

Models of L3 Acquisition in Grammatical Gender Learning: Initial Transfer and Ongoing Development

Megan M. Brown

Boston University

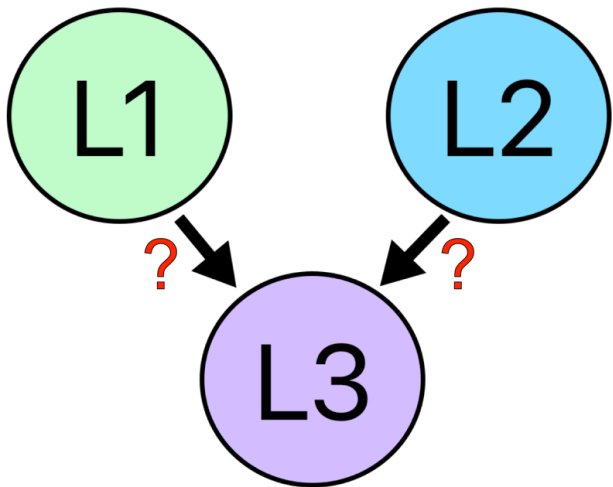
March 20th, 2023



Outline

- 1 Third Language (L3) Acquisition
- 2 Experiment 1: Cross-Sectional Grammaticality Judgement Task
- 3 Experiment 2: L3 “Beginners” vs. L3 Initial State
- 4 Experiment 3: Longitudinal Gender Development
- 5 Summary

CLI in L3 Acquisition



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Third Language (L3) Acquisition

Theories and Models in L3 Grammatical Gender

Experiment 1: Cross-Sectional Grammaticality Judgement Task

Experiment 1: Cross-Sectional Grammaticality Judgement Task

Procedures Results Key Findings

Experiment 2: L3 "Beginners" vs. L3 Initial State

Background

Theories and Models of L3 CLI and Transfer

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**Theories and Models
in L3**

Grammatical Gender

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Experiment 1:
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Experiment 2:
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Background

Theories and Models of L3 CLI and Transfer

- **Cumulative Enhancement** (Flynn et al., 2004)
- **L2 Status Factor** (Bardel & Falk, 2007)
- **L1 Transfer** (Hermas, 2010)
- **Typological Primacy** (Rothman, 2010)
- **Language of Community** (Fallah et al, 2016)
- **Linguistic Proximity** (Westergaard et al., 2017)
- **Scapel Model** (Slabakova, 2017)
- **Top-Down Cognitive Control** (Green, 2017)
- **Full Transfer Potential** (Westergaard, 2021)
- **Grammatical Mapping** (Fernández-Berkes & Flynn, *in press*)
- **Cumulative Input Threshold Hypothesis** (Cabrelli & Iverson, *in press*)

Theories and Models of L3 CLI and Transfer

L3 models differ in terms of:

- Initial state/stages transfer vs. longer-term development

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Theories and Models of L3 CLI and Transfer

L3 models differ in terms of:

- Initial state/stages transfer vs. longer-term development
- Wholesale vs piecemeal initial transfer

Theories and Models of L3 CLI and Transfer

L3 models differ in terms of:

- Initial state/stages transfer vs. longer-term development
- Wholesale vs piecemeal initial transfer
- Role of additional factors
 - Typological similarity
 - Age/order of acquisition
 - L2/L3 proficiency
 - Language status
 - Cognitive factors

Theories and Models of L3 CLI and Transfer

L3 models differ in terms of:

- **Initial state/stages transfer vs. longer-term development**
- **Wholesale vs piecemeal initial transfer**
- Role of additional factors
 - Typological similarity
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Models of L3 Transfer

Wholesale Transfer Models

L2 Transfer

L1 Status Factor

Typological Primacy

Language of Community

Piecemeal Transfer Models

Cumulative Enhancement

Linguistic Proximity

Scalpel Model

Full Transfer Potential

Grammatical Mapping

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L3 Models

Key Takeaways

L3 Models

Key Takeaways

- Models differ in terms of the **manner of transfer** they propose.

L3 Models

Key Takeaways

- Models differ in terms of the **manner of transfer** they propose.
- Models differ in terms of the **point in L3 acquisition** they are referring to.

L3 Models

Key Takeaways

- Models differ in terms of the **manner of transfer** they propose.
- Models differ in terms of the **point in L3 acquisition** they are referring to.
- Certain L3 models may not be directly comparable to each other in an experimntal context.

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Research Questions

Research Questions

- Does previous **grammatical gender** knowledge from the L1 and/or L2 influence L3 grammatical gender acquisition?

