

Adult L3  
Acquisition:

Megan M.  
Brown

# Adult L3 Acquisition: The Case of Grammatical Gender in L3 German

Megan M. Brown

Boston University

Linguistic Theory and Second and Third Language  
Acquisition in Children and Adults

MIT Linguistics Department, April 12<sup>th</sup>, 2021



L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

Adult L3  
Acquisition:

Megan M.  
Brown

# Outline

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

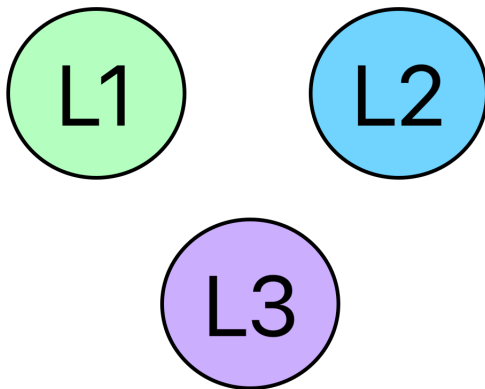
L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

- ① L3 Grammatical Gender Acquisition
- ② L3 "Beginners" vs. L3 Initial State
- ③ L3 Phonology
- ④ Summary

# L3 and Trilingualism Research



L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

- Procedures
- Results
- Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

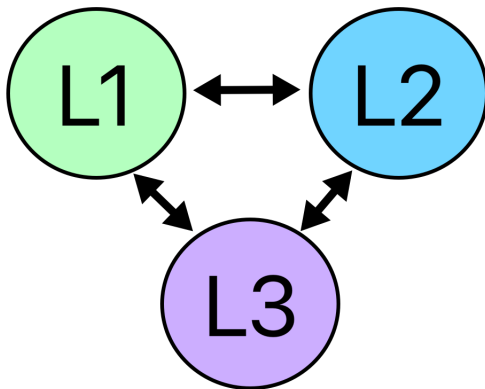
- Background
- Procedures
- Results
- Key Findings

L3 Phonology

- Background
- Procedures
- Participants
- Results
- Key Findings

Summary

# L3 and Trilingualism Research



## L3 Grammatical Gender Acquisition

### Models of L3 Acquisition

Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

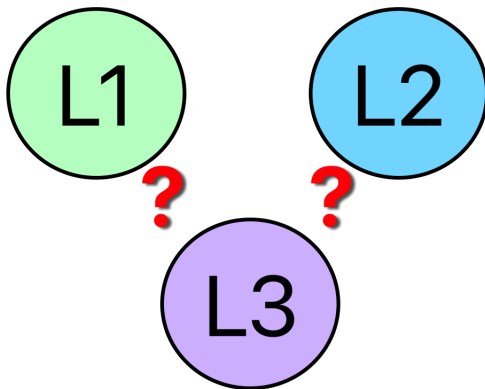
Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary

# L3 and Trilingualism Research



L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Models of L3 Initial Transfer

## Whole-Transfer Models

### L1 Transfer

Hermas, 2010

### L2 Status Factor

Bardel & Falk, 2007

### Typological Primacy

Rothman, 2010

### Language of Community

Fallah et al, 2016

## Partial-Transfer Models

### Cumulative Enhancement

Flynn et al., 2004

### Linguistic Proximity

Westergaard et al., 2017

### Scalpel Model

Slabakova, 2017

# Wholesale Transfer Models

L3  
Grammatical  
Gender  
Acquisition

**Models of L3  
Acquisition**

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

L1 Transfer

L2 Status Factor Model

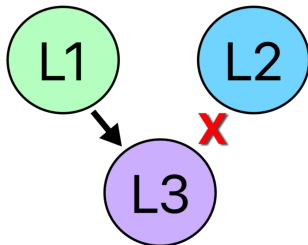
Typological Primacy Model

Language of Community

# The L1 Transfer Proposal

Hermas (2010)

L1 grammar serves the  
initial state for **all** new  
languages.



## L3 Grammatical Gender Acquisition

### Models of L3 Acquisition

Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary

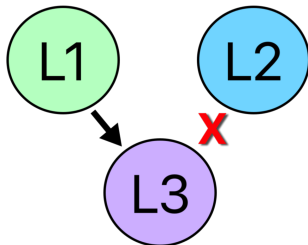


# The L1 Transfer Proposal

Hermas (2010)

L1 grammar serves the initial state for **all** new languages.

TLA is the same process as SLA



# The L1 Transfer Proposal

Hermas (2010)

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

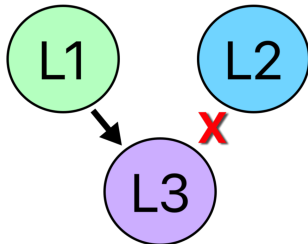
Background  
Procedures  
Participants  
Results  
Key Findings

Summary

L1 grammar serves the initial state for **all** new languages.

TLA is the same process as SLA

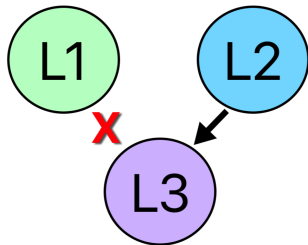
Transfer can be facilitative or non-facilitative.



# L2 Status Factor Model

Bardel & Falk (2007)

L2 and L3 are  
neurologically more similar



## L3 Grammatical Gender Acquisition

### Models of L3 Acquisition

Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

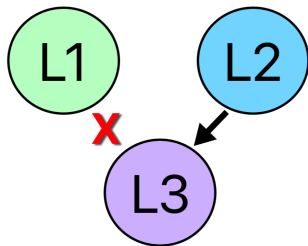
## Summary

# L2 Status Factor Model

Bardel & Falk (2007)

L2 and L3 are  
neurologically more similar

Exclusive L2 Transfer



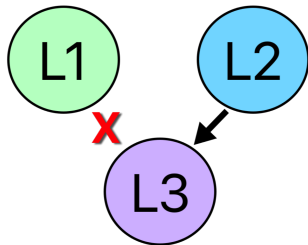
# L2 Status Factor Model

Bardel & Falk (2007)

L2 and L3 are  
neurologically more similar

Exclusive L2 Transfer

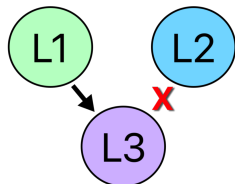
Transfer can be facilitative  
or non-facilitative.



