



The Influence of Misarticulation on Preschoolers' Word Recognition

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Introduction

- Previous research has shown that children are sensitive to speech variability (e.g. dialect, foreign accent).
- Misarticulated speech is a form of variability that children encounter in social situations with peers.
- The purpose of the present study is to investigate whether children are sensitive to misarticulations in speech, and whether their ability to identify words containing misarticulated speech is affected by the speech sound substitutions being common or uncommon in children's developmental phonology.

1. Do children identify words containing speech sound substitutions as real words or as novel words?
2. Do children process words containing misarticulated speech in the same way as accurate productions of the same word?
3. Do children respond differently to speech sound substitutions that are typically produced by children versus those substitutions that are rarely produced during typical development?

Methods

- Twenty monolingual, typically developing preschoolers

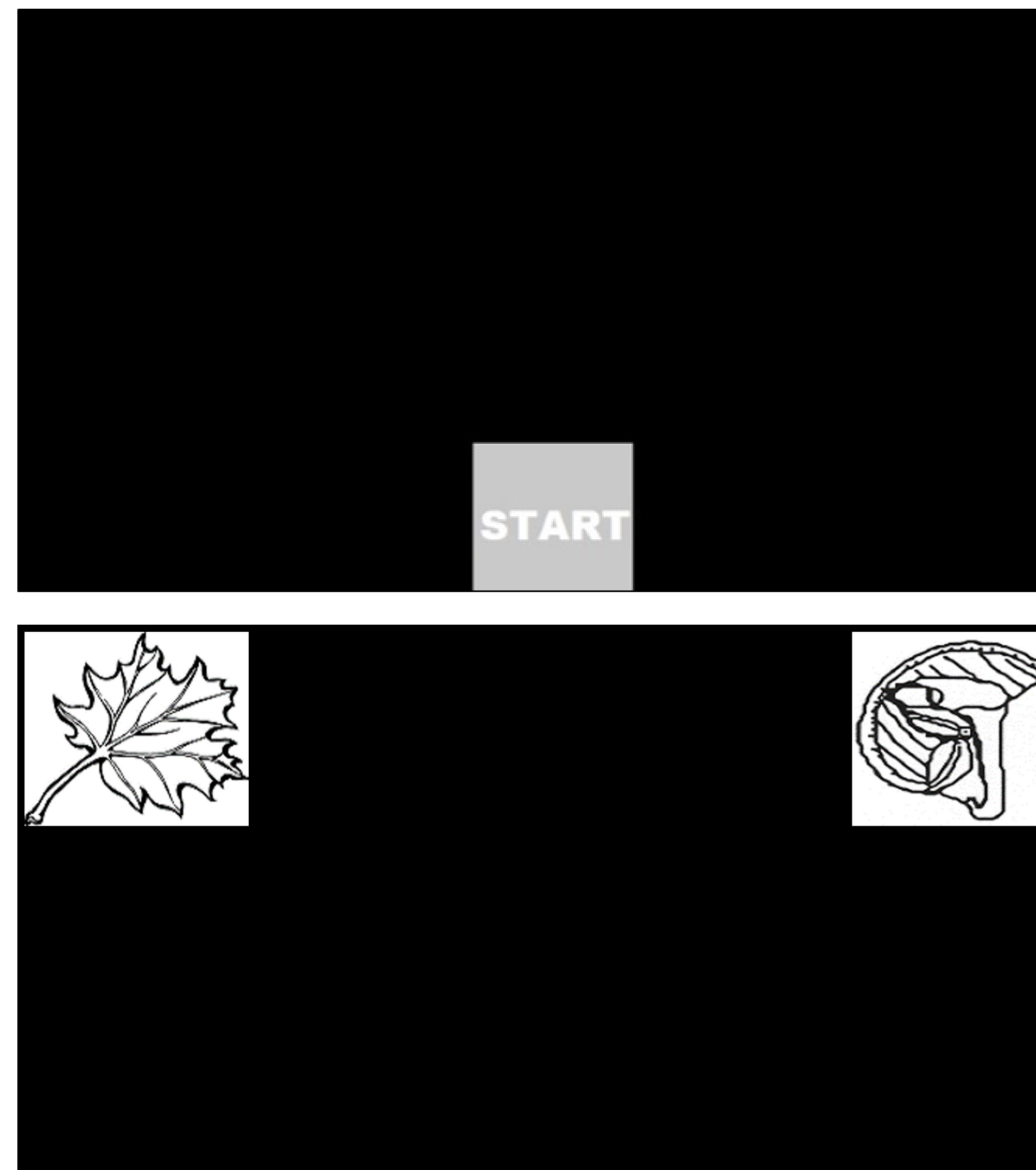
	Mean	Standard Deviation	Range
Age	5.04 years	0.44	4.0 – 5.92
Goldman Fristoe Test of Articulation-2	111.55	4.21	99 – 118
Peabody Picture Vocabulary Test-4	114.25	9.55	96 – 129

Age of participants and their scores on standardized measures of articulation and language tests. Scores are standard scores.