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- Does the role/influence of previous grammatical gender knowledge change throughout the L3 acquisition process?

Research Questions

- Does previous **grammatical gender** knowledge from the L1 and/or L2 influence L3 grammatical gender acquisition?
- Does the role/influence of previous grammatical gender knowledge change throughout the L3 acquisition process?
- How might age/order of acquisition and language similarity promote or inhibit the transfer of previous grammatical gender knowledge to the L3?

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Grammatical Gender

Grammatical Gender

German:

Der Mann	Die Frau	Das Mädchen
The man Masculine	The woman Feminine	The girl Neuter

Romance:

Spanish	El chico	La chica
French	Le garçon	La fille
Italian	Il ragazzo	La ragazza
Portuguese	O menino	A garota
English	The boy Masculine	The girl Feminine

Grammatical Gender in L2

- L1 gender can transfer to L2 (i.e. Franceschina, 2005)

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Grammatical Gender in L2

- L1 gender can transfer to L2 (i.e. Franceschina, 2005)
 - Even between more typologically distant languages (i.e. Sabourin, 2001)

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Grammatical Gender in L2

- L1 gender can transfer to L2 (i.e. Franceschina, 2005)
 - Even between more typologically distant languages (i.e. Sabourin, 2001)
- L2ers without gender in their L1 are able to develop a gender system (White et al., 2004; Sagarra and Herschensohn, 2010)

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- Key differences between offline vs. online experimental grammatical gender tasks (Długosz, 2021)

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- L1 gender can transfer to L2 (i.e. Franceschina, 2005)
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- L2ers without gender in their L1 are able to develop a gender system (White et al., 2004; Sagarra and Herschensohn, 2010)
- Key differences between offline vs. online experimental grammatical gender tasks (Długosz, 2021)
- **How do L1 vs L2 gender systems influence L3 gender development?**
 - At the onset of L3 acquisition
 - At later points in the development process

Experiment 1: Brown (2020a)

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Experiment 1: Brown (2020a)

- Online survey and grammaticality judgement task via Qualtrics
- Sequential Spanish/English bilinguals
- “Beginner” German learners
 - <1 year (two semesters) L3 German instruction

Experiment 1: Brown (2020a)

- Online survey and grammaticality judgement task via Qualtrics
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- Intermediate or higher L2 proficiency

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- Online survey and grammaticality judgement task via Qualtrics
- Sequential Spanish/English bilinguals
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 - <1 year (two semesters) L3 German instruction
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Language Background	Number of Participants
L1 English L2 Spanish L3 German	11
L1 Spanish L2 English L3 German	10
L1 English L2 German	11

German Grammaticality Judgement Task

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German Grammaticality Judgement Task

Gender Mismatch

*Das Baum ist groß
The_[N] tree_[M] is tall

German Grammaticality Judgement Task

Gender Mismatch

*Das Baum ist groß
The_[N] tree_[M] is tall

Words reflecting biological gender were not included

German Grammaticality Judgement Task

Gender Mismatch

*Das Baum ist groß
The_[N] tree_[M] is tall

Words reflecting biological gender were not included

Error questions were balanced in terms of:

German Grammaticality Judgement Task

Gender Mismatch

*Das Baum ist groß

The_[N] tree_[M] is tall

Words reflecting biological gender were not included

Error questions were balanced in terms of:

German Gender

Error Direction (M → F, M → N ect.)

Spanish Gender

Gender Assignment vs. Gender Concord

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Gender Assignment vs. Gender Concord

Grammatical Gender Task

Gender Assignment vs. Gender Concord

Grammatical Gender Task

Tür (Door_F)

Gender Assignment vs. Gender Concord

Grammatical Gender Task

Tür (Door_F)

Der_M

Die_F

Das_N

Gender Assignment vs. Gender Concord

Grammatical Gender Task

Tür (Door_F)

Der_M

Die_F

Das_N

Grammaticality judgment tasks were graded based on participants' perceived gender of individual lexical items.

