

Acquisition and generalization responses in aphasia naming treatment: a meta-analysis of Semantic Feature Analysis outcomes.

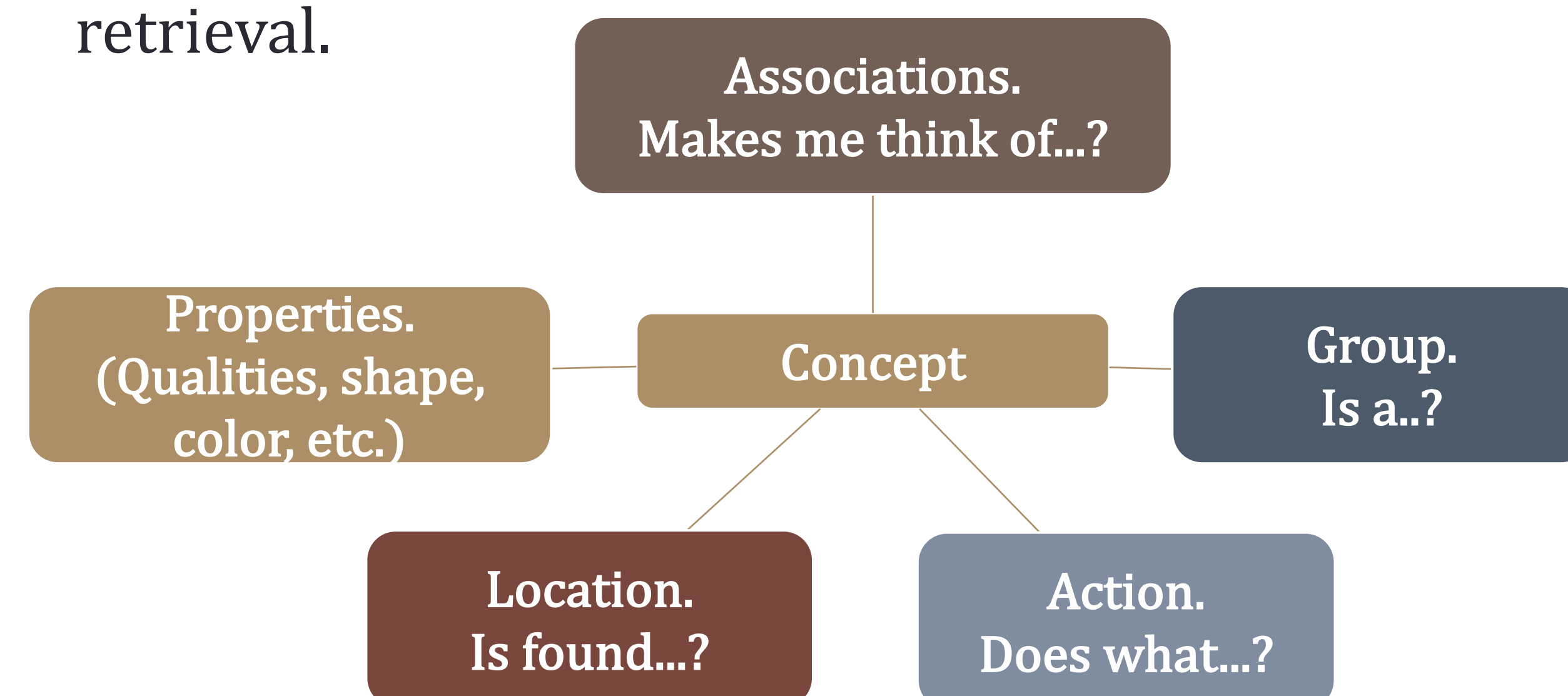
Yina Quique¹, Michael Walsh Dickey^{1,2}, William Evans²

