The document discusses ERP measures in response to violations of voicing agreement constraint. It includes the following sections:

**OBJECTIVES**
- Test ERP measures of phonetic and phonological sequence predictions by replicating the MEG findings of Monahan et al. (2009) and providing additional evidence for conclusion regarding underspecification.
- Better understand phonotactic processing by testing the hypothesis that grammatical patterns will be perceived differently than impossible or less preferred patterns.

**MEG MEASURES OF PHONOTACTIC SENSITIVITY**
- Flagg et al. (2004) showed that VOIC/NOVOIC stimuli that either obeyed or violated the constraint that nasalized vowels must be followed by nasal consonants. 
- Found a significant latency difference in the M50 response to an oral consonant following a nasal vowel, but not to a nasal consonant following an oral vowel - even though both sequences violate the constraint.
- Effect was significant for coronal C only, and only found an effect for voiced-voiceless incongruity, not for voiceless-voiceless.
- Take this as evidence of underspecification: if only [+voice] is stored in phonemic representation, only voiced C will create an expectation that the incongruent sequences do not meet.

**METHOD: ERP EXPERIMENT**
- Stimuli (from Monahan et al. (2009)): 12 types x 150 tokens = 1800 randomized trials.
- 17 subjects (16 female, aged 18-23, 15 right-handed) and 8 subjects (all female, aged 18-19) performed a distractor task, e.g. filler items.
- Subjects listened passively and performed a distractor task, e.g. filler items.
- ERPs epoched with a 200 ms baseline time locked to the onset of the V.
- Sibilant occurred 200 ms into the word and was followed by a 600 ms epoch.
- Average referenced.

**METHOD: BEHAVIORAL EXPERIMENT**
- 8 subjects (all female, aged 18-19).
- Sensitivity to phonotactic violations is detectable at early stages of processing, though as in previous studies an asymmetry was observed in the direction of the incongruency.
- Previous study found a significant effect only for coronals, and the current results found (non-significant) differences between labial, coronal, and velar. Yet no p.o.a. difference is expected if the relevant feature is [voice].

**RESULTS: BEHAVIORAL**
- Unable to replicate findings of Monahan et al. (2009). Response to incongruent stimuli supports underspecification of voiced, not voiceless consonants.
- Compared to behavioral results, ERP finding suggests that this measure may be useful for detecting sensitivity to phonotactic violations at an earlier stage of processing, thus the processing of constraint violations at the phoneme-sequence level is available to the perceptual systems that ERPs can access, even though the effect may not extend to the level of cognition used in behavioral experiments.

**CONCLUSIONS AND FUTURE WORK**
- Sensitivity to phonotactic violation is detectable at early stages of processing, though as in previous studies an asymmetry was observed in the direction of the incongruency.
- Previous study found a significant effect only for coronals, and the current results found (non-significant) differences between labial, coronal, and velar. Yet no p.o.a. difference is expected if the relevant feature is [voice].

**SELECTED REFERENCES AND ACKNOWLEDGMENTS**
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**DISCUSSION**
- Some stimuli as ERP study: 48 randomized trials.
- Phonotactic acceptability judgment task: rate on a scale from 1-4 how much the word sounds like a word of English.