Outline for Experiment 2

# Option 1: One study including a reanalysis of EEG study and new experiment

**Individual differences in word production**

* Individuals vary in the time needed to prepare a word for production,
* Probably not an automatic process if we see so much between-participant variability and likely correlated with some other skills
* Various cognitive skills have been found to correlate with individual differences in word production speed: inhibition, attention, working memory (studies by Shao, Jongman, Piai, etc.)

**Cognitive skills that predict word production speed**

* Include detailed information about different types of inhibition, attention, and working memory and tasks used to measure them (Sylvain’s text)
* How generalizable are these relationships that have been found so far in the literature? What types of inhibition, attention, etc. predict naming speed, and can we find relationships in other domains (e.g., linguistic vs. non-linguistic, visual vs. auditory)?

**Cognitive skills and word production speed when task is more difficult**

* Previous studies show that cognitive skills seem especially related to word production speed when the task is more difficult (e.g., dual-task paradigms, correlations with tau parameter, actions vs. object naming)
* Can we extend this idea to speeded word production?
* It might be more complicated to make predictions for these relationships in a speeded task: speeded word production might leave less room for between-participant variability, which would make it harder to find correlations, but the task should be more difficult, which could give participants with better inhibition/attention skills an advantage.

**Attention and semantic interference in word production**

* Attention has been shown to relate to word production speed using a correlational approach
* Can we *manipulate* attention by forcing participants to respond faster? Can probably use meta-analysis to motivate this because semantic interference is smaller at shorter reaction times than longer reaction times.
* Do participants who show better recall of the distractor words show larger semantic interference effects?

**Current study**

* Question 1: Of all these measures that we collected, do they discriminate among participants well enough to find correlations with other measures (motivate with Hedge et al., 2018, for example)?
  + Report descriptive stats on all variables (in a table probably)
  + Present a figure with histograms for all measures
  + Pick which ones to include by how well they discriminate among individuals (also choose between delta slopes and RT cost for conflict tasks)
* Question 2: What types of inhibition, attention, etc. predict naming speed, and can we find relationships in other domains (e.g., linguistic vs. non-linguistic, visual vs. auditory)?
  + Reanalysis of Exp. 1: correlations between mu, sigma, tau parameters and all of the cognitive measures we decided to include (baseline condition only)
  + Confirm with Exp. 2 slow block (baseline condition only)
* Question 3: Do we see stronger relationships between cog. skills and word production speed when the task is more difficult (speeded task)?
* Question 4: If we *manipulate* attention by forcing participants to respond faster, do participants show smaller semantic interference effects?
* Question 5: Does processing of the distractor influence the magnitude of the semantic interference effect? (Do participants who show better recall of the distractor words show larger interference effects?)

# Option 2: break it up into two experiments (reanalysis of EEG study and new experiment)

## Experiment 1: generalizability of previous findings (reanalysis of EEG study)

**Individual differences in word production**

* Individuals vary in the time needed to prepare a word for production,
* Probably not an automatic process if we see so much between-participant variability and likely correlated with some other skills
* Various cognitive skills have been found to correlate with individual differences in word production speed: inhibition, attention, working memory (studies by Shao, Jongman, Piai, etc.)

**Cognitive skills that predict word production speed**

* Include detailed information about different types of inhibition, attention, and working memory and tasks used to measure them (Sylvain’s text)
* How generalizable are these relationships that have been found so far in the literature? What types of inhibition, attention, etc. predict naming speed, and can we find relationships in other domains (e.g., linguistic vs. non-linguistic, visual vs. auditory)?

**Current study**

* Question 1: Of all these measures that we collected, do they discriminate among participants well enough to find correlations with other measures (motivate with Hedge et al., 2018, for example)?
  + Report descriptive stats on all variables (in a table probably)
  + Present a figure with histograms for all measures
  + Pick which ones to include by how well they discriminate among individuals (also choose between delta slopes and RT cost for conflict tasks)
* Question 2: What types of inhibition, attention, etc. predict naming speed, and can we find relationships in other domains (e.g., linguistic vs. non-linguistic, visual vs. auditory)?
  + Reanalysis of Exp. 1: correlations between mu, sigma, tau parameters and all of the cognitive measures we decided to include

## Experiment 2: motivation is two-fold—first replicate reanalysis of Exp. 1, then ask new questions

**Cognitive skills and word production speed when task is more difficult**

* Previous studies show that cognitive skills seem especially related to word production speed when the task is more difficult (e.g., dual-task paradigms, correlations with tau parameter, actions vs. object naming)

We test this hypothesis directly by manipulating task difficulty. The use of a speeded task is the tool we are using to manipulate task difficulty.

* It might be more complicated to make predictions for these relationships in a speeded task: speeded word production might leave less room for between-participant variability, which would make it harder to find correlations, but the task should be more difficult, which could give participants with better inhibition/attention skills an advantage. (add to results section only)

**Attention and semantic interference in word production**

* Attention has been shown to relate to word production speed using a correlational approach, and distributional analyses of the effect have been interpreted in terms of attention (e.g., lapses of attention for longer responses).
* First question: Can we *manipulate* attention by forcing participants to respond faster? Can probably use meta-analysis to motivate this because semantic interference is smaller at shorter reaction times than longer reaction times.
* Do participants who show better recall of the distractor words show larger semantic interference effects?

**Current study**

* Question 1: First replicate reanalysis of Exp. 1 in a hypothesis-driven way (using slow block only)
* Question 2: Do we see stronger relationships between cog. skills and word production speed when the task is more difficult (speeded task)?
* Question 3: If we *manipulate* attention by forcing participants to respond faster, do participants show smaller semantic interference effects?
* Question 4: Does processing of the distractor influence the magnitude of the semantic interference effect? (Do participants who show better recall of the distractor words show larger interference effects?)