¹University of Pittsburgh, ²VA Pittsburgh Healthcare System

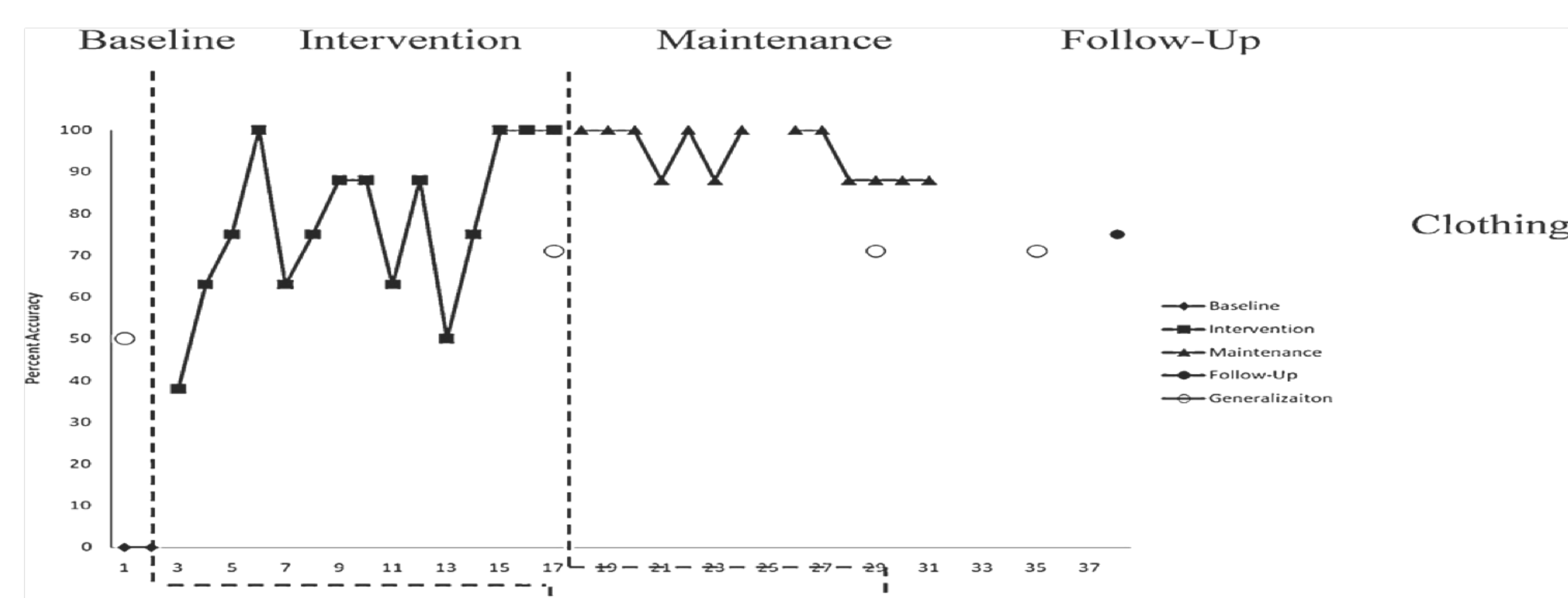


INTRODUCTION

- In aphasia treatment, following acquisition of a communicative behavior, the goal is to achieve generalization.
- Semantic Feature Analysis (SFA) facilitates lexical retrieval.



Evidence for the efficacy of SFA comes mainly from single-subject multiple-baseline studies.



METHODS

- Data from **35 people** with aphasia taken from **12 published single-subject controlled studies**.
- This study explores acquisition and generalization responses for SFA through a **meta-analysis**.
- Logistic mixed-effect regression models** measured the effects of **treatment-related** and **person-specific variables** on probe performance.

Treatment-related variables:

- Treatment phase (baseline vs. treatment).
- Dosage (number of SFA treatment sessions).
- Item type (treated vs. untreated generalization stimuli; semantically related vs. unrelated generalization stimuli).

METHODS

Person-specific predictor variables:

- Language-impairment variables (overall aphasia severity, as measured by WAB Aphasia Quotient; naming-impairment severity, as measured by Boston Naming Test raw score).
- Demographic variables (age, months post-onset).