Stimuli		
Canonical Word	Common Substitute	Uncommon Substitute
chick	shick	fick
leaf	weaf	yeaf
thumb	fumb	shumb
comb	tomb	pomb
jar	dar	gar
safe	tafe	pafe
van	ban	dan
shirt	sirt	firt
clock	kwock	kjock
rope	wope	yope
fish	pish	tish
girl	dirl	birI

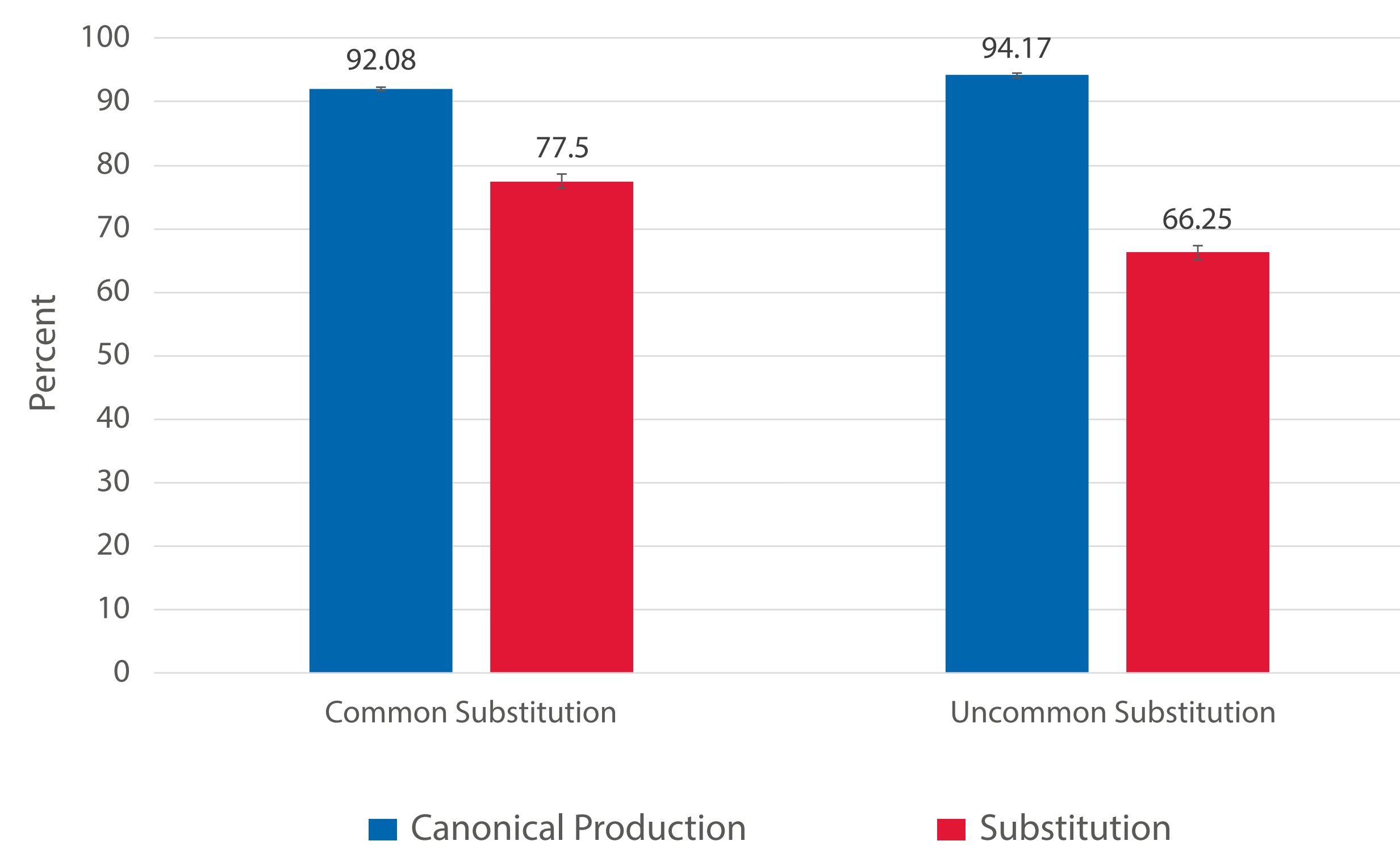
The substitution phonemes were selected based on their frequency of occurrence in typical phonological development (common) and based on their rarity in typical phonological development (uncommon). (Smit et al., 1990).

- Children's selections and reaction times were recorded and analyzed to determine if there is a difference in response between canonical productions and those containing substitutions.

