Tackling the replication crisis: Student theses should be collaborative replication studies
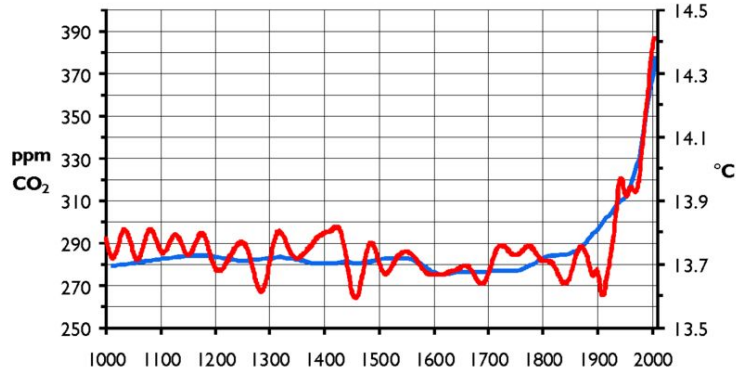
Linda Gerisch
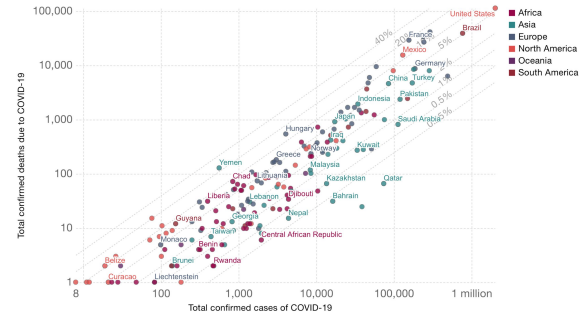
Onur Özsoy

Leonie Twente

70.ʃtʊTS VIENNA

Roadmap

1. Replication crisis: Ways in and out

2. Role models for student-led replication

3. Building a student replication network

Crisis
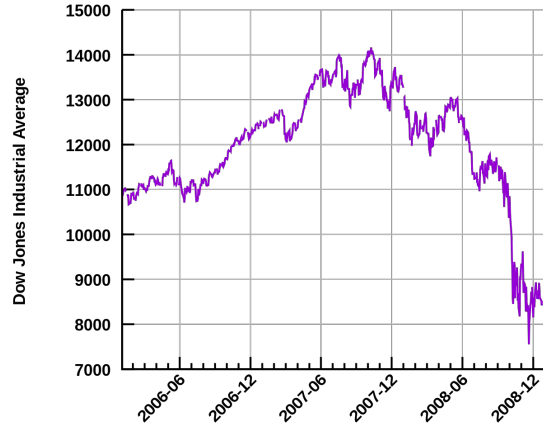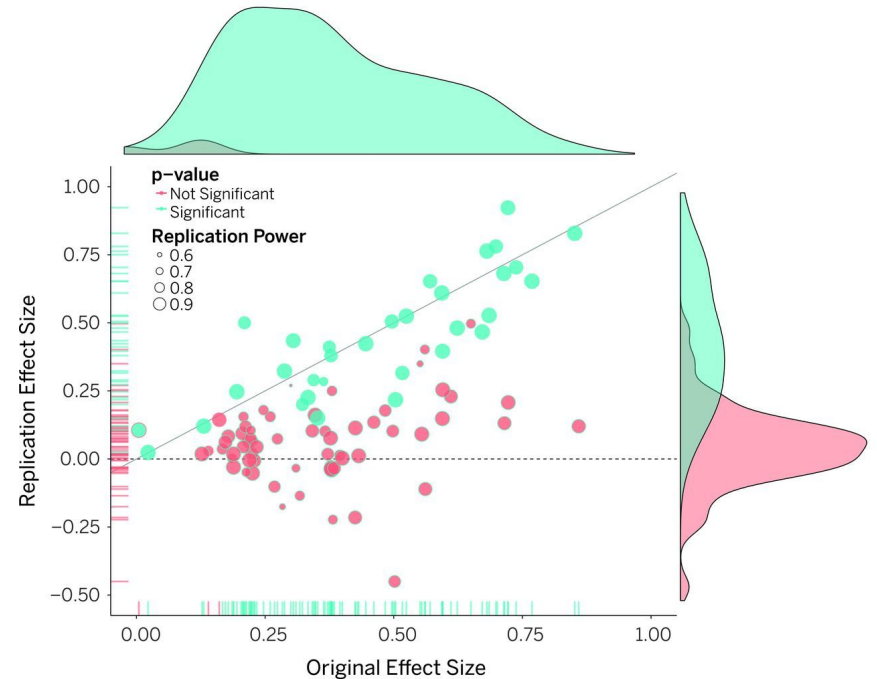

replication crisis

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Replication crisis: ways in

- Reproducibility is a core element of science
- Several factors affect reproducibility
  - Sample size and statistical power
  - Study design (number of variables)
  - Availability of procedures and protocols
  - Availability of materials and stimuli
  - Availability of data and code