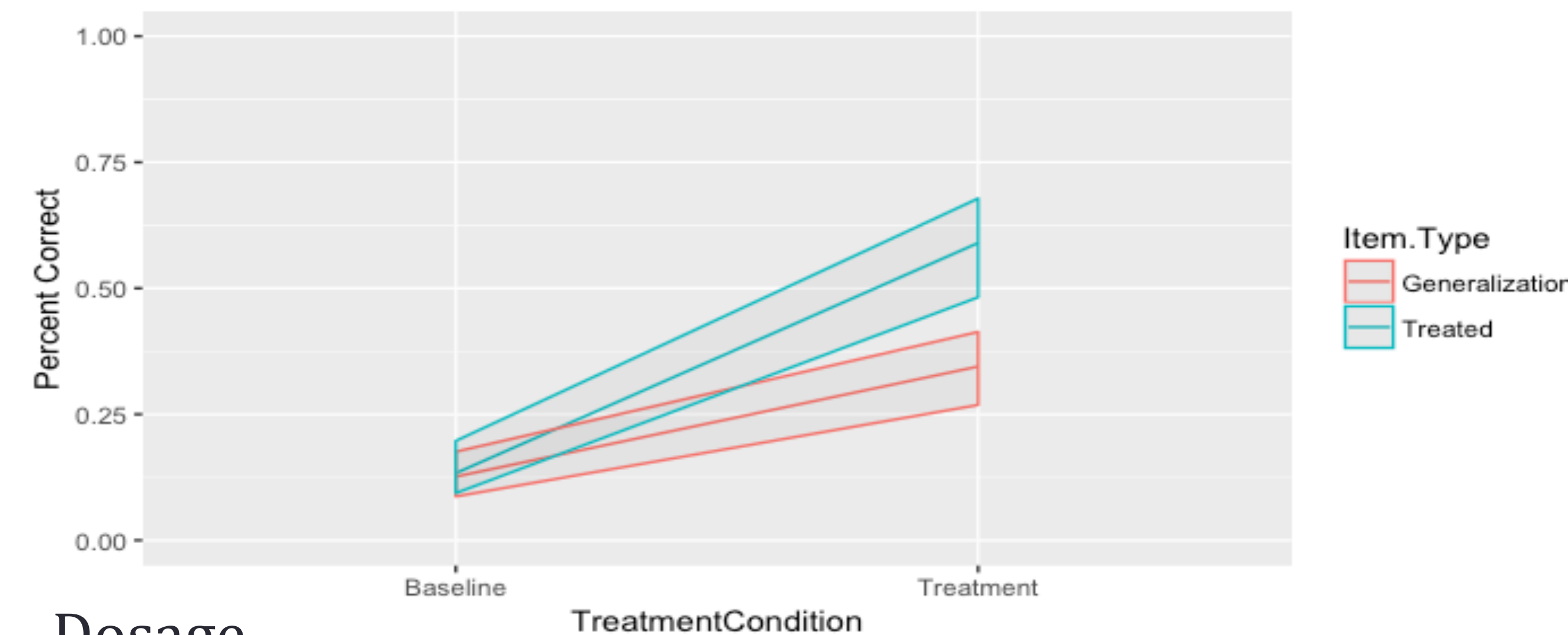
RESULTS

Treatment-related predictor variables:

Treatment phase

- Main effect of Treatment phase → significant increase in performance accuracy from baseline to treatment phase (estimate=1.29, $z=7.71$, $p<0.001$).
- Interacted with Item type → treated stimuli showed more improvement than generalization stimuli (estimate=0.94, $z=8.68$, $p<0.001$).