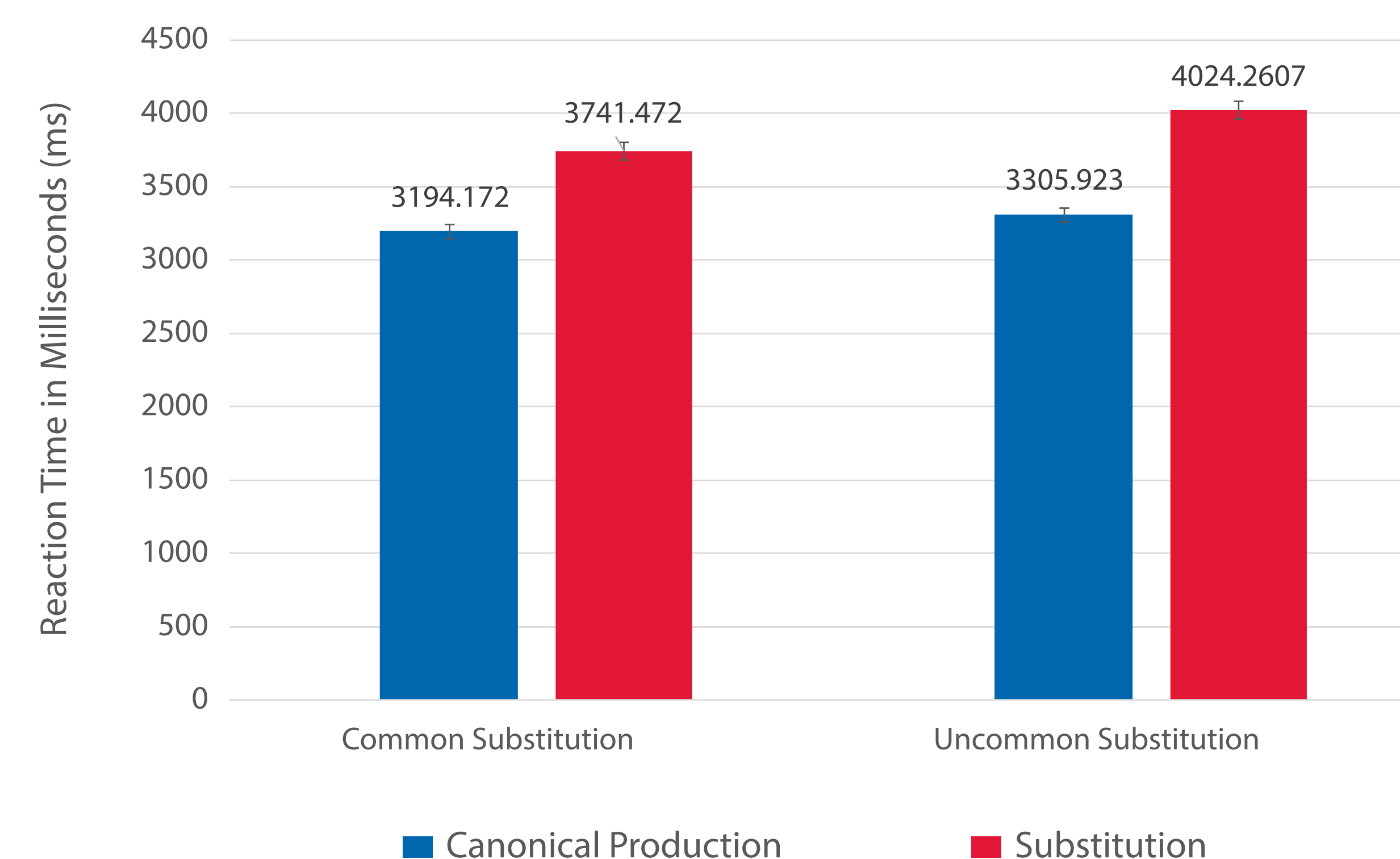


- Child sees the "Start" screen. Once the "Start" is clicked, the auditory and visual stimuli are presented and reaction time is measured from this point until the selection of an object.

Proportion of real object selections are higher in canonical productions than substitutions, and higher in common substitutions than uncommon substitutions



Reaction times are faster in canonical production conditions than substitution conditions.



Discussion

1. Do children identify words containing speech sound substitutions as real words or as novel words?
 - Children selected more real objects pictures when they heard a canonical production than a misarticulated production.
2. Do children process words containing misarticulated speech in the same way as accurate productions of the same word?
 - Reaction times were negatively impacted in substitution conditions.
3. Do children respond differently to speech sound substitutions that are typically produced by children versus those substitutions that are rarely produced during typical development?
 - Among the misarticulated productions, children selected more real objects when they heard a production containing a common substitute than when they heard an uncommon substitute.
 - Reaction time was not significantly different.

Conclusion

- Children perceive misarticulated speech as phonetic variants of real words over novel "unnamed" objects.
- Processing cost in accommodating these variations from the canonical production.
- The frequency of the misarticulation (i.e., common vs. uncommon) influenced children's interpretation, but not processing.

References

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- Freeman, J. B., & Ambady, N. (2010). MouseTracker: Software for studying real-time mental processing using a computer mouse-tracking method. *Behavior Research Methods, 42*(1), 226-241.
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