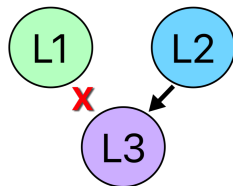
# Typological Primacy Model

Rothman (2010)

The most **typologically similar** language transfers



OR

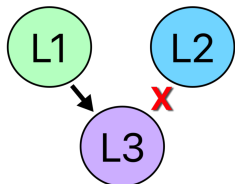


# Typological Primacy Model

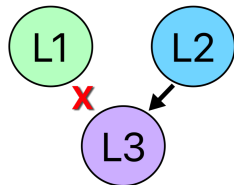
Rothman (2010)

The most **typologically similar** language transfers

Lexicon



OR



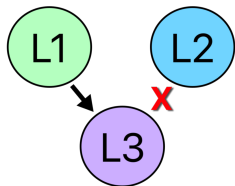
# Typological Primacy Model

Rothman (2010)

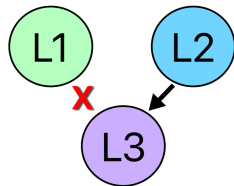
The most **typologically similar** language transfers

Lexicon

Phonology



OR





# Typological Primacy Model

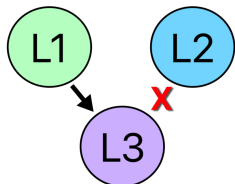
Rothman (2010)

The most **typologically similar** language transfers

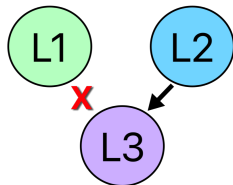
Lexicon

Phonology

Morphology



OR



# Typological Primacy Model

Rothman (2010)

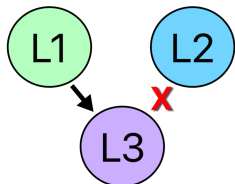
The most **typologically similar** language transfers

Lexicon

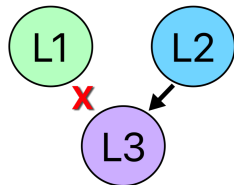
Phonology

Morphology

Syntax



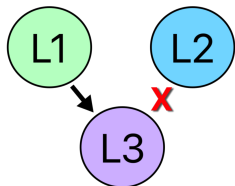
OR



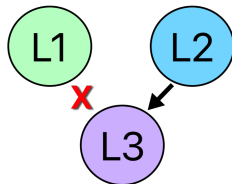
# Language of Community Hypothesis

Fallah et al. (2016)

The language using the  
surrounding **community**  
transfers



OR



# Partial Transfer Models

## L3 Grammatical Gender Acquisition

### Models of L3 Acquisition

Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary

Cumulative Enhancement Model

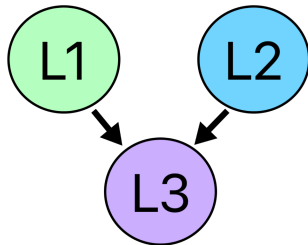
Linguistic Proximity Model

Scalpel Model

# Cumulative Enhancement Model

Flynn et al. (2004)

Both languages can  
transfer features.

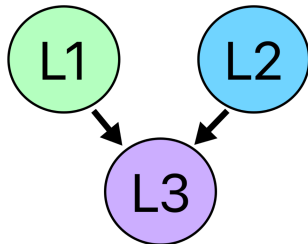


# Cumulative Enhancement Model

Flynn et al. (2004)

Both languages can  
transfer features.

**Facilitative** features will  
transfer.



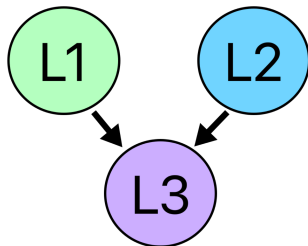
# Cumulative Enhancement Model

Flynn et al. (2004)

Both languages can  
transfer features.

**Facilitative** features will  
transfer.

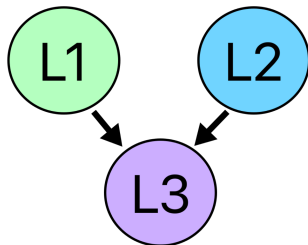
TLA is **cumulative**: the  
grammar transfers and  
develops features over  
time.



# Linguistic Proximity Model

Westergaard et al., (2017)

Similar to CEM, except...



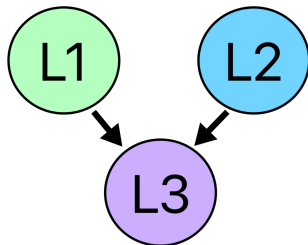


# Linguistic Proximity Model

Westergaard et al., (2017)

Similar to CEM, except...

Facilitative **and**  
**non-facilitative** features  
will transfer.



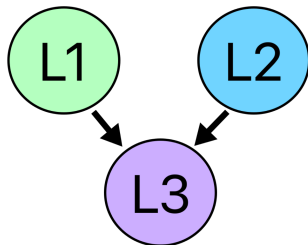
# Linguistic Proximity Model

Westergaard et al., (2017)

Similar to CEM, except...

Facilitative **and non-facilitative** features will transfer.

Typology influences transfer.

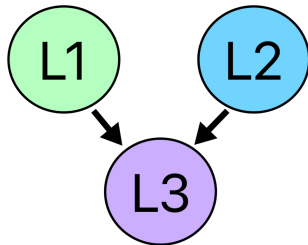


# Scalpel Model

Slabakova, (2017)

Similar to CEM and LPM,  
except...

**Cognitive and  
experiential** factors can  
also influence transfer.



# Models of L3 Initial Transfer

## Whole-Transfer Models

### L1 Transfer

Hermas, 2010

### L2 Status Factor

Bardel & Falk, 2007

### Typological Primacy

Rothman, 2010

### Language of Community

Fallah et al, 2016

## Partial-Transfer Models

### Cumulative Enhancement

Flynn et al., 2004

### Linguistic Proximity

Westergaard et al., 2017

### Scalpel Model

Slabakova, 2017

Adult L3  
Acquisition:

Megan M.  
Brown

# Factors in L3 Initial Transfer

## L3 Grammatical Gender Acquisition

### Models of L3 Acquisition

Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary

# Factors in L3 Initial Transfer

## L3 Grammatical Gender Acquisition

### Models of L3 Acquisition

Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary

Naive vs. non-native status/Age of acquisition/Order of acquisition.

Linguistic similarity between languages.

