Structural Divergence in Dialogue

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Repetition in dialogue

"'accommodation', 'alignment' and 'attunement' are …characteristic of successful or effective interactions"
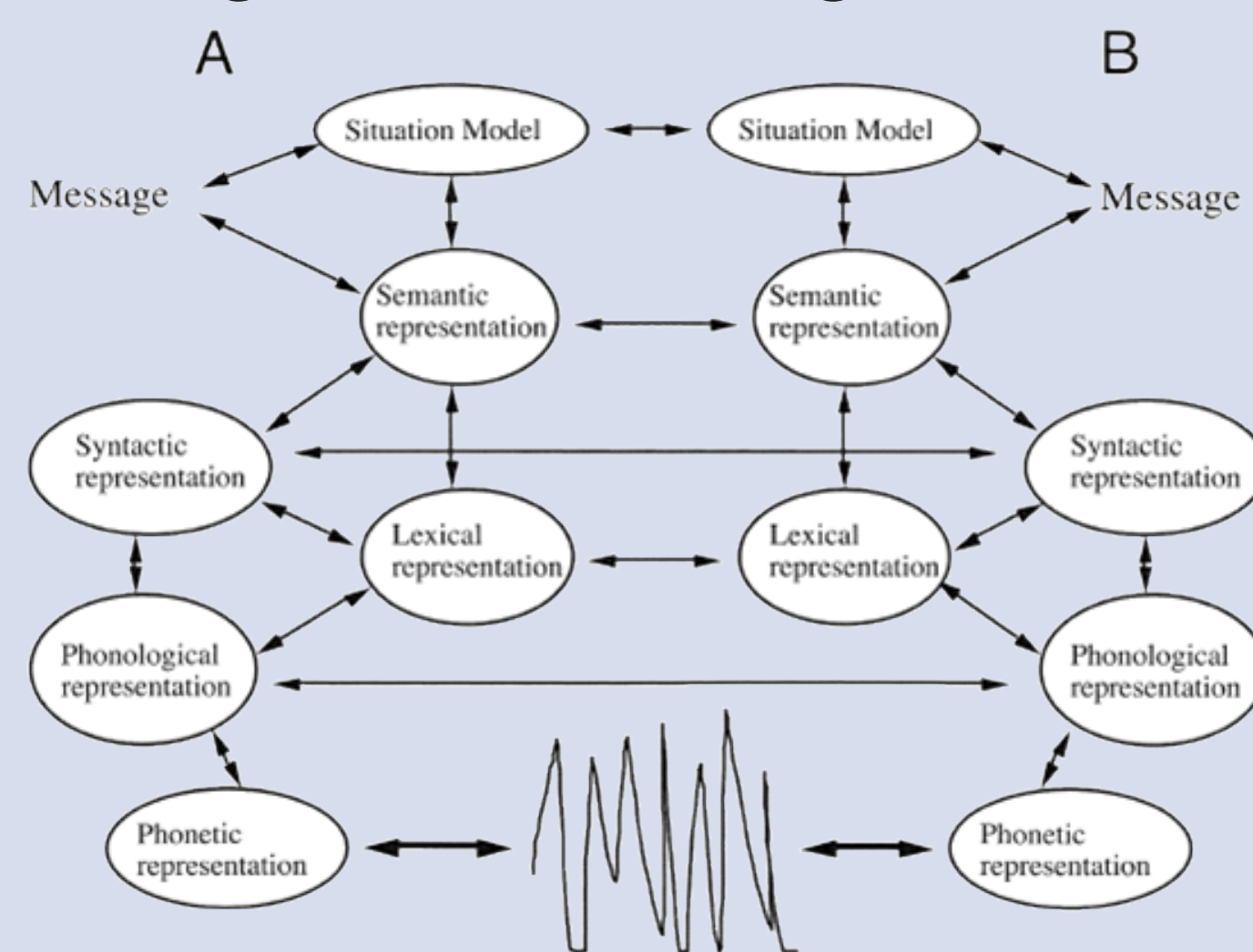(Giles, Coupland & Coupland, 1991)

