

Tackling the replication crisis: Student theses should be collaborative replication studies

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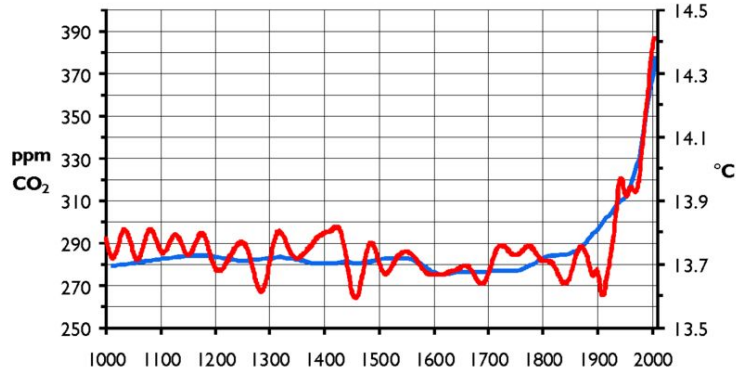
Leonie Twente



Roadmap

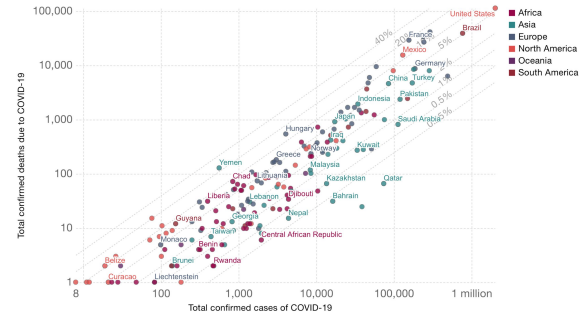
1. Replication crisis: Ways in and out
2. Role models for student-led replication
3. Building a student replication network

Crisis

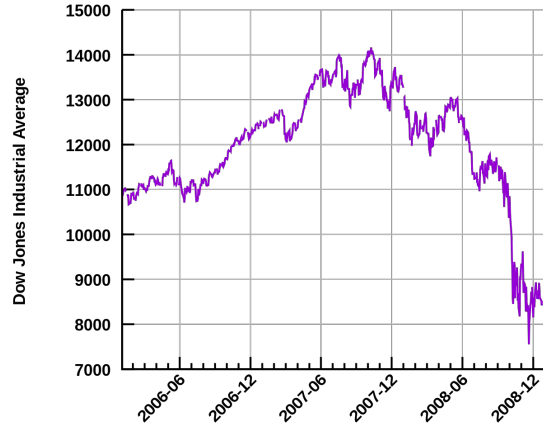


Total confirmed COVID-19 deaths vs. cases, Jun 11, 2020

The number of confirmed cases is lower than the number of total cases. The main reason for this is limited testing. The grey lines show the corresponding case fatality rates, CFR (the ratio between confirmed deaths and confirmed cases).



Source: European CDC - Situation Update Worldwide - Last updated 11th June, 11:00 (London time) WorldInData.com/coronavirus - CC BY



