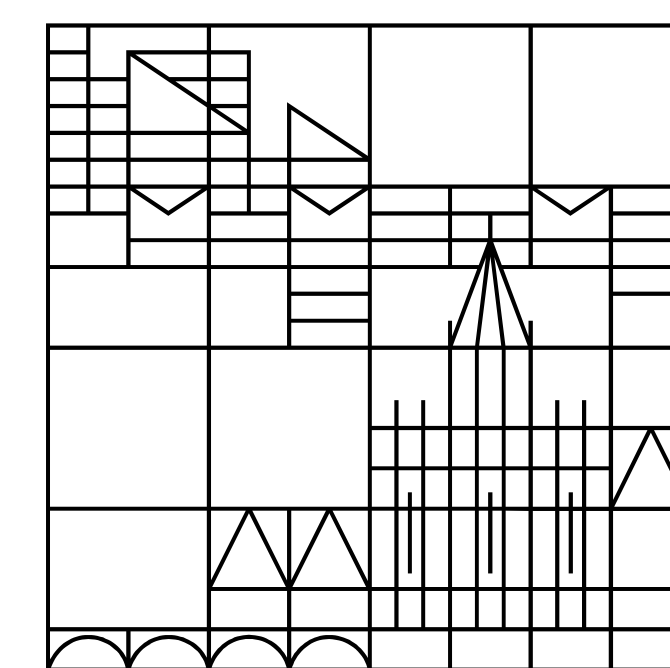


Early Bilinguals Acquiring a Third Language: EEG and Behavioral Evidence

Sergio Miguel Pereira Soares¹, Jason Rothman^{2,3}, & Tanja Kupisch^{1,2}

1. Department of Linguistics, University of Konstanz, Germany
2. Department of Language and Culture, University of Tromsø, Tromsø, Norway
3. Facultad de Lenguas y Educación, Universidad Nebrija, Madrid, Spain