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

**Models of L3  
Acquisition**

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Grammatical Gender

Adult L3  
Acquisition:

Megan M.  
Brown

# Grammatical Gender

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

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary



# Grammatical Gender

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

L1 gender can transfer to L2 (Franceschina, 2005)

# Grammatical Gender

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

L1 gender can transfer to L2 (Franceschina, 2005)  
Even between typologically different languages  
(Sabourin, 2001)

# Grammatical Gender

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

L1 gender can transfer to L2 (Franceschina, 2005)  
Even between typologically different languages  
(Sabourin, 2001)

L2ers without gender in their L1 are able to develop a  
gender system  
(White et al., 2004; Sagarra and Herschensohn, 2010)

# Grammatical Gender

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

L1 gender can transfer to L2 (Franceschina, 2005)  
Even between typologically different languages  
(Sabourin, 2001)

L2ers without gender in their L1 are able to develop a  
gender system  
(White et al., 2004; Sagarra and Herschensohn, 2010)

**How do L1 vs L2 gender systems transfer to L3?**

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

**Models of L3  
Acquisition**

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Language Triad

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Language Triad

English

Spanish

L3 German

# Language Triad

English

Gendered → Spanish



L3 German

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

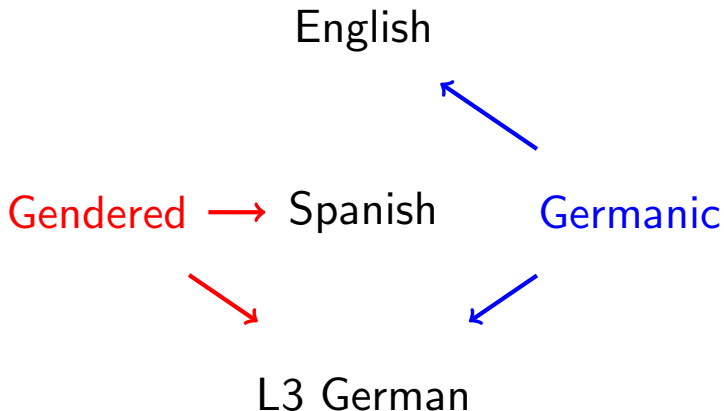
Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Language Triad





Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

**Models of L3  
Acquisition**

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Predictions of L3 Models

# Predictions of L3 Models

Will L3 learners transfer their Spanish grammatical gender knowledge to L3 German?

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

## Predictions of L3 Models

Will L3 learners transfer their Spanish grammatical gender knowledge to L3 German?

|                         | L1 English<br>L2 Spanish | L1 Spanish<br>L2 English |
|-------------------------|--------------------------|--------------------------|
| Partial Transfer Models | Yes                      | Yes                      |
| L1 Transfer             | No                       | Yes                      |
| L2 Status               | Yes                      | No                       |
| Typological Primacy     | No                       | No                       |

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

**Procedures**

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

# Participants

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

**Procedures**

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

# Participants

## Sequential Spanish/English bilinguals

Sequential Spanish/English bilinguals  
L3 German was being learned as a foreign language

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

# Participants

Sequential Spanish/English bilinguals  
L3 German was being learned as a foreign language  
Intermediate or higher L2 proficiency

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

# Participants

Sequential Spanish/English bilinguals  
L3 German was being learned as a foreign language  
Intermediate or higher L2 proficiency

| 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

## Gender Mismatch

\*Das Baum ist groß  
The<sub>[N]</sub> tree<sub>[M]</sub> is tall

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

# German Grammaticality Judgement Task

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

### Procedures

Results

Key Findings

## L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

## L3 Phonology

Background

Procedures

Participants

Results

Key Findings

## Summary

## Gender Mismatch

\*Das Baum ist groß

The<sub>[N]</sub> tree<sub>[M]</sub> is tall

Words reflecting biological gender were not included

# German Grammaticality Judgement Task

## Gender Mismatch

\*Das Baum ist groß

The<sub>[N]</sub> tree<sub>[M]</sub> 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<sub>[N]</sub> tree<sub>[M]</sub> 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

Adult L3  
Acquisition:

Megan M.  
Brown

# Scoring

## Gender Assignment vs. Gender Concord

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

**Procedures**

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

Adult L3  
Acquisition:

Megan M.  
Brown

# Scoring

## Gender Assignment vs. Gender Concord

### Grammatical Gender Task

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

**Procedures**

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

## Gender Assignment vs. Gender Concord

### Grammatical Gender Task

## Tür (Door<sub>F</sub>)

## Gender Assignment vs. Gender Concord

### Grammatical Gender Task

#### **Tür (Door<sub>F</sub>)**

Der<sub>M</sub>

Die<sub>F</sub>

Das<sub>N</sub>



## Gender Assignment vs. Gender Concord

### Grammatical Gender Task

#### Tür (Door<sub>F</sub>)

Der<sub>M</sub>

Die<sub>F</sub>

Das<sub>N</sub>

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

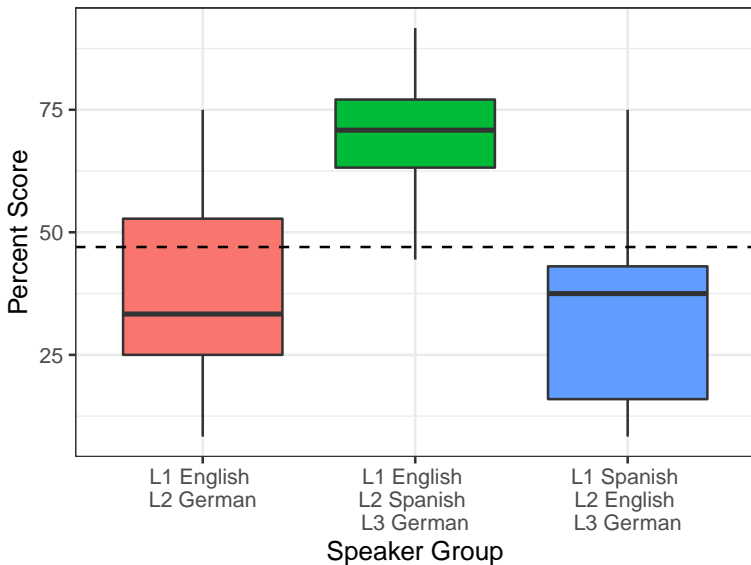
## Gender Assignment vs. Gender Concord

### Grammatical Gender Task

#### Tür (Door<sub>F</sub>)

Der<sub>M</sub>                      Die<sub>F</sub>                      Das<sub>N</sub>

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



Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

**Key Findings**

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

# Findings

## Experiment 1

Trilinguals with L2 Spanish were better at identifying gender errors in L3 German.

### L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

### L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

### L3 Phonology

Background

Procedures

Participants

Results

Key Findings

### Summary

Trilinguals with L2 Spanish were better at identifying gender errors in L3 German.

