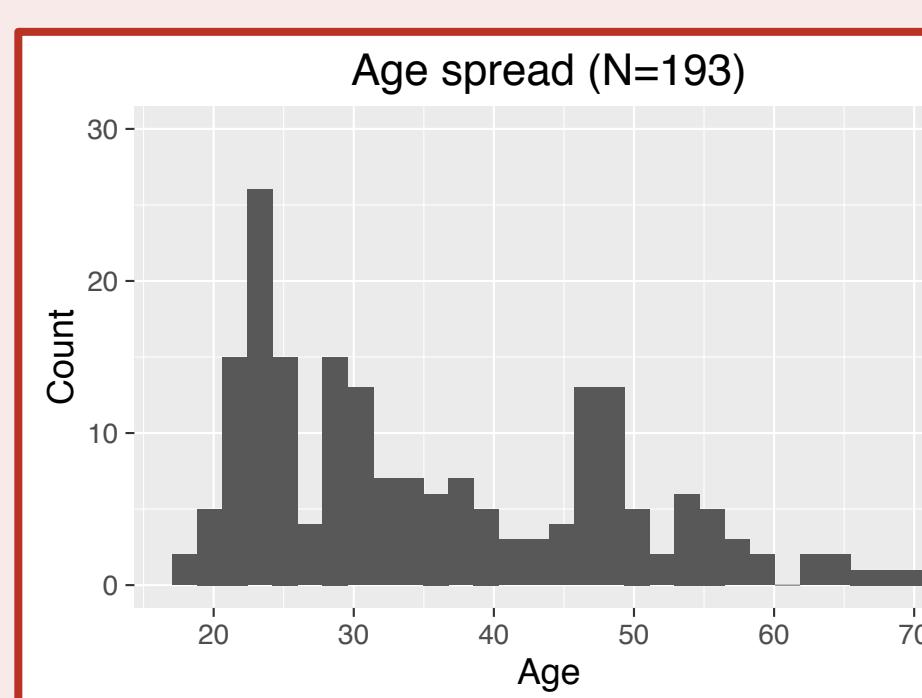
1. Introduction

- Structural priming (SP): repetition of syntactic or semantic structure (Bock, 1986; Chang et al., 2003)
- Lexical boost: lexical overlap b/t prime and target increases size of effect (Pickering & Branigan, 1998)
- Dual-Path Model: two distinct mechanisms proposed to underlie SP (Chang et al., 2006)
 1. Implicit learning (=abstract priming)
 2. Explicit memory (=lexical boost)
- Memory systems dissociate w/ age: explicit memory declines, while implicit memory stays intact (for reviews, see Fleischman, 2007; Mitchell, 1989)
- Does SP change across the lifespan, and can this inform us about the mechanisms behind it?
- Prediction: decline in size of lexical boost in older adults, but stable abstract priming

2. Methods / Results

- Animation description task on MTurk (N=193; age range=18-70)
- Stimuli (interspersed): **Goal**-first **Theme**-first

1. Datives:	<i>boy brings camel keys</i>	... <i>keys to camel</i>
2. Locatives:	<i>girl loads van with boxes</i>	... <i>boxes in van</i>
- \diamond No dissociation b/t abstract priming and lexical boost w/ age (cf. Sung, 2015, for lexically-specific priming in Korean)



References: [•] Alvarez, S., Yimoyines, B., Key-DeLiyra, S., & Altmann, L. J. P. (2006). Age differences in stimulability of sentence structures: Implications for treatment. American Speech-Language-Hearing Association (ASHA) Convention (poster), Miami, FL. [•] Bock, K. (1986). Syntactic persistence in language production. *Cognitive Psychology*, 18, 355-387. [•] Chabris, C. F. (2007). Cognitive and neurobiological mechanisms of the law of general intelligence. In M. J. Roberts (Ed.), *Integrating the mind: Domain general versus domain specific processes in higher cognition* (pp. 449-491). Hove, UK: Psychology Press. [•] Chang, F., Bock, K., & Goldberg, A. E. (2003). Can thematic roles leave traces of their places? *Cognition*, 90, 29-49. [•] Chang, F., Dell, G. S., & Bock, K. (2006). Becoming syntactic. *Psychological Review*, 113(2), 234-272. [•] Fleischman, D. A. (2007). Repetition priming in aging and Alzheimer's disease: An integrative review and future directions. *Cortex*, 43(7), 889-897. [•] Mitchell, D. B. (1989). How many memory systems? Evidence from aging. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 15(1), 31-49. [•] Pickering, M. J., & Branigan, H. P. (1998). The representation of verbs: Evidence from syntactic priming in language production. *Journal of Memory and Language*, 39(4), 633-651. [•] Pickering, M. J., & Ferreira, V. S. (2008). Structural priming: A critical review. *Psychological Bulletin*, 134(3), 427-459. [•] Sung, J. E. (2015). Age-related changes in sentence production abilities and their relation to working-memory capacity: Evidence from a verb-final language. *PLoS ONE*, 10(4): e0119424.

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3. Implications

- Stable **abstract priming** w/ age: in line with predictions
- Lack of decline in **lexical boost**:
 - ? Lexical boost \neq explicit memory
 - ? Explicit memory decline in older adults too subtle to lead to differences in priming
- Concrete contributions:
 1. Two primary effects (abstract priming/lexical boost) observed in college samples are robustly present across the lifespan (supplementing prior findings on SP in aphasics and amnesics; for review, see Pickering & Ferreira, 2008; also Alvarez et al., 2006, for abstract priming)
 2. Online task well-suited for more rigorous, large-scale work on individual differences in SP

4. Proposal

- Goal: more directly assess predictions of Dual-Path Model
- Approach: explore correlation of SP w/ measures of implicit and explicit memory
- Task battery:
 1. Current animation description task (=SP)
 2. Explicit (working) memory measure(s):
 - [1] Serial recall: digit span (forwards/backwards), other; [2] verbal recognition
 3. Implicit (procedural) memory measure(s):
 - [1] Lexical decision; [2] word stem/fragment completion; [3] sequence learning: motor, other
 4. Control for g? – [1] vocabulary, [2] matrices (Chabris, 2007)
- Potential confounds:
 1. Differences in browser RTs
 2. Slower RTs overall in older populations