"dialogue is extremely repetitive"
(Pickering & Ferreira, 2008)

Interactive alignment

Accommodation is the consequence of an "automatic, resource-free priming mechanism that underpins all successful human interaction" (Pickering & Garrod, 2004)

"…priming is the central mechanism in the process of alignment and mutual understanding" (Pickering & Garrod, 2006)

Empirical Evidence

Experiments: Picture priming paradigm (e.g. Branigan et al. 2000; 2006); Task specific dialogues (e.g. Maze Task)

Corpus studies: Gries (2005); Reitter et al. (2006)

Not representative of ordinary dialogue

No empirical estimate of chance

Alignment measures are inter-correlated

Experiment

take dyadic conversations from corpora of dialogue (DCPSE and BNC)

A: Are you going to go to all of the phonology lectures
B: I think I ought to do that
A: Yes. I think you had. Yeah
B: I mean I don't know how much I'll take in
A: I think I'll go to most of them. But I won't go to all of pragmatics the day before

create control dialogues

A: Are you going to go to all of the phonology lectures
C: Yeah. Well I 'll write to him now
A: Yes. I think you had. Yeah
D: Uh do you remember the ones you took of Napoleon's bedroom
A: I think I'll go to most of them. But I won't go to all of pragmatics the day before

score each turn for lexical and syntactic similarity with subsequent turn(s)

normalise → compare real and control figures

Predictions

1. **Cross-Speaker Priming:** Participants in conversation should match each others lexical and syntactic choices more than would occur by chance
2. **Cross-Level Priming:** Alignment at one level promotes alignment at other levels
3. **Decay:** Levels of matching should systematically decline with distance
4. **Speaker-Hearer Interchangeability:** Patterns of repetition should be the same within- and across-speaker

Results (1, 2)

Lexical: BNC: $F_{(1,3775)} = 532, p < 0.001$
DCPSE: $F_{(1,140)} = 98.3, p < 0.001$