### L2 Status Factor Model

#### L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

#### L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

#### L3 Phonology

Background

Procedures

Participants

Results

Key Findings

#### Summary

Trilinguals with L2 Spanish were better at identifying gender errors in L3 German.

L2 Status Factor Model

Scalpel Model (Experiential/Cognitive Factors)

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

**Key Findings**

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

**BUT...**

# Findings

## Experiment 1



### L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

### L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

### L3 Phonology

Background

Procedures

Participants

Results

Key Findings

### Summary

**BUT...**

No interference was found from nouns with different Spanish genders.

**BUT...**

No interference was found from nouns with different Spanish genders.

Many participants were beginners but not "initial state" learners

# Findings

## Experiment 1

**BUT...**

No interference was found from nouns with different Spanish genders.

Many participants were beginners but not "initial state" learners

**Are these results from initial transfer or some sort of learning advantage!?**

Adult L3  
Acquisition:

Megan M.  
Brown

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

**Background**  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary

# Experiment 2

Adult L3  
Acquisition:

Megan M.  
Brown

## Experiment 2

### True initial state L3 learners

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

**Background**  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

## True initial state L3 learners

## Grammatical **gender** and **number**

### L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

### L3 "Beginners" vs. L3 Initial State

**Background**

Procedures

Results

Key Findings

### L3 Phonology

Background

Procedures

Participants

Results

Key Findings

### Summary

True initial state L3 learners

Grammatical **gender** and **number**

Artificial Germanic Language

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

**Background**

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

True initial state L3 learners

Grammatical **gender** and **number**

Artificial Germanic Language

Avoids intertwinement of German DP features  
(i.e. gender, number, case, and definiteness)



True initial state L3 learners

Grammatical **gender** and **number**

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)

Adult L3  
Acquisition:

Megan M.  
Brown

# Artificial Language

9 nouns

3 masculine, 3 feminine, 3 neuter

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

**Procedures**

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

# 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

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

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

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

## L3 "Beginners" vs. L3 Initial State

Background

**Procedures**

Results

Key Findings

## L3 Phonology

Background

Procedures

Participants

Results

Key Findings

## Summary

- (1) Erblicken    ern-e            rot-e            Tür.  
Behold      Det<sub>[Fem/Sing]</sub> red<sub>[Fem/Sing]</sub> door<sub>[Fem/Sing]</sub>  
'Behold a red door'

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

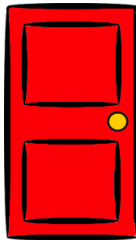
L3  
"Beginners"  
vs. L3 Initial  
State

Background  
**Procedures**  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary



Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

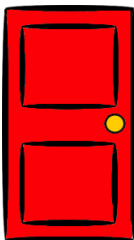
L3  
"Beginners"  
vs. L3 Initial  
State

Background  
**Procedures**  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary



“Erblicken ern-e rot-e Tür”

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

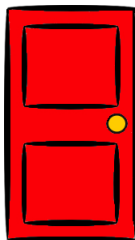
L3  
"Beginners"  
vs. L3 Initial  
State

Background  
**Procedures**  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

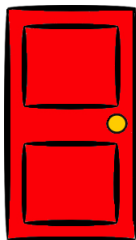


“Erblicken ern rot-e Tür”





A



Choose



L

Adult L3  
Acquisition:

Megan M.  
Brown

# Participants

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

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

Participants

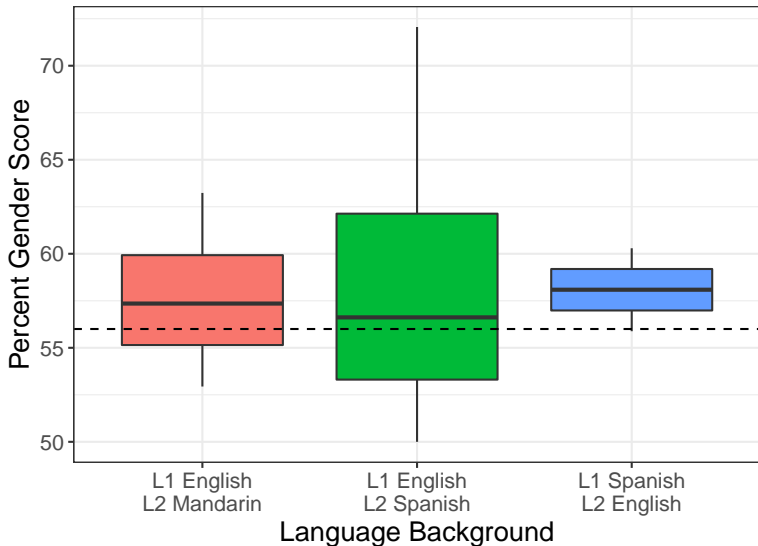
Results

Key Findings

Summary

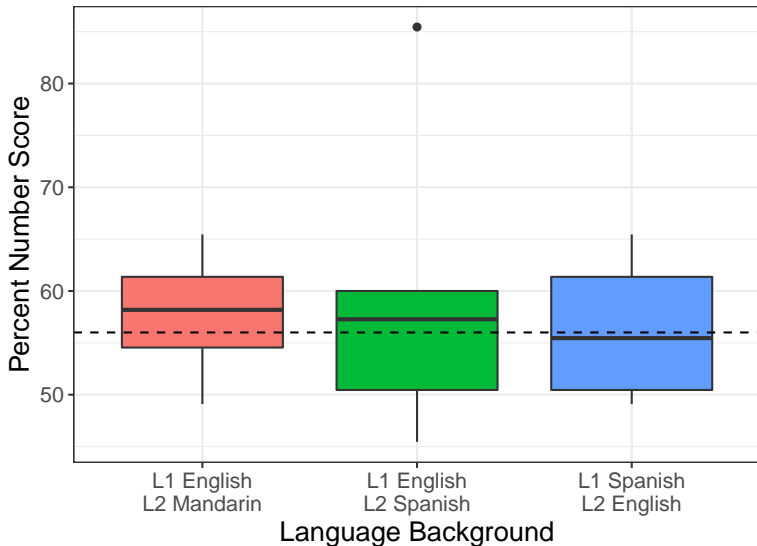
# Experiment 2 Results

## Grammatical Gender



# Experiment 2 Results

## Grammatical Number



Adult L3  
Acquisition:

Megan M.  
Brown

# Results

No group differences for grammatical gender  
(TPM, Partial Transfer Models)

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
**Results**  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

No group differences for grammatical gender  
(TPM, Partial Transfer Models)

No group differences for grammatical number  
(Partial Transfer Models)

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
**Results**  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
**Results**  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

No group differences for grammatical gender  
(TPM, Partial Transfer Models)