Experiment 1: Scoring

Gender Assignment vs. Gender Concord

Grammatical Gender Task

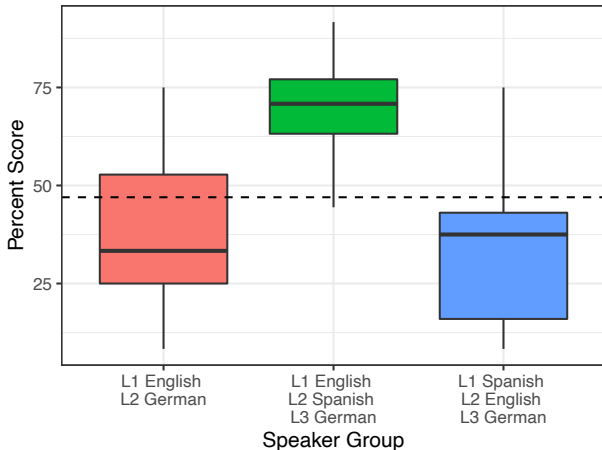
Tür (Door_F)

Der_M Die_F Das_N

Grammaticality judgment tasks were graded based on participants' perceived gender of individual lexical items.

Experiment 1 Results

Brown (2020)



Experiment 1: Key Findings

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Experiment 2:
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Background

- Beginner L3 German learners with **L2 Spanish** were better at identifying gender errors in L3 German.

Experiment 1: Key Findings

- Beginner L3 German learners with **L2 Spanish** were better at identifying gender errors in L3 German.
 - L2 Status Factor Model
 - Scalpel Model

Experiment 1: Key Findings

BUT...

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Experiment 1: Key Findings

BUT...

- No interference was found from nouns with different Spanish genders.

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Background

BUT...

- No interference was found from nouns with different Spanish genders.
- These participants were **beginners** but **not initial state** learners.

Experiment 1: Key Findings

BUT...

- No interference was found from nouns with different Spanish genders.
- These participants were **beginners** but **not initial state** learners.
- **Are these results from initial transfer or some later developmental difference?**

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Background

Experiment 2

Experiment 2

- True initial state L3 learners

Experiment 2

- True initial state L3 learners
- Artificial Germanic Language

Experiment 2

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Background

- True initial state L3 learners
- Artificial Germanic Language
 - Avoids intertwinement of German DP features
 - (i.e. gender, number, case, and definiteness)

Experiment 2

- True initial state L3 learners
- Artificial Germanic Language
 - Avoids intertwinement of German DP features
 - (i.e. gender, number, case, and definiteness)
 - Precedent in the L2 acquisition literature
 - Brooks et al. (1993), Siegelman & Arnon (2015)
Wonnacott, Brown & Nation (2017), Culbertson,
Gagliardi & Smith (2017)

Artificial Language

- 9 nouns
 - 3 masculine, 3 feminine, 3 neuter

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Artificial Language

- 9 nouns
 - 3 masculine, 3 feminine, 3 neuter
- 4 determiners
 - 1 masculine, 1 feminine, 1 neuter, 1 plural
- 5 adjectives
 - suffixes: 1 masculine, 1 feminine, 1 neuter, 1 plural

Artificial Language

- 9 nouns
 - 3 masculine, 3 feminine, 3 neuter
- 4 determiners
 - 1 masculine, 1 feminine, 1 neuter, 1 plural
- 5 adjectives
 - suffixes: 1 masculine, 1 feminine, 1 neuter, 1 plural
- 1 carrier phrase

Artificial Language

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Erblicken ern-e rot-e Tür.
Behold Det_[Fem/Sing] red_[Fem/Sing] door_[Fem/Sing]
'Behold a red door'

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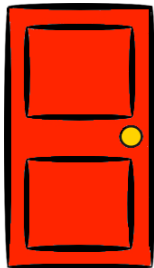
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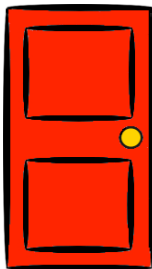
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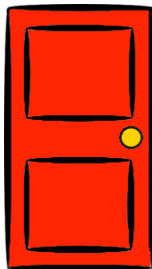
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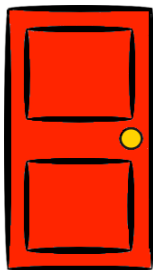
“Erblicken ern-e rot-e Tür”



“Erblicken ern rot-e Tür”



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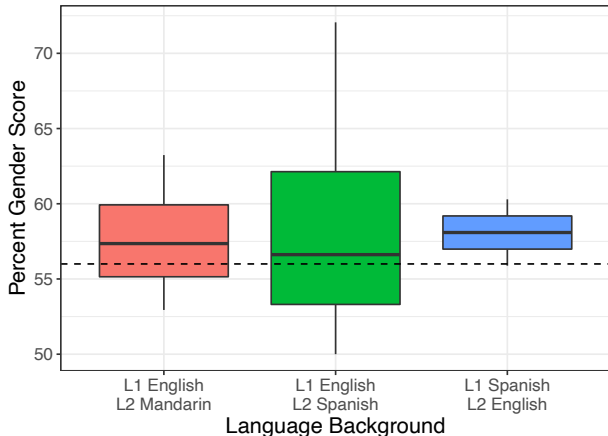
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Participants

