

# Modality, Proficiency, and Age of Acquisition in L3 Grammatical Gender Development

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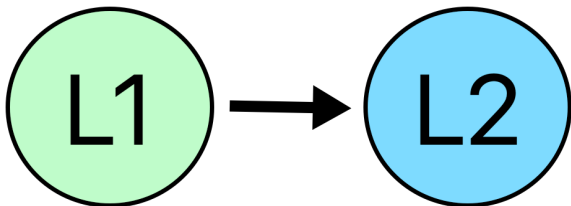
# Outline

- 1 Third Language Acquisition: Current Theories and Research Questions
- 2 Grammatical Gender
- 3 The Project
- 4 Experiment 1: Grammatical Gender in Listening
- 5 Experiment 2: Grammatical Gender in Reading
- 6 Discussion

# Third Language Acquisition

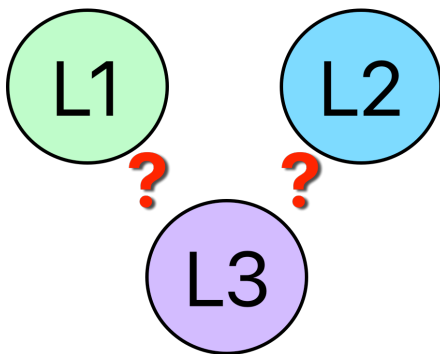
## Current Theories and Research Questions

- In L2 acquisition the L1 is the only source of **cross-linguistic influence**



# Multiple Potential Sources of Transfer

- L3 learners have 2 potential sources, the L1 and the L2
- Which language or language(s) transfer and why?



# Theories and Models of L3 CLI

- **Cumulative Enhancement** (Flynn et al., 2004)
- **L2 Status Factor** (Bardel & Falk, 2007)
- **L1 Transfer** (Herms, 2010)
- **Typological Primacy** (Rothman, 2010)
- **Language of Community** (Fallah et al, 2016)
- **Linguistic Proximity** (Westergaard et al., 2017)
- **Scalpel Model** (Slabakova, 2017 )
- **Top-Down Cognitive Control** (Green, 2017)
- **Full Transfer Potential** (Westergaard, 2021)
- **Grammatical Mapping** (Fernández-Berkes & Flynn, 2023)
- **Cumulative Input Threshold Hypothesis** (Cabrelli & Iverson, 2023)

# Theories and Models of L3 CLI

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

# 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 variables such as the **modality** of the input and the **age/order of acquisition** of the learner's other language impact the way that learners develop and process grammatical gender in a new L3?

# Grammatical Gender

German:

<b>Der Mann</b>	<b>Die Frau</b>	<b>Das Mädchen</b>
The man <b>Masculine</b>	The woman <b>Feminine</b>	The girl <b>Neuter</b>

Romance:

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



# 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)
- Key differences between offline vs. online experimental grammatical gender tasks (Długosz, 2021)
- **How do previously known gender systems influence L3 gender development?**
  - At the onset of L3 acquisition
  - At later points in the development process

# The Project

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

- Two main tasks:
  - A listening task involving virtual eye tracking
  - A self-paced reading task
- All participants completed the task in **German**
- Participants who also knew a **Romance language** also completed the test in that language.
- Participants also completed set of brief language proficiency and language background questionnaires.

# Participants

- 44 participants
  - 29 Trilingual: English, Romance & German
  - 15 Bilingual: English & German
- “Ab initio” German learners
  - True beginners with no previous German exposure
- Trilingual participants were intermediate proficiency or higher their Romance language:
  - Spanish, French, Italian, & Portuguese

# Listening Task

- Trained on 12 nouns in the target language
  - Nouns were balanced between target language genders and translation equivalent genders
- Nouns reflecting biological gender were excluded
- Virtual eye tracking serves as the key measure
- Two key experimental conditions, Gender Match and Gender Error

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The Project

Experiment 1:  
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Gender in  
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# Listening Task

Gender Match



**(F)**



**(M)**

**(M)**



**(N)**



# Listening Task

## Gender Match



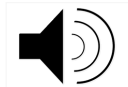
(F)



(M)

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

(M)



(N)



# Listening Task

## Gender Match



**(F)**



**(M)**

**(M)**



**(N)**





# 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)



# Listening Task

## Gender Mismatch



**(F)**



**(M)**

**(M)**



**(N)**



# Listening Task

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

# Listening Task

- One note: virtual eye-tracking has some limitations.....

# Listening Task Results

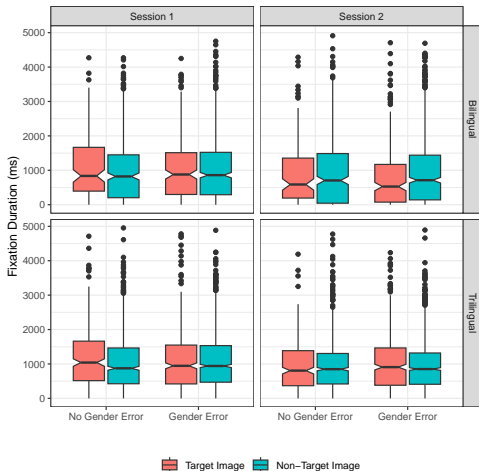
German

- Note that the German data has two groups:
  - Bilinguals (English/German)
  - Trilinguals (English/Romance/German)
- In the German, the participants experience formal instruction between sessions.
- Overall response accuracy was also very high here (95%)

- Overall improvement in the task across sessions.
- Trilinguals may have shown more improvement in the second session ( $p = 0.08$ )
- No evidence of sensitivity to gender errors in this task...