Universität
Konstanz



UNIVERSIDAD
NEBRIJA

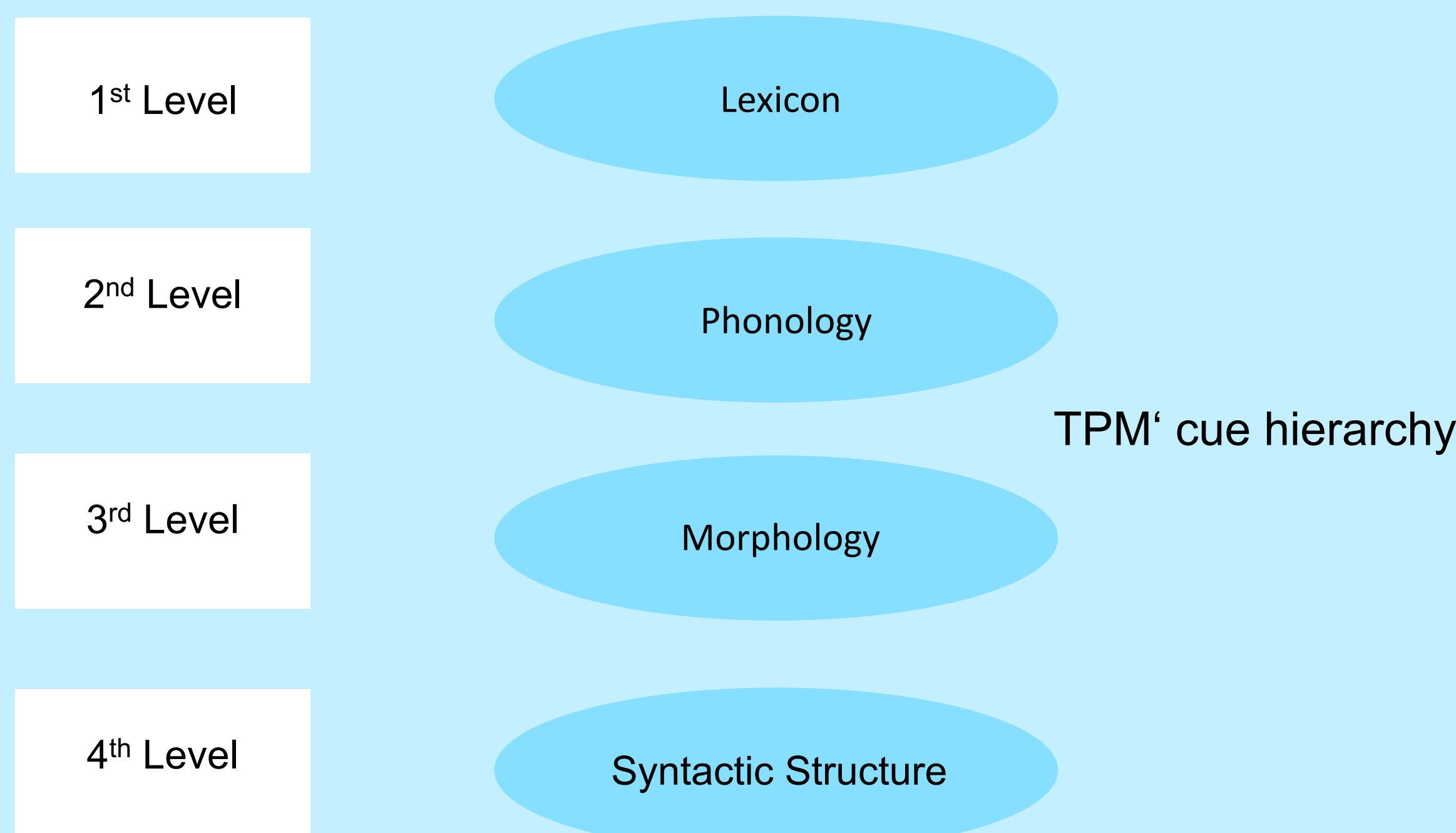
I. BACKGROUND

- Multilingual World: 60% bi-/multilingualism
- Over 40 years of research on first and second language acquisition
- L2 and L3/Ln acquisition have to be regarded as different entities and subfields
- Most of the studies so far done on L3 acquisition on L2 learners acquiring an additional non-native language. Little literature on heritage speakers (acquiring a numerical L3 (e.g. Iverson 2009, 2010, Lloyd-Smith et al., 2017))

L3/Ln Models

The Typological Primacy Model (TPM) – Rothman, 2010, 2015

- Addresses the initial stages of L3 grammar acquisition
- Both L1 or L2 can be the source of transfer
- Full transfer of one source language
- Language proximity between languages



Linguistic Proximity (Westergaard, 2017) & *Scalpel Model* (Slabakova, 2017)

- Transfer selection can happen from both L1 and L2
- Property-by-Property transfer following the parser's need over development
- Structural proximity in the different domains

RESEARCH QUESTION 1

- How does language selection and transfer take place in the mind of a L3/Ln person?
- Is it wholesale transfer from the typological more similar language (therefore accrediting the TPM model), or does transfer happen at property-by-property base (as the other two models predict)?

RESEARCH QUESTION 2

- What can neurophysiological markers indicate about transfer properties, either complementing what behavioral evidence shows or highlighting processes that can not be picked up at the behavioral level?

III. PREDICTIONS

If for both domains Italian shows transfer into Latin, then this speaks for the TPM. If for case morphology we observe transfer from German and for adjectival position from Italian, then it could indicate property-by-property models. ERP markers should indicate at what level behavior is at

Case Morphology: P600 if transfer happens from German, whereas no effect if it does from Italian (or at least a bigger effect on German).

Adjectival position: P600 if transfer happens from Italian (other way around)

II. METHODOLOGY

- EEG/ERPs combined with a grammatical judgment task
- Social background and language detailed questionnaires
 - Language and Social Background Questionnaire (Anderson et al., 2018)
 - Heritage language questionnaire (Lloyd-Smith et al., 2017)
- German-Italian HSs in Germany, German controls
- Italian-German HSs in Italy, Italian controls
- *Ab initio* Latin mini language paradigm (Sanz et al., 2015)

	Test
Session #1	Language Proficiency test DIALANG
	LSBQ revised (interview)
	Latin vocabulary learning (Quiz)
Session #2	Working Memory task
	Latin vocabulary learning (Quiz)
	Grammatical Judgment Task + EEG
	Case and adjective order comprehension task
	Oral production of the Latin sentences

Vocabulary learning example



Venefica (la strega, die Hexe)

EEG paradigm

Case correct sentence

Barbarus (Nom.) uocat nuptam (Acc.).
The strangers calls the bride.

VS.

Case violated sentence

Venefica (Nom.) uocat nuntius (Nom.).
The witch calls the messenger.

IV. RELEVANCE

The number of early bilinguals is incrementing worldwide at a steady pace. It is known that heritage speakers acquire new languages differently from their monolingual counterparts (behaviorally and a cognitively). The final aim of my PhD is to investigate what are the differences in behavioral and online processing between early bilinguals and monolinguals while learning a L3/Ln language and possibly use the data to ameliorate foreign language acquisition, especially for heritage children.

REFERENCES

- Anderson, J. A., Mak, L., Chahi, A. K., & Bialystok, E. (2018). The language and social background questionnaire: Assessing degree of bilingualism in a diverse population. *Behavior research methods*, 50(1), 250-263.
- Lloyd-Smith, A., Gyllstad, H., & Kupisch, T. (2017). Transfer into L3 English. *Linguistic Approaches to Bilingualism*, 7(2), 131-162.
- Rothman, J. (2010). *On the typological economy of syntactic transfer: Word order and relative clause high/low attachment preference in L3 Brazilian Portuguese*. *International Review of Applied Linguistics in Language Teaching (IRAL)*, 48(2-3), 245-273.
- Rothman, J. (2015). *Linguistic and cognitive motivations for the Typological Primacy Model (TPM) of third language (L3) transfer: Timing of acquisition and proficiency considered*. *Bilingualism: Language and Cognition*, 18(2), 179-190.
- Sanz, C., Park, H. I., & Lado, B. (2015). *A functional approach to cross-linguistic influence in ab initio L3 acquisition*. *Bilingualism: Language and Cognition*, 18(2), 236-251.
- Slabakova, R. (2017). *The Scalpel Model of Third Language Acquisition*. *International Journal of Bilingualism*, 21(6), 651-666.
- Westergaard, M., Mitrofanova, N., Mykhaylyk, R., & Rodina, Y. (2017). *Crosslinguistic influence in the acquisition of a third language: The Linguistic Proximity Model*. *International Journal of Bilingualism*, 21(6), 666-682.

ACKNOWLEDGMENTS

We thank Prof. Karsten Eulitz from the University of Konstanz for his invaluable feedback and scientific support.



This project has received funding from the European Union's Horizon2020 research and innovation programme under the Marie Skłodowska Curie grant agreement No 765556.