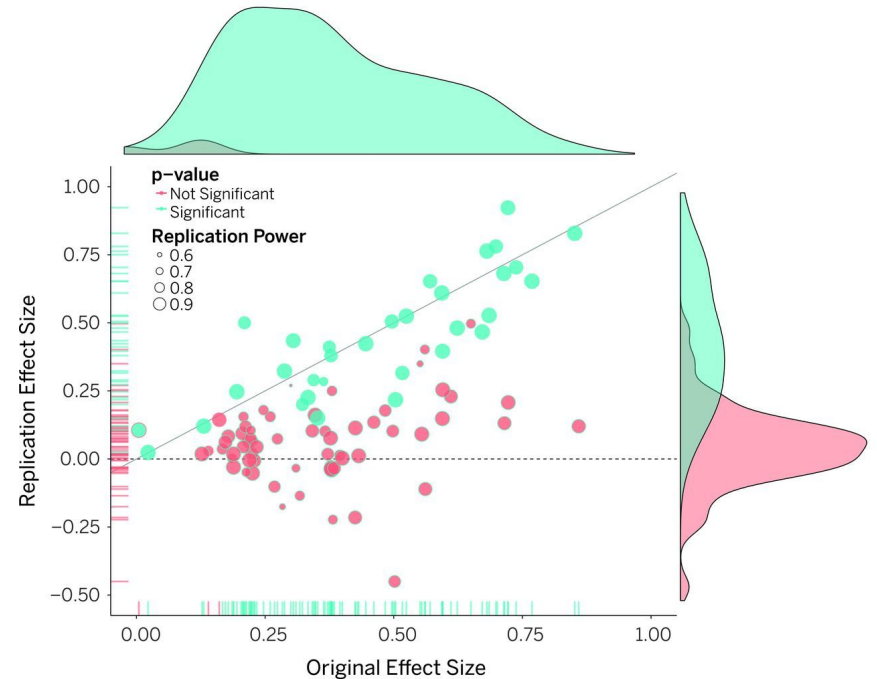
replication crisis

?

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)

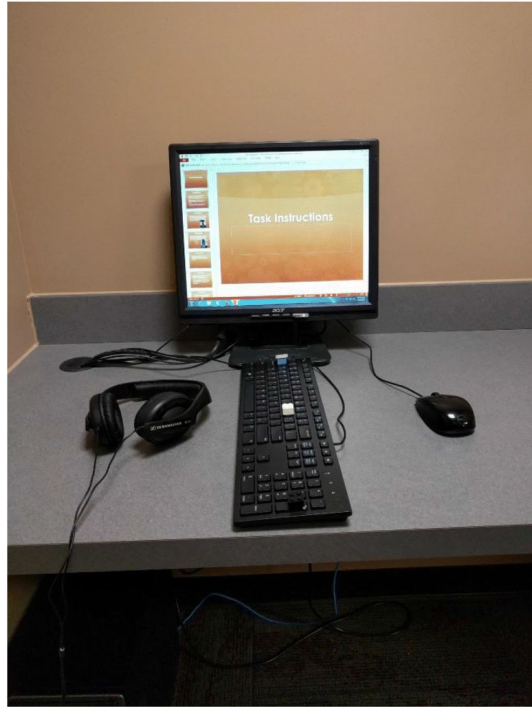
Replication crisis in **linguistics**

- Quantitative turn in linguistics
 - calls for a discipline that enables replication (Sönning & Werner, 2021)
- Expertise in linguistics
 - Methods, **or**
 - Theory
- Misleading interpretation of p -values

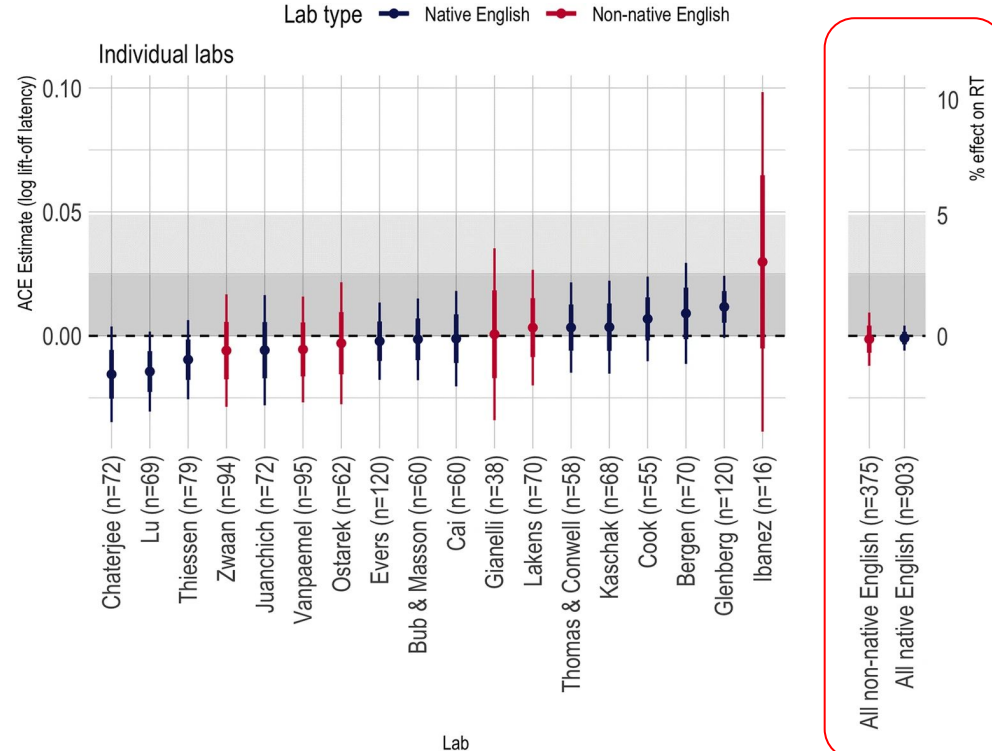
Solutions:

- 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 (Sønning 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 h

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

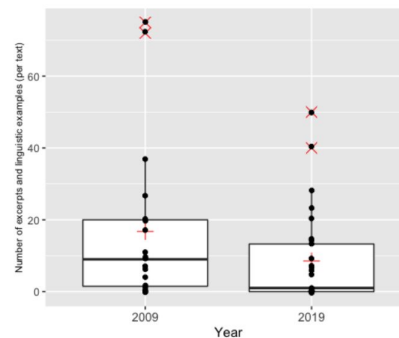


Figure 6. Number of text excerpts and linguistic examples included (per text) in 2009 and 2019

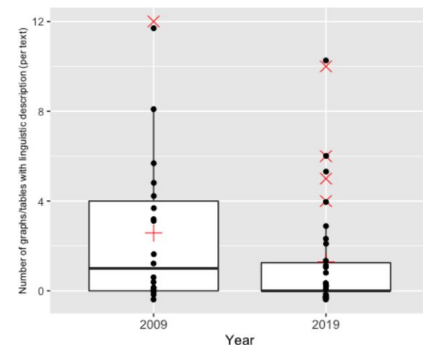


Figure 5. Number of graphs and tables that include linguistic description (per text) in 2009 and 2019

Teacher Training

Germany vs. Norway

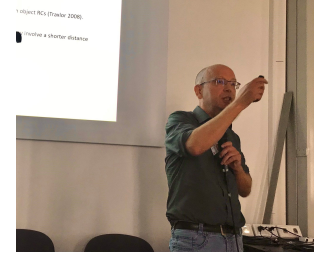
Germany: decentralised, chaotic

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

The screenshot shows a Twitter thread. At the top, Onur Özsoy (@_Onurunki) asks if it could be something to advocate for, mentioning @jungesprawi and providing an open access link: rdcu.be/cxkoR. Below this is a quote tweet from Dan Quintana (@dsquintana) dated Sep 7, discussing a cumulative replication study for theses and mentioning a new opinion piece in @NatureHumBehav. The main tweet is dated 8:40 PM · Sep 12, 2021 · Twitter for iPhone and has 2 retweets and 6 likes. Below the tweet are icons for reply, retweet, like, and share. The thread continues with a reply from Linda Gerisch (@Linda_TaylorsV) dated Sep 28, replying to @_Onurunki and @jungesprawi, stating that in Norway, it's already standard in the humanities to choose. Onur Özsoy (@_Onurunki) replies dated Sep 28, expressing interest and asking if Linda_TaylorsV would participate in a discussion panel for @StuTS_official, and suggesting a collective blog-post for @jungesprawi and @LeonieTwente.

Onur Özsoy @_Onurunki · Sep 12, 2021 · Twitter for iPhone

could be something to advocate for, don't you think so [@jungesprawi](#)?
(open access link: rdcu.be/cxkoR)

Dan Quintana @dsquintana · Sep 7

Offering undergraduate students the option of performing a cumulative replication study for their theses—instead of an original research project—would improve both science and education.

My new opinion piece in @NatureHumBehav

nature.com/articles/s4156...
[Show this thread](#)

8:40 PM · Sep 12, 2021 · Twitter for iPhone

||| View Tweet activity

2 Retweets 6 Likes

Tweet your reply [Reply](#)

Linda Gerisch @Linda_TaylorsV · Sep 28

Replying to @_Onurunki and @jungesprawi

In Norway, it's already standard in the humanities that you can choose.

1 1 1

Onur Özsoy @_Onurunki · Sep 28

Cool! I'd love to hear more about that.

[@Linda_TaylorsV](#), would you participate in a discussion panel about this [@StuTS_official](#)?

I'm sure we could get people from different systems/countries and think about collectively writing a blog-post for [@jungesprawi](#) cc [@LeonieTwente](#)

1 1 2

References

Image of Holger Diessel: [Five-lectures-by-Holger-Diessel-as-Fancqui-chair-holder-at-KU-Leuven.jpg](#)

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