No group differences for grammatical number  
(Partial Transfer Models)

Overall poor performance across all groups on  
grammatical questions  
(Partial Transfer Models)

Adult L3  
Acquisition:

Megan M.  
Brown

# Experiment 1:

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

**Key Findings**

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary



Adult L3  
Acquisition:

Megan M.  
Brown

# Experiment 1: **Beginner** L3 German learners (< 1 year)

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

**Key Findings**

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

## 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

## 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?

# Transfer vs. Development

## Whole-Transfer Models

### L1 Transfer

Hermas, 2010

### L2 Status Factor

Bardel & Falk, 2007

### Typological Primacy

Rothman, 2010

### Language of Community

Fallah et al, 2016

## Partial-Transfer Models

### Cumulative Enhancement

Flynn et al., 2004

### Linguistic Proximity

Westergaard et al., 2017

### Scalpel Model

Slabakova, 2017

Adult L3  
Acquisition:

Megan M.  
Brown

# Transfer vs. Development

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

## L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

**Key Findings**

## L3 Phonology

Background

Procedures

Participants

Results

Key Findings

## Summary

# Transfer vs. Development

What exactly is the “initial state”?

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
“Beginners”  
vs. L3 Initial  
State

Background  
Procedures  
Results  
**Key Findings**

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary



# Transfer vs. Development

What exactly is the “initial state”?

How might post-initial state development differ?

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
“Beginners”  
vs. L3 Initial  
State

Background

Procedures

Results

**Key Findings**

L3 Phonology

Background

Procedures

Participants

Results

Key Findings

Summary

# Transfer vs. Development

What exactly is the “initial state”?

How might post-initial state development differ?

Transfer vs. Cross-linguistic influence (CLI)

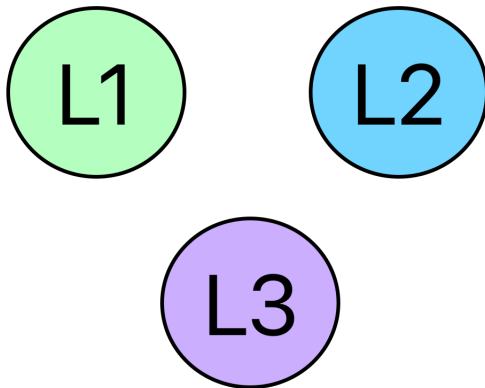
There is still much exiting work to do in L3 acquisition!

Adult L3  
Acquisition:

Megan M.  
Brown

# Experiment 3

rCLI in L3 Phonology



L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

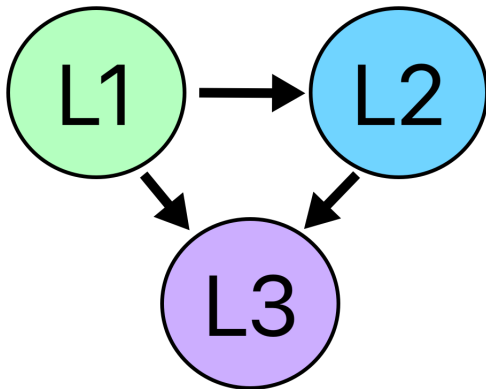
Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Progressive Cross-Linguistic Influence (pCLI)



## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

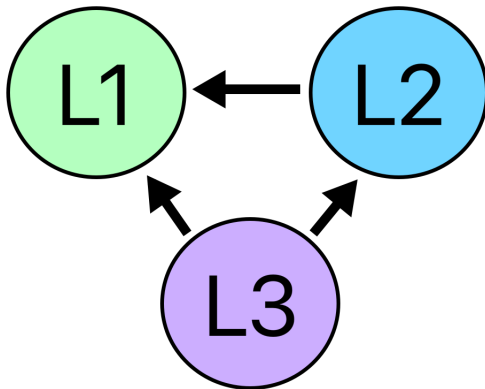
Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary

# Regressive Cross-Linguistic Influence (rCLI)



## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary

Adult L3  
Acquisition:

Megan M.  
Brown

# Models of Trilingual rCLI

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

## L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

## L3 Phonology

**Background**

Procedures

Participants

Results

Key Findings

## Summary

## Phonological Permeability Hypothesis (PPH: Cabrelli Amaro and Rothman, 2010)

### L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

### L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

### L3 Phonology

**Background**  
Procedures  
Participants  
Results  
Key Findings

### Summary

# Models of Trilingual rCLI

## Phonological Permeability Hypothesis (PPH: Cabrelli Amaro and Rothman, 2010)

Phonological systems developed in childhood vs.  
adulthood are fundamentally different

### L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

### L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

### L3 Phonology

**Background**  
Procedures  
Participants  
Results  
Key Findings

### Summary



## **Phonological Permeability Hypothesis** (PPH: Cabrelli Amaro and Rothman, 2010)

Phonological systems developed in childhood vs. adulthood are fundamentally different

Systems developed in childhood are more stable

# Models of Trilingual rCLI

## Phonological Permeability Hypothesis (PPH: Cabrelli Amaro and Rothman, 2010)

Phonological systems developed in childhood vs. adulthood are fundamentally different

Systems developed in childhood are more stable

**rCLI from an L3 is more likely to impact the L2 than the L1**

# Typological Similarity in Trilingual rCLI

The overall similarity between a speakers languages has been found to significantly impact **bilingual rCLI**

Schmid and Köpcke (2017)

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

## L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

## L3 Phonology

**Background**

Procedures

Participants

Results

Key Findings

## Summary

# Typological Similarity in Trilingual rCLI

The overall similarity between a speakers languages has been found to significantly impact **bilingual rCLI**

Schmid and Köpcke (2017)

as well as **trilingual pCLI**

Rothman (2010 et seq), Westergaard et al., (2017)

Adult L3  
Acquisition:

Megan M.  
Brown

# Research Questions

Does typological similarity play a role in rCLI  
from L3 to L1/L2?

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

**Background**

Procedures

Participants

Results

Key Findings

Summary

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

**Background**

Procedures

Participants

Results

Key Findings

Summary

Does typological similarity play a role in rCLI  
from L3 to L1/L2?

This project examines this in regards to **speech rhythm**.