# Listening Task Results

German



# Listening Task

Is this lack of findings the result of the task????

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# Listening Task

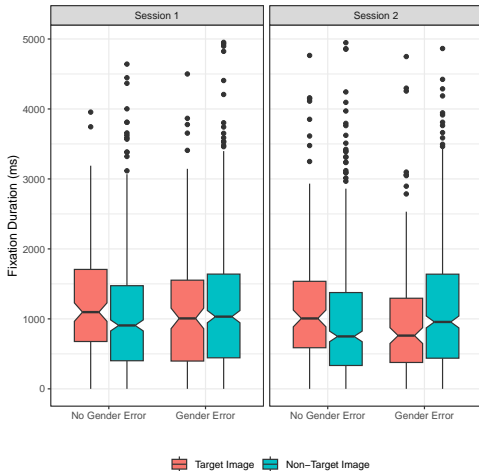
## Romance

- Overall accuracy (picking the right image) was (91%)
- Data for the Romance languages was collected at both time points, but no significant difference is expected.
- Note that only trilingual participants were tested in this section, since the bilinguals participants did not know a Romance language.

# Listening Task Results

Romance

- Romance data sets a baseline
- Increased fixation time with gender errors
- But not necessarily on gender-matching images
- Romance AoA played a role...



# Listening Task Results

## Summary

- The trilingual participants showed sensitivity to gender errors in their Romance language, where the presence of an error would delay their overall response time and cause them to spend more time looking at incorrect images.
- Neither of the groups showed any significant evidence of sensitivity to German gender errors.

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# Reading Task

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

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# Reading Task



**(F)**

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# Reading Task



**(F)**

**Hier  
(Here)**

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# Reading Task



**(F)**

**ist**  
**(is)**

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# Reading Task



**(F)**

**die/der**  
**(the, F/M)**



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# Reading Task



**(F)**

**gros**  
**big**

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# Reading Task



**(F)**

**Tür  
door**

# Reading Task



**(F)**

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



# Reading Task

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- 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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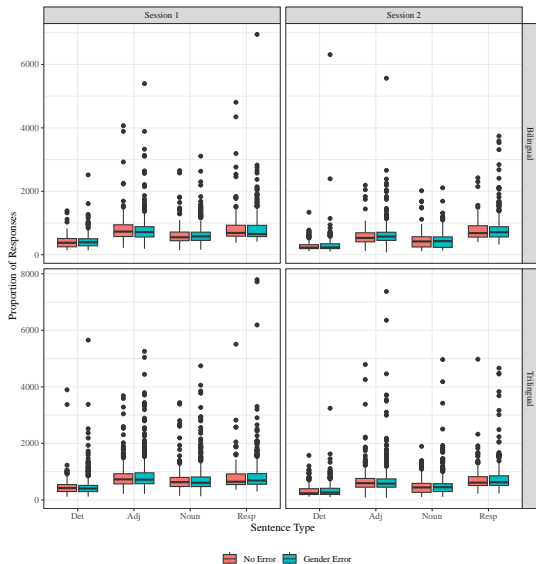
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# Self-Paced Reading Task

German



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# Self-Paced Reading Task

German

- Both bilingual and trilingual participants show a small but significant sensitivity to gender errors
- Within the trilingual participants, those with low **Romance AoAs** are significantly more likely to show delays when presented with German gender errors.
- Participants show a slight delay **noun** is revealed (as predicted).

# Discussion

## Summary of Findings

- Beginner German learners show no evidence of sensitivity to German grammatical gender errors in **listening** after one semester of German instruction.
  - Even if they have previous experience with a Romance language
- The same learners **do** so some early evidence of gender error sensitivity in **reading!**
  - Even in the first round\*\*\*
  - Trilingual participants with **low Romance AoAs** were particularly sensitive!
  - Trilingual participants were also tested for **Romance Proficiency** which was at no point found to be significant in any model.

# Discussion

## Implications

- The reading data could potentially suggest evidence of **initial state** transfer, but the listening data does not....
- Most models of L3 acquisition consider strictly **generative linguistic** factors, and therefore cannot account for the differences between **modalities** (listening vs. reading).
- Romance AoA vs. L1/L2 or “native”/“non-native”
- Romance Proficiency: methodological issues?  
(Puig-Mayenco et. al, 2023)



# Discussion

## Takeaways

- Third language acquisition is a relatively new and under-explored area of linguistic research
- Within this field, there is differentiation between how a new grammar **begins** and now it **develops**
- To date, the consideration of psycholinguistic, cognitive, and sociocultural variables in examining the multilingual language learning processes is limited within this research domain.
- **Grammatical gender** in particular might be an area that requires consideration of additional cognitive or psycholinguistic variables.

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# Questions?

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## Special Thanks



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# Thank You!

These slides can be found at  
<https://www.megan-brown-bousfield.com>

## References

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