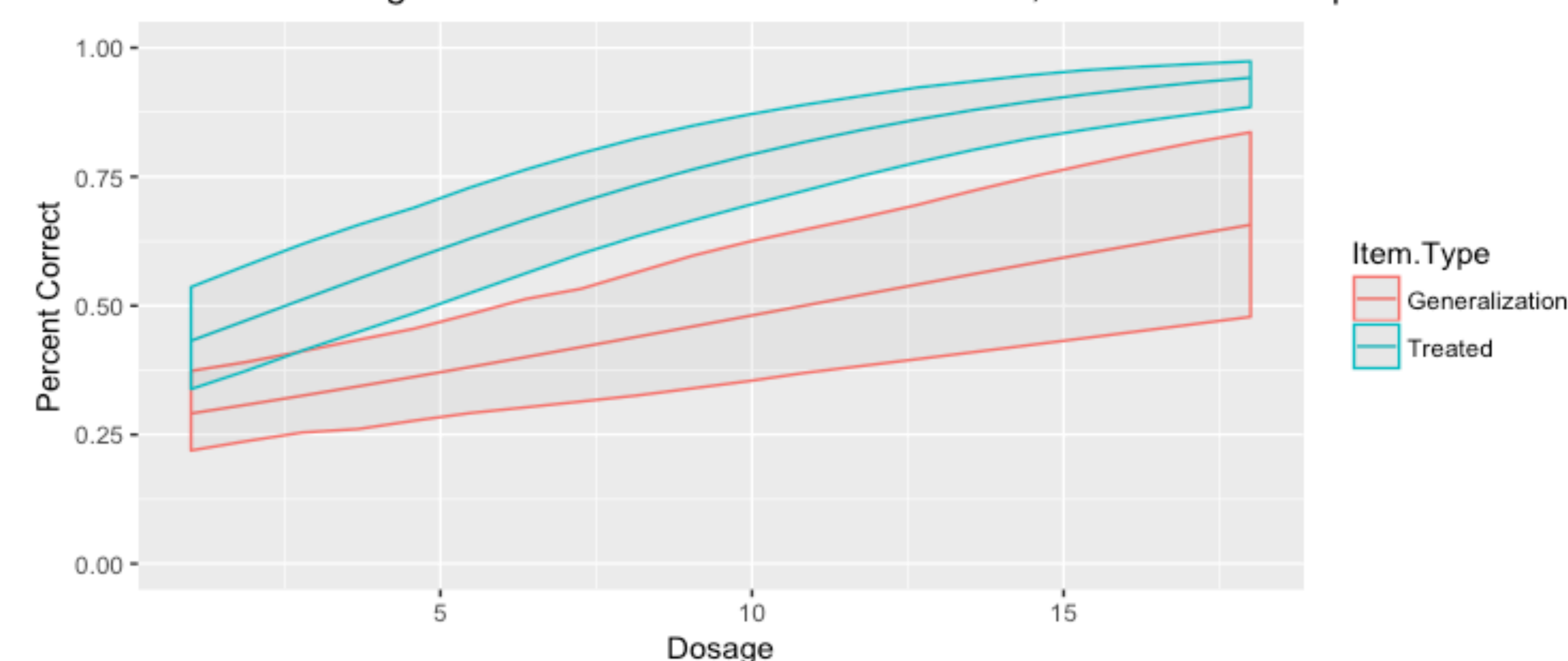
Effects of Treatment Phase on Treated vs. Generalization Items



Dosage

- Main effect of dosage → increasing improvement in naming accuracy with increasing dosages of SFA (estimate=0.09, $z=3.72$, $p<0.001$).
- Dosage interacted with Item type (estimate=0.09, $z=5.21$, $p<0.001$).

Effects of dosage on Treated vs. Generalization items, as measured on probe accuracy