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

**Background**  
Procedures  
Participants  
Results  
Key Findings

Summary

# Speech Rhythm

Rhythm is the sense of movement in speech

# Speech Rhythm

Rhythm is the sense of movement in speech

Syllable-timed (Spanish, French)

Stress-timed (English, German)

Mora-timed (Japanese)



# Speech Rhythm

Rhythm is the sense of movement in speech

Syllable-timed (Spanish, French)

Stress-timed (English, German)

Mora-timed (Japanese)

Adult learners are unlikely to develop an L2 rhythmic system that is comparable to that of a native speaker,

# Speech Rhythm

Rhythm is the sense of movement in speech

Syllable-timed (Spanish, French)

Stress-timed (English, German)

Mora-timed (Japanese)

Adult learners are unlikely to develop an L2 rhythmic system that is comparable to that of a native speaker, **BUT...**

# Speech Rhythm

Rhythm is the sense of movement in speech

Syllable-timed (Spanish, French)

Stress-timed (English, German)

Mora-timed (Japanese)

Adult learners are unlikely to develop an L2 rhythmic system that is comparable to that of a native speaker, **BUT...**

They are able to develop an L2 rhythmic system which is **distinct from the L1**

(Guilbault, 2002; Ordin & Polyanskaya, 2015)

## L3

### Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

## L3

### "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

## L3 Phonology

Background

Procedures

Participants

Results

Key Findings

## Summary

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

**Background**  
Procedures  
Participants  
Results  
Key Findings

Summary

# Research Questions

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Research Questions

English

German

Spanish

# Research Questions

English (Stress-timed)

German (Stress-timed)

Spanish (Syllable-timed)

## Research Questions

English (Stress-timed)

German (Stress-timed)

Spanish (Syllable-timed)

English (Stress-timed)

German (Stress-timed)

Spanish (Syllable-timed)

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary



Adult L3  
Acquisition:

Megan M.  
Brown

# Research Question

Which language is more susceptible to  
rCLI?

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

**Background**

Procedures

Participants

Results

Key Findings

Summary

Which language is more susceptible to  
rCLI?

Does **similarity** play a role?

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

**Background**

Procedures

Participants

Results

Key Findings

Summary

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

**Background**  
Procedures  
Participants  
Results  
Key Findings

Summary

# Research Question

Adult L3  
Acquisition:

Megan M.  
Brown

# Research Question

## L1 English, L2 German, L3 Spanish

### L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

### L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

### L3 Phonology

**Background**  
Procedures  
Participants  
Results  
Key Findings

### Summary

Adult L3  
Acquisition:

Megan M.  
Brown

# Research Question

L1 English, L2 German, L3 Spanish

L1 German, L2 English, L3 Spanish

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

**Background**

Procedures

Participants

Results

Key Findings

Summary

# Research Question

L1 English, L2 German, L3 Spanish

L1 German, L2 English, L3 Spanish

L1 English, L2 German

L1 German, L2 English

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

**Background**

Procedures

Participants

Results

Key Findings

Summary

## Research Question

L1 English, L2 German, L3 Spanish

L1 German, L2 English, L3 Spanish

L1 English, L2 German

L1 German, L2 English

**Do linguistic similarity and/or order of acquisition influence the degree of rCLI to each language?**

Adult L3  
Acquisition:

Megan M.  
Brown

# Procedure

For each language (English, German, and Spanish)...

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
**Procedures**  
Participants  
Results  
Key Findings

## Summary



L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
**Procedures**  
Participants  
Results  
Key Findings

Summary

For each language (English, German, and Spanish)...

Recorded reading task

For each language (English, German, and Spanish)...

Recorded reading task

Written LexTALE Vocabulary Task (Lemhöfer and Broersma, 2012; Izura, Cuetos, and Brysbaert, 2014)

For each language (English, German, and Spanish)...

Recorded reading task

Written LexTALE Vocabulary Task (Lemhöfer and Broersma, 2012; Izura, Cuetos, and Brysbaert, 2014)

**Picture description task**

# Picture Description Task

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
**Procedures**  
Participants  
Results  
Key Findings

## Summary



# Picture Description Task

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

## Summary



4 images per language

5-20 minutes of speech per language

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
**Participants**  
Results  
Key Findings

Summary

# Participants

# Participants

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures  
Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

**Participants**

Results

Key Findings

Summary

| Language Background             | Number of Participants |
|---------------------------------|------------------------|
| L1 English L2 German L3 Spanish | 4                      |
| L1 German L2 English L3 Spanish | 2                      |
| L1 English L2 German            | 4                      |
| L1 German L2 English            | 3                      |

# Participants

10 female, mean age = 33, age range = 18-57

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
**Participants**  
Results  
Key Findings

Summary



# Participants

10 female, mean age = 33, age range = 18-57

Sequential trilinguals with L2/L3 AoA > 7

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
**Participants**  
Results  
Key Findings

Summary

# Participants

10 female, mean age = 33, age range = 18-57

Sequential trilinguals with L2/L3 AoA > 7

Sufficient proficiency and fluency in all of the target languages

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

**Participants**

Results

Key Findings

Summary

# Participants

10 female, mean age = 33, age range = 18-57

Sequential trilinguals with L2/L3 AoA  $> 7$

Sufficient proficiency and fluency in all of the target languages

No knowledge of other non-target languages

# Participants

10 female, mean age = 33, age range = 18-57

Sequential trilinguals with L2/L3 AoA  $> 7$

Sufficient proficiency and fluency in all of the target languages

No knowledge of other non-target languages

Additional data from participants who did not match all criteria was also collected, see Appendix 2 of Brown (2021).

Recordings annotated in TextGrids via Praat (Boersma & Weenink, 2009).

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

**Participants**

Results

Key Findings

Summary

Recordings annotated in TextGrids via Praat (Boersma & Weenink, 2009).

Duration of all vowels and consonants marked.

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
**Participants**  
Results  
Key Findings

Summary

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

**Participants**

Results

Key Findings

Summary

Recordings annotated in TextGrids via Praat (Boersma & Weenink, 2009).

Duration of all vowels and consonants marked.

≈ 1 minute of recorded speech per participant per language.