"Simulations show that for most study designs and settings, it is more likely for a research claim to be false than true." (Ioannidis, 2005)

(Open Science Collaboration, 2015:943)

Replication crisis in **linguistics**

- Quantitative turn in linguistics

  $\longrightarrow$ calls for a displicine that enables replication (Sönning & Werner, 2021)

- Expertise in linguistics
  - Methods, **or**
 - Theory

- Misleading interpretation of *p*-values

Solutions:

- Integration of linguistic knowledge into data analysis
- Less focus on testing and more on estimation
- Clearer communication of findings, in description of analysis and availability of data – open data culture

An example fresh off the press: Morey et al, 2021
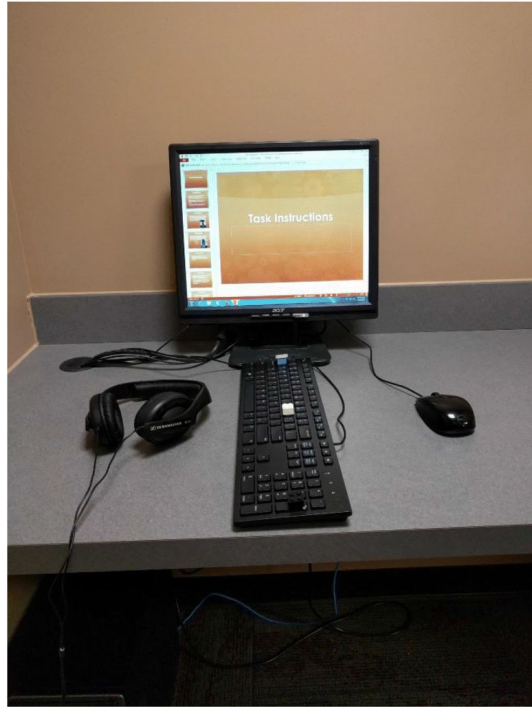
Setting for testing the
Action-sentence Compatibility Effect (ACE)
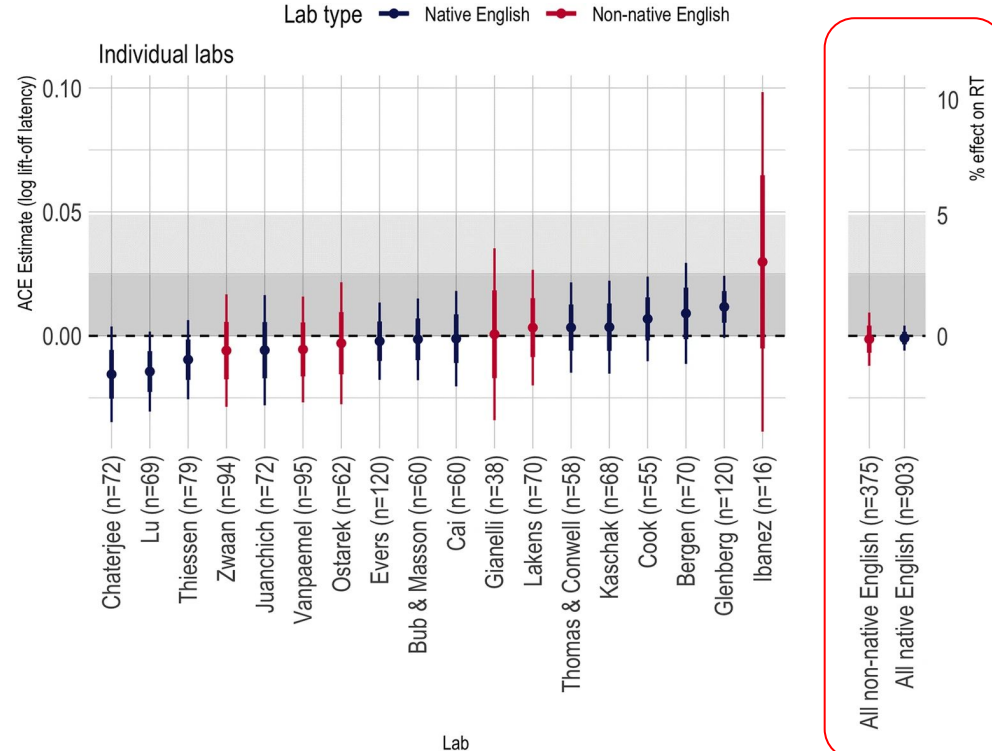
Replication crisis: **one way out**

- Echoing Quintana (2021): student-led replication in final theses

1. Young researchers are not constrained as much (Sönning and Werner, 2021)

2. Students (**you!**) are the ones writing and struggling with final theses

3. **Form a network of students from several dozen institutions at StuTS**

Corpus Linguistics and Fancy Meth

This study investigates

(i) whether there has been a shift towards increased statistical focus in corpus linguistic research article

(ii) whether it has had any repercussions for the attention paid to linguistic description.