Language Background	Number of Participants
L1 English L2 Spanish	7
L1 Spanish L2 English	4
L1 English L2 Mandarin	4

Experiment 2 Results

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Results

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Background

- No group differences for grammatical gender
 - (TPM, Piecemeal Transfer/Developmental Models)

Results

- No group differences for grammatical gender
 - (TPM, Piecemeal Transfer/Developmental Models)
- Overall poor performance across all groups on grammatical questions
 - (Piecemeal Transfer Models)

- Experiment 1:

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Background

- Experiment 1:
 - **Beginner** L3 German learners (< 1 year)
 - L2 Spanish advantage in L3 German gender

- Experiment 1:
 - **Beginner** L3 German learners (< 1 year)
 - L2 Spanish advantage in L3 German gender
- Experiment 2:
 - **Initial State** L3 German learners
 - **No** L2 Spanish advantage in L3 German gender or number

- Experiment 1:
 - **Beginner** L3 German learners (< 1 year)
 - L2 Spanish advantage in L3 German gender
- Experiment 2:
 - **Initial State** L3 German learners
 - **No** L2 Spanish advantage in L3 German gender or number
- Perhaps an L3 **developmental** difference?

Experiment 3

Longitudinal L3 Development

- Dissertation project aiming to tease apart the findings of Experiment 1.

Experiment 3

Longitudinal L3 Development

- Dissertation project aiming to tease apart the findings of Experiment 1.
- Longitudinal design - participants complete the experiment within the first two weeks of beginning their first German course, and again at the end of their semester.

Experiment 3

Longitudinal L3 Development

- Dissertation project aiming to tease apart the findings of Experiment 1.
- Longitudinal design - participants complete the experiment within the first two weeks of beginning their first German course, and again at the end of their semester.
- Examination of gender in both listening and reading contexts.

Procedure Summary

- A German listening task involving virtual eye-tracking

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Procedure Summary

- A German listening task involving virtual eye-tracking
- A German self-paced reading task

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Third
Language (L3)
Acquisition

Theories and Models
in L3

Grammatical Gender

Experiment 1:
Cross-
Sectional
Grammatical-
ity Judgement
Task

Experiment 1:
Cross-Sectional
Grammaticality
Judgement Task

Procedures

Results

Key Findings

Experiment 2:
L3
"Beginners"
vs. L3 Initial
State

Background

Procedure Summary

- A German listening task involving virtual eye-tracking
- A German self-paced reading task
- A German gender assignment task (only at second meeting)

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- A German self-paced reading task
- A German gender assignment task (only at second meeting)
- Multilingual LEAP-Q
- Proficiency and gender knowledge assessment in other known languages

Experiment 3 Participants

- “Ab initio” German learners
 - True beginners with no previous German exposure

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- Intermediate or higher L2 proficiency
 - Spanish, French, Italian, & Portuguese

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Language Background	Number of Participants
L1 English L2 Romance L3 German	16
L1 Romance L2 English L3 German	10
L1 English L2 German	12

Listening Task

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- Also trained on two adjectives, "Large" and "Small"
- Virtual eye tracking serves as the key measure
- Two key experimental conditions, Gender Match and Gender Error

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Listening Task

Gender Match



(F)



(M)

(M)



(N)



Listening Task

Gender Match



(F)



(M)

“Hier ist der große Stift richtig”
(Here, the(M) big pen (M) is correct)

(M)



(N)



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Listening Task

Gender Mismatch



(F)



(M)

(M)



(N)



Listening Task

Gender Mismatch



(F)



(M)

“Hier ist das große Stift richtig”
(Here, the(N) big pen (M) is correct)



(M)



(N)



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Gender Mismatch



(F)



(M)

(M)



(N)



Listening Task

- Are learners at each data collection point point able to process gender cues in real time?