Adult L3  
Acquisition:

Megan M.  
Brown

# Speech Rhythm Measurements

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

## L3 Phonology

Background  
Procedures  
**Participants**  
Results  
Key Findings

## Summary



# Speech Rhythm Measurements

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background

Procedures

Results

Key Findings

L3 Phonology

Background

Procedures

**Participants**

Results

Key Findings

Summary

$$\%V = \frac{\text{sum of all vocalic interval durations}}{\text{total duration of vocalic and consonantal intervals}} \times 100$$

# Speech Rhythm Measurements

$$\%V = \frac{\text{sum of all vocalic interval durations}}{\text{total duration of vocalic and consonantal intervals}} \times 100$$

$$\textit{VarcoV} = \frac{\text{SD of vocalic interval duration}}{\text{mean vocalic interval duration}} \times 100$$

# Speech Rhythm Measurements

$$\%V = \frac{\text{sum of all vocalic interval durations}}{\text{total duration of vocalic and consonantal intervals}} \times 100$$

$$\textit{VarcoV} = \frac{\text{SD of vocalic interval duration}}{\text{mean vocalic interval duration}} \times 100$$

White and Mattys (2007)

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
**Results**  
Key Findings

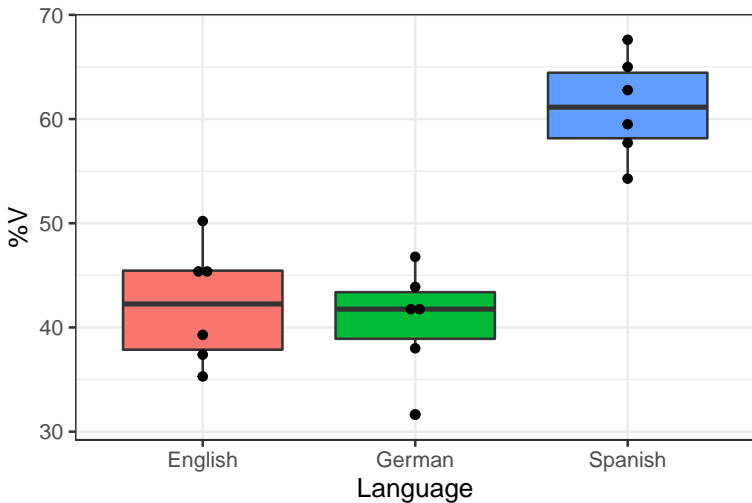
Summary

# Results

## L3 Spanish Rhythm

# Results

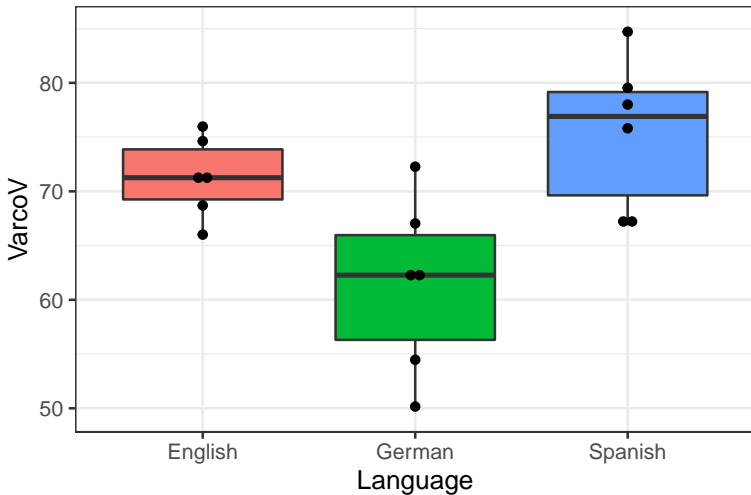
## L3 Spanish Rhythm



%V in L3 Spanish

# Results

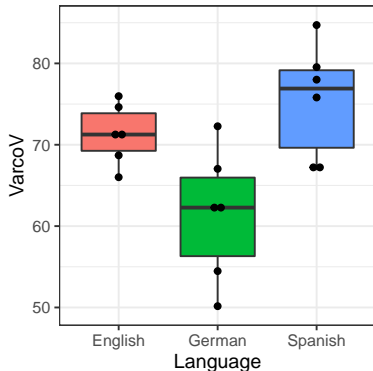
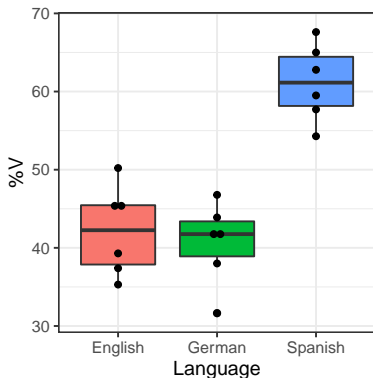
## L3 Spanish Rhythm



## VarcoV in L3 Spanish

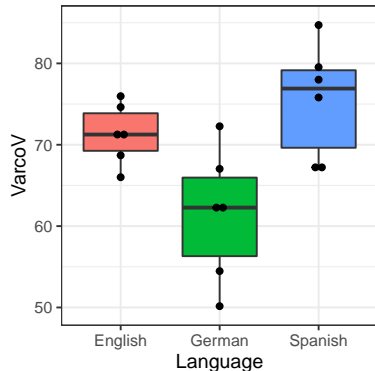
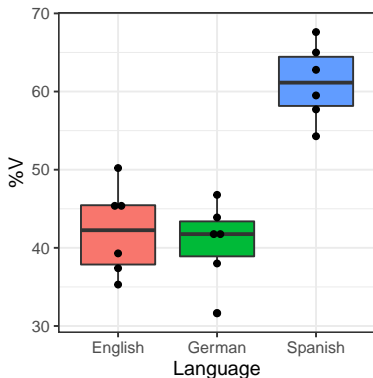
# L3 Spanish Rhythm