This is done through an analysis of the relative focus on statistical reporting vs. linguistic description in the way the results are reported and discussed in research articles published in four major corpus linguistics journals in 2009 and 2019.

The results display a marked change:

In 2009, a clear majority of the articles exhibit a preference for linguistic description over statistical reporting;

in 2019, the exact opposite is true.

The number of different statistical techniques employed has also gone up.

While the increased statistical focus may reflect increased methodological sophistication, our results show that it ha

A diminished focus on linguistic description, evident, for example, through fewer text excerpts and linguistic examp the language that is the object of study. We discuss these shifts and suggest some ways of employing sophisticate language.
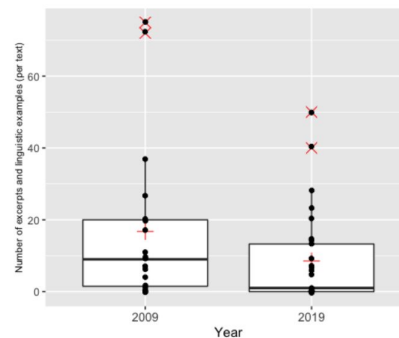

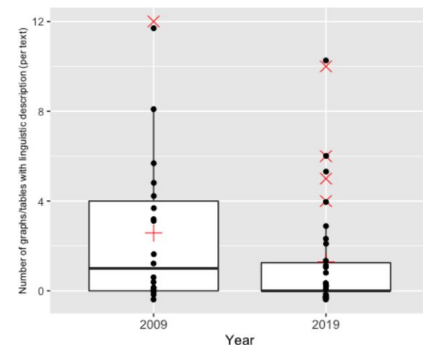**Figure 6**. Number of text excerpts and linguistic examples included (per text) in 2009 and 2019

Figure 5. Number of graphs and tables that include linguistic description (per text) in 2009 and 2019
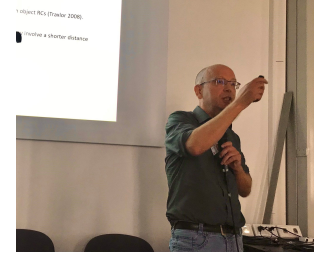
8

Teacher Training

Germany vs. Norway

Germany: decentralised, chaotic

Norway: centralised, education is very important

→   teacher training is VERY important!

collaborative (student) replication studies robustly test the validity of effects, e.g., Morey et al (2021) with more than 20 labs

Language Development Seminar in Jena

This seminar has started my whole journey towards becoming a PhD student in linguistics.

Holger Diessel: holger.diessel@uni-jena.de

Teacher Training (Theory):

The class provides an overview of research on first and second language acquisition. In the first part of the course we will discuss some seminal research on the emergence of children's early words and early multi-word utterances and will consider different theoretical approaches to the study of child language acquisition. In the second part of the course we will focus on aspects of second language acquisition and will consider the differences and similarities between L1 and L2 acquisition. MA students are expected to attend this class together with the class Language Development: Methods. Students of the teacher training program are also welcome to attend the methods class (especially if they want to get some hands-on experience with empirical research on first and/or second language acquisition); but for them the attendance of the methods class is not obligatory.

Master of Arts (Methods):

The course provides an introduction to basic research methods in first and second language acquisition. Students will have the opportunity to work with transcripts of computerized child language data from the CHILDES database (http://childes.psy.cmu.edu/) and will learn how to design a questionnaire for studying L2 acquisition. The focus of the course is on methodological issues, i.e. data collection and data analysis; theoretical issues of L1 and L2 acquisition will be addressed in the complementary class Language Development: Theory. MA students are expected to attend both parts of the module (i.e. Language Development: Methods and Language Development: Theory). Students of the teacher training program do not have to attend the theory part of the module; but if they attend the current class without any prior knowledge of L1 and/or L2 acquisition, they should be prepared to do some additional reading.

The vision of a Student Theses Replication Network Linguistics (STRENeL)

Aims
1. Form a vital network of active students

2. Determine studies and/or research projects that need a replication

3. Pilot replications to show the world the benefits of collaborative student replication

How to join and proceed
1. Join mailing list **https://forms.office.com/r/AFbG4X5mwh**

2. Meet asap with more time

3. Write a multi-author peer-reviewed journal paper with our ideas and demands

Ideas, comments and feedback

🎤 Speak and write, fellow linguists!

Want to stay in touch?

Find us on Twitter:

Linda @Linda_TaylorsV

Onur @_Onurunki

Leonie @LeonieTwente

References

Image of Holger Diessel: Five-lectures-by-Holger-Diessel-as-Fancqui-chair-holder-at-KU-Leuven.jpg

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