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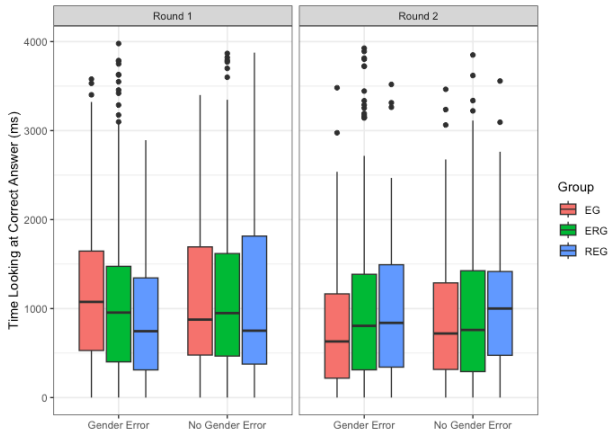
Key Findings

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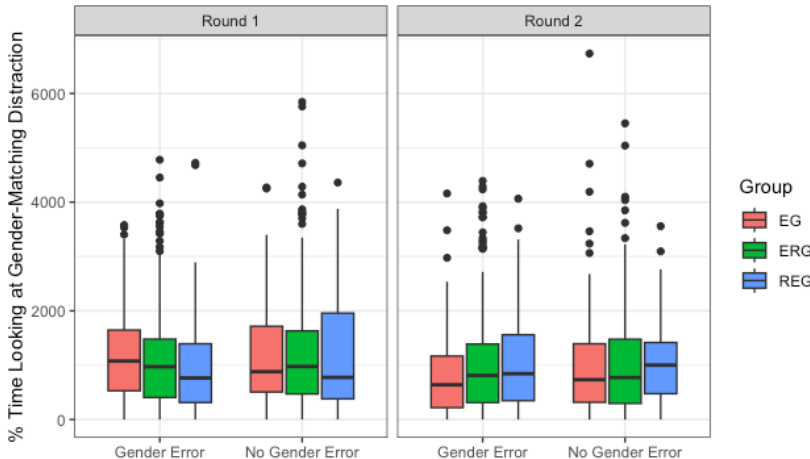
Listening Task

Results: Noun Learning



Listening Task

Results: Gender Distractions



Reading Task

- Self-paced reading task

Reading Task

- Self-paced reading task
- Same nouns as in the listening task

Reading Task



(F)

Reading Task



(F)

**Hier
(Here)**

Reading Task



(F)

ist
(is)

Reading Task



(F)

die/der
(the, F/M)

Reading Task



(F)

Türe
door

Reading Task



(F)

gros
big

Reading Task



(F)

(Hier ist die/der Tür groß)
(Here the(F/M) door is large)



Reading Task

- Are learners at each time point able to process gender cues, and are they deterred by gender errors, when processing in real time?
- Are these results different between the reading and the listening task?

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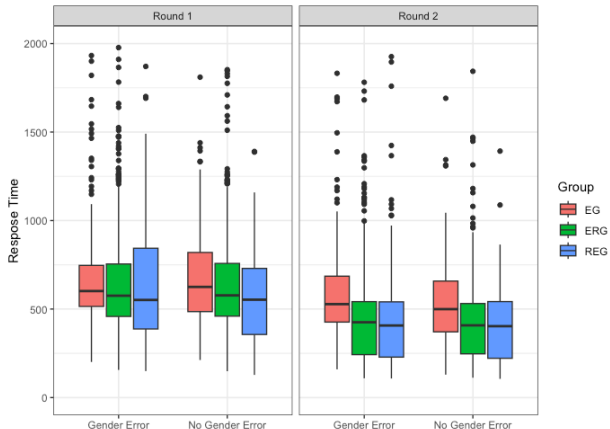
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Reading Task Results



Models of L3
Acquisition in
Grammatical
Gender
Learning:
Initial Transfer
and Ongoing
Development

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Discussion and Takeaways

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- While “beginner” learners might show evidence of CLI from L3 in their processing of written gender, this was not found in “ab initio” learners.

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- Grammatical gender acquisition in L3 is a complex process that maybe be influenced both positively and negatively by previous gender knowledge, particularly from the L2.

Discussion and Takeaways

- While “beginner” learners might show evidence of CLI from L3 in their processing of written gender, this was not found in “ab initio” learners.
- Grammatical gender acquisition in L3 is a complex process that maybe be influenced both positively and negatively by previous gender knowledge, particularly from the L2.
- Grammatical gender processing results differed between listening and speaking tasks

Overall Takeaways

L3 acquisition, development, and maintenance is a complex process!

A variety of factors such as **native/non-native status**, **age of acquisition**, and **language similarity** can influence the degree of CLI that occurs

Additional research is needed at all levels of linguistic research, but particularly in post-initial state L3 development!

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Special Thanks



Thank You!

These slides can be found at <https://www.meganmbrown.com>

Questions?

References

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