%V vs. VarcoV



# L3 Spanish Rhythm

%V vs. VarcoV



**%V** is better at differentiating languages by rhythmic typology  
(White & Mattys, 2007)



Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
**Results**  
Key Findings

Summary

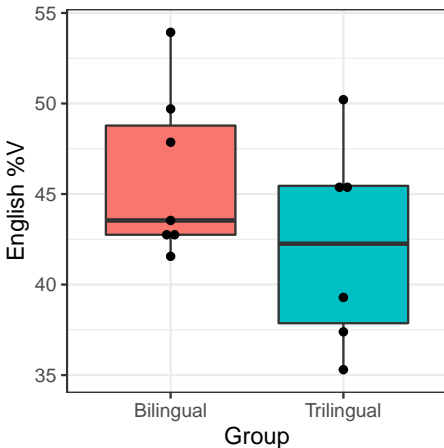
# Rhythm By Language

## English

%V English  
 $p > .05$

## Rhythm By Language

English



**%V in Bilingual vs. Trilingual  
English**

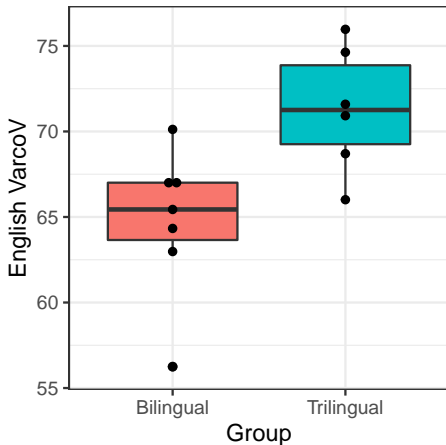
VarcoV English

$$p < .05$$

**Trilinguals have a  
higher (more  
Spanish-like)  
English VarcoV**

## Rhythm By Language

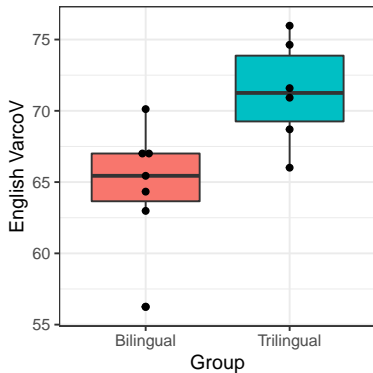
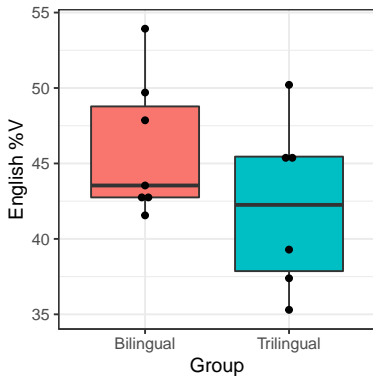
English



**VarcoV in Bilingual vs. Trilingual  
English**

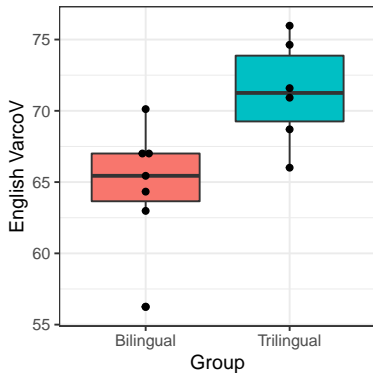
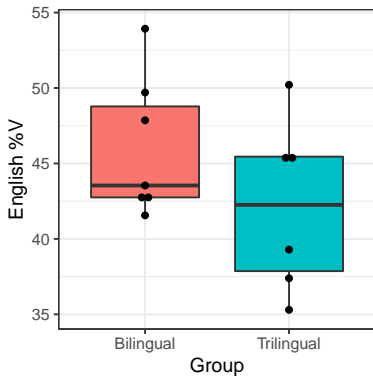
# English Rhythm

%V vs. VarcoV



## English Rhythm

%V vs. VarcoV



**VarcoV** is better at teasing out individual differences, especially in non-native speech (White & Mattys, 2007)

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
**Results**  
Key Findings

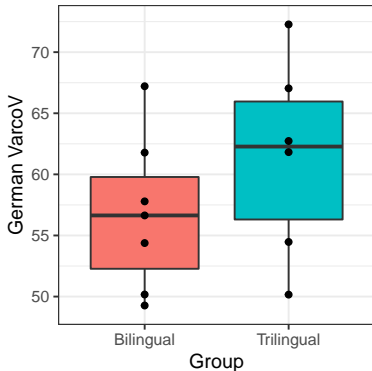
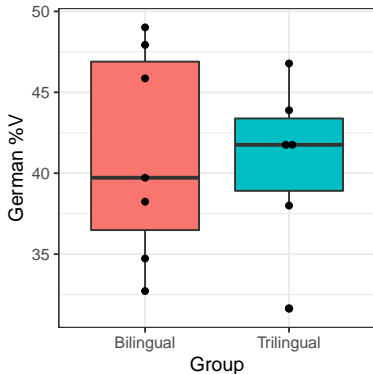
Summary

# Rhythm By Language

## German

# Rhythm By Language

## German



**No significant differences were found between bilingual and trilingual German rhythm.**

Adult L3  
Acquisition:

Megan M.  
Brown

# Rhythm By Order of Acquisition

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

## L3 "Beginners" vs. L3 Initial State

Background  
Procedures  
Results  
Key Findings

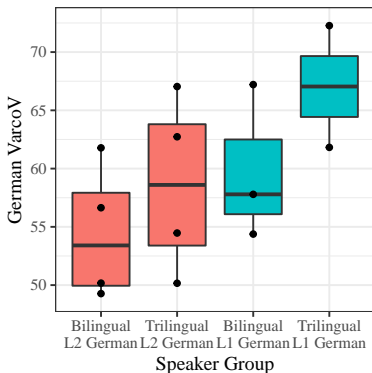
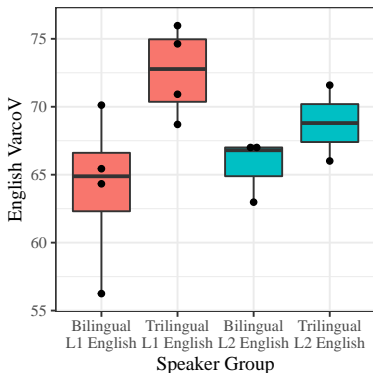
## L3 Phonology

Background  
Procedures  
Participants  
**Results**  
Key Findings

## Summary



# Rhythm By Order of Acquisition



**In each language, the L1 seems more effected by rCLI from L3**

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
**Key Findings**

Summary

# Summary of Findings

Adult L3  
Acquisition:

Megan M.  
Brown

# Summary of Findings

Trilinguals developed a distinct rhythm in L3 Spanish.

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
**Key Findings**

Summary

# Summary of Findings

Trilinguals developed a distinct rhythm in L3 Spanish.

Trilinguals had a higher VarcoV in **English** than bilinguals, suggesting rCLI from L3

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

## L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

## L3 Phonology

Background

Procedures

Participants

Results

Key Findings

## Summary

# Summary of Findings

## L3 Grammatical Gender Acquisition

Models of L3  
Acquisition

Procedures

Results

Key Findings

## L3 "Beginners" vs. L3 Initial State

Background

Procedures

Results

Key Findings

## L3 Phonology

Background

Procedures

Participants

Results

Key Findings

## Summary

Trilinguals developed a distinct rhythm in L3 Spanish.

Trilinguals had a higher VarcoV in **English** than bilinguals, suggesting rCLI from L3

Early trends suggest that L1 is more susceptible to rCLI than L2 in English possibly also German.

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Questions?

Adult L3  
Acquisition:

Megan M.  
Brown

L3  
Grammatical  
Gender  
Acquisition

Models of L3  
Acquisition  
Procedures  
Results  
Key Findings

L3  
"Beginners"  
vs. L3 Initial  
State

Background  
Procedures  
Results  
Key Findings

L3 Phonology

Background  
Procedures  
Participants  
Results  
Key Findings

Summary

# Thank You!