RESULTS

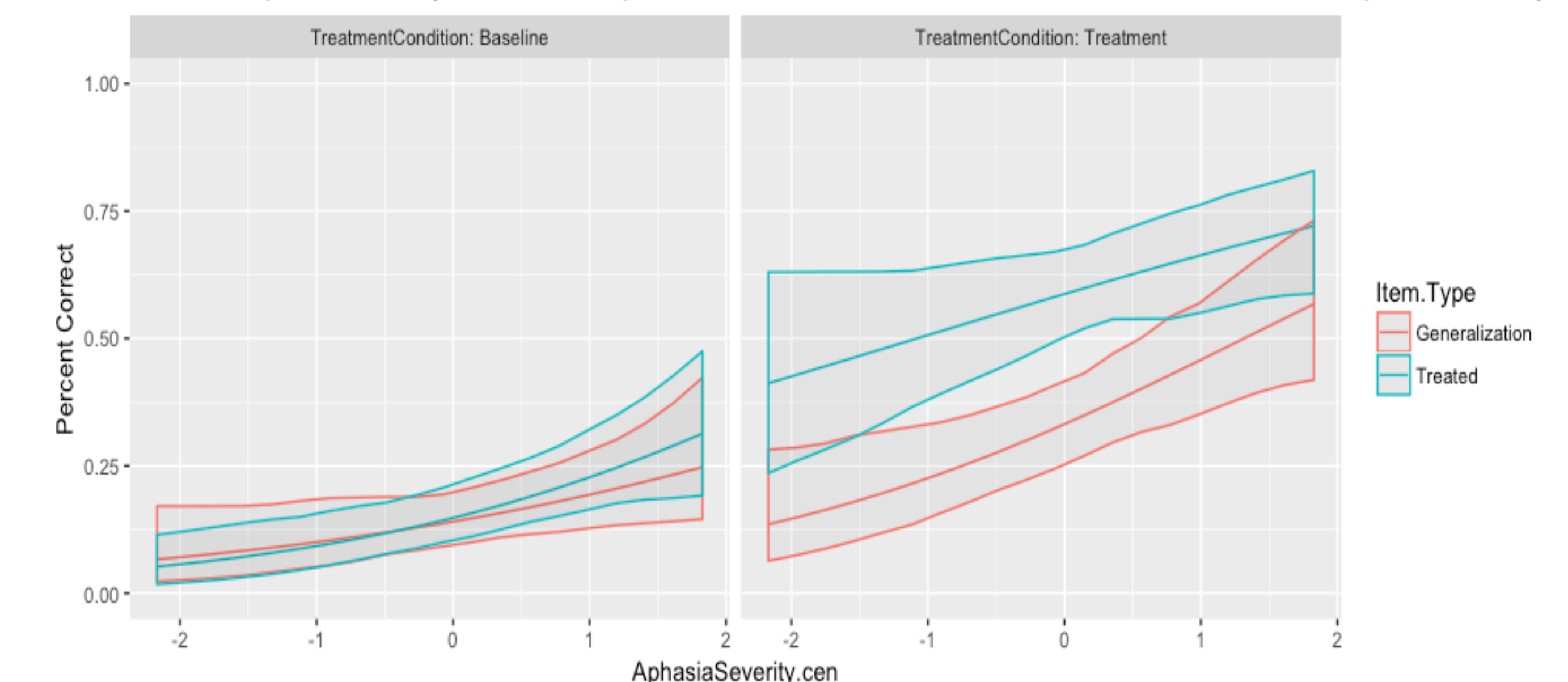
Item Type

- Semantic relatedness interacted with dosage such that the effect of dosage was significantly greater for related compared to unrelated items (estimate=0.05, $z=3.81$, $p<0.001$).

Person-specific predictor variables:

- Language-impairment variables: Main effect of *aphasia severity* across baseline and treatment phases (estimate=0.44, $z=0.16$, $p<0.05$). There was no effect of *Naming-impairment severity*. *Three-way interaction* between treatment phase, Item type and aphasia severity, such that aphasia severity moderated the effect of item type in the treatment phase, but not in the baseline phase.
- Demographic variables of age and months post onset did not moderate the change in naming accuracy from baseline to treatment phases.

Effects of aphasia severity on Treatment phase and Treated vs. Generalization Items, as measured on probe accuracy



CONCLUSIONS

- SFA promoted improved naming during naming probes.
- Increased dosages of SFA were associated with increasing naming accuracy. Dosage appears to disproportionately affect direct training
- Treatment-related gains were larger for acquisition (treated) than generalization (untreated) stimuli.
- Aphasia severity affects performance overall, but appears to have a disproportionate effect on treatment generalization
- These results provide large-scale evidence for the efficacy of SFA, aggregating performance across a sizable ($n=35$) and varied sample of people with aphasia.

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