People reliably match 4% of words from an interlocutors previous turn

Syntactic: BNC: $F_{(1,3778)} = 2.11, p = 0.15$
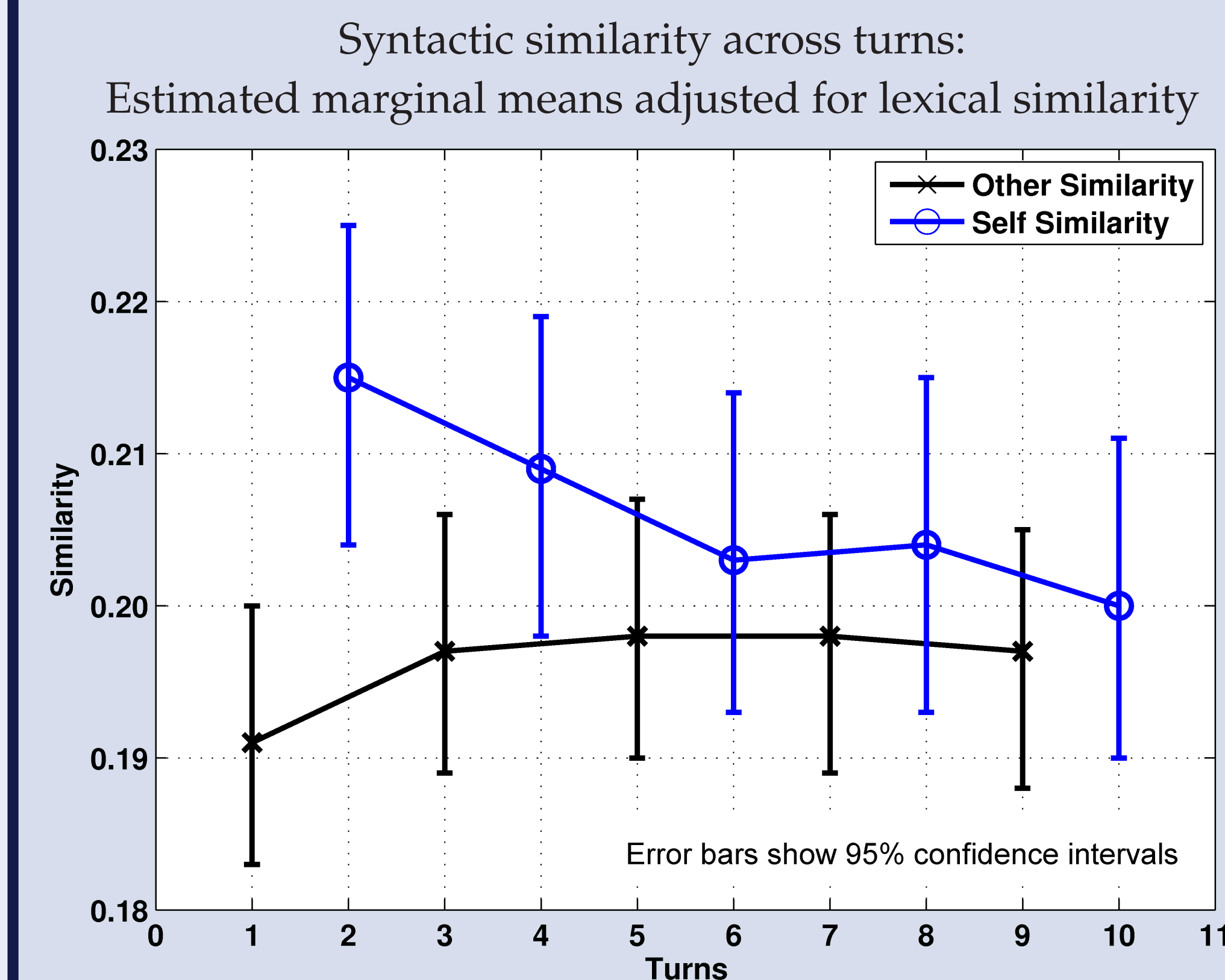DCPSE: $F_{(1,140)} = 0.83, p = 0.36$

People do not match structure from an interlocutors previous turn

But with lexical match as covariate:
Syntactic: BNC: $F_{(1,5184)} = 70.3, p < 0.001$
DCPSE: $F_{(1,168)} = 7.01, p = 0.01$

Approximately 1.6% reduction in syntactic match relative to chance

Results (3, 4)

Syntactic similarity across turns:
Estimated marginal means adjusted for lexical similarity

Error bars show 95% confidence intervals

Syntactic self-similarity decays; Cross-speaker alignment does not

Effect of Person on syntactic similarity:
DCPSE: $F_{(1,150)} = 21.4, p < 0.001$
BNC: $F_{(1,5159)} = 46.3, p < 0.001$

People are reliably more similar to themselves than an interlocutor

Conclusions

1. **Cross-Speaker Priming:** In ordinary conversation people systematically *diverge* from each other in their use of syntactic constructions. Structural repetition across adjacent turns is less than chance
2. **Cross-Level Priming:** Lexical and structural alignment follow different patterns within and across speakers. Lexical repetition increases structural self-similarity but decreases other-similarity
3. **Decay:** The likelihood of repetition with distance is different for self and other similarity. Self-similarity systematically declines with turn distance but other-similarity does not
4. **Speaker-Hearer Interchangeability:** Systematic differences in people's repetition of their own and each other's syntactic structures show an asymmetry between production and comprehension in ordinary dialogue

In ordinary dialogue people repeat only approximately 4% of each other's words and systematically diverge in their use of syntactic constructions. This is inconsistent with priming as the central mechanism in dialogue and points to a model in which people move topics forward through, e.g., elaboration and novelty.

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