Interference in planning: Accuracy and timing evidence from real-time possessive pronoun production

Eun-Kyoung Rosa Lee[1] (ekleesla@umd.edu), Sol Lago[2]
[1]University of Maryland, USA, [2]Goethe University Frankfurt, Germany

Background

Interference occurs in reflexive and possessive pronoun production

- Small but significant interference, reflected in production error rates
- Mixed findings across different pronoun types & experiment tasks

Task	Example	Error rate
Preamble completion [1, 2]	*The **actor** in the soap opera(s) watched **himself/*themselves***	15–20%
Scene description [3]	*The **pinky** below the bluey(ies) mimed **itself/*themselves***	0.4%
Picture description [4]	*Victoria/*Victor carried a package to **her** granddaughter*	5.1%

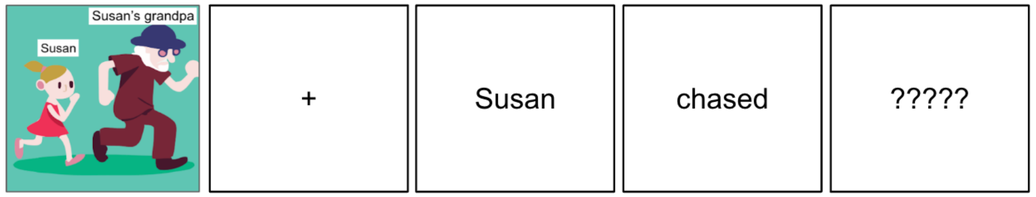
Research Question & Materials

Does a non-antecedent noun that is yet-to-be-uttered cause interference during English possessive pronoun production?

- Measures: production accuracy & timing
- Task: picture-based preamble completion (Exp. 1) & picture description (Exp. 2)

Sentence Type	Preamble	Gender Match	Target Response
Active	Susan chased	Match	"her grandma"
		Mismatch	"her grandpa"
Passive	Susan was chased by	Match	"her grandma"
		Mismatch	"her grandpa"

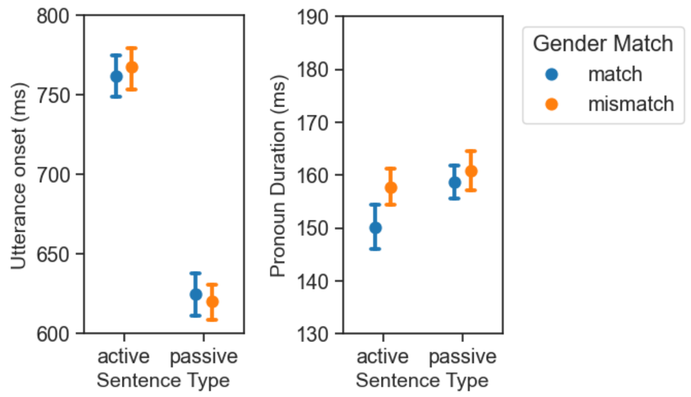
Experiment 1: Picture-based Preamble Completion Task (N = 98)



Sentence Type	Gender Match	Pronoun Error Count
Active	Match	2 (.002%)
	Mismatch	8 (.01%)
Passive	Match	0 (0%)
	Mismatch	2 (.003%)

(588 total utterances)

→ Almost no pronoun errors
→ Interference effect found in timing measure only with active sentences

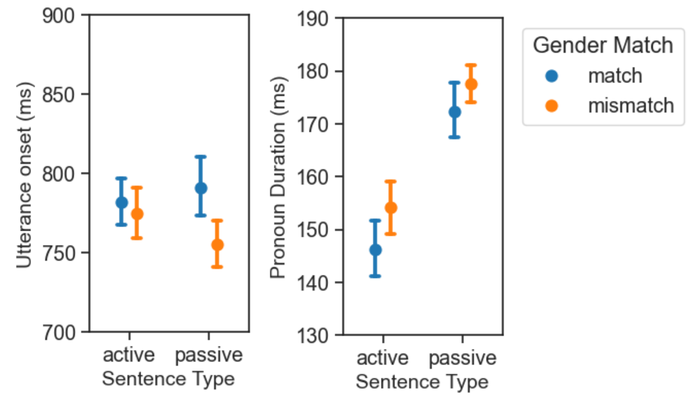


Experiment 2: Picture Description Task (N = 112)

Sentence Type	Gender Match	Pronoun Error Count	Pre-pronoun Gap Count
Active	Match	0 (0%)	40 (8.4%)
	Mismatch	4 (.006%)	36 (7.7%)
Passive	Match	3 (.004%)	7 (1.7%)
	Mismatch	4 (.006%)	10 (2.3%)

(672 total utterances)

→ No interference effect found in accuracy or timing analyses



Discussion

(Weak) interference from non-antecedent noun

- Increased rate of pronoun errors
- Elongated production of the correct pronoun

Low pronoun error rates & no evidence for delay prior to pronoun onset

- Compare reflexives, object pronouns, verbs
- Attractor is not produced before the pronoun
- Grammatical gender vs. number

Task effect

- Controlled vs. naturalistic production setting
- Conceptual route vs. lexical route

Timing of pronoun planning

Planning of active vs. passive sentences

Future Directions

- Test with a more controlled task as in previous studies that elicited more pronoun errors [4]
- Examine non-native speakers' performance [5]
- Test languages where possessive pronouns have a prospective agreement dependency with the attractor noun [6]:

Martin nimmt seine$_{FEM}$ Flasche$_{FEM}$
('*Martin takes his bottle*')
Sarah nimmt ihre$_{FEM}$ Flasche$_{FEM}$
(*'Sarah takes her bottle'*)

[1] Bock, Nicol, & Cutting (1999) JML [2] Bock, Cutler, Eberhard, Buttefield, Cutting, Humphreys (2006) Language [3] Kandel & Phillips (2022) JML [4] Slevc, Wardlow Lane, & Ferreira (2007) MITWPL [5] Pozzan & Antón-Méndez (2017) Appl. Psycholinguist. [6] Stone, Veríssimo, Schad, Oltrogge, Vasishth, & Lago (2021) LCN

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