

Advancing Computational Reproducibility in the Social Sciences

Creating and using digital reproduction records as pedagogical tools

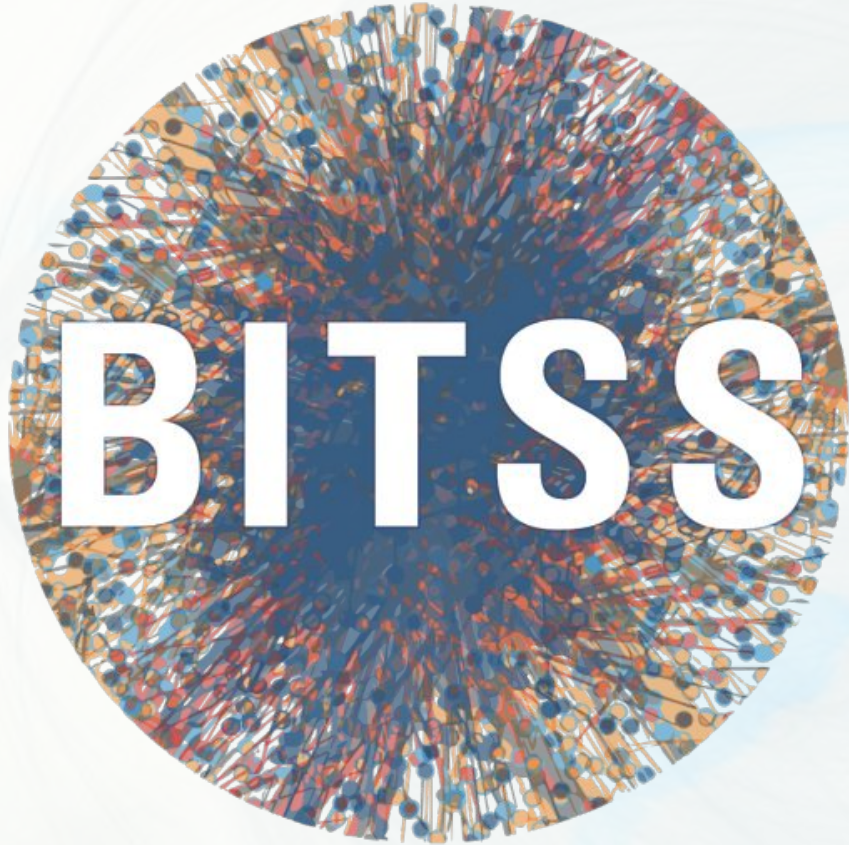
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The **Berkeley Initiative for Transparency in the Social Sciences** (BITSS) promotes ethical, transparent and reproducible research practices to improve the integrity of science and inspire better public policy.

Generate **evidence**

Increase access to open science **education**

Strengthen the scientific **ecosystem**



Failures to reproduce or replicate

Replication in Social Sciences (same method, different sample)

OSC (2015): 30%-60%

Camerer et. al. (2016): ~60%

Nosek & Camerer et. al. (2018): ~60%

Klein et. al. (2018): 50%

Reproduction in Economics (same data and methods)

Chang & Li (2015): 43%

Gertler et. al. (2017): 14%

Kingi et. al. (2018): 43%

Wood et. al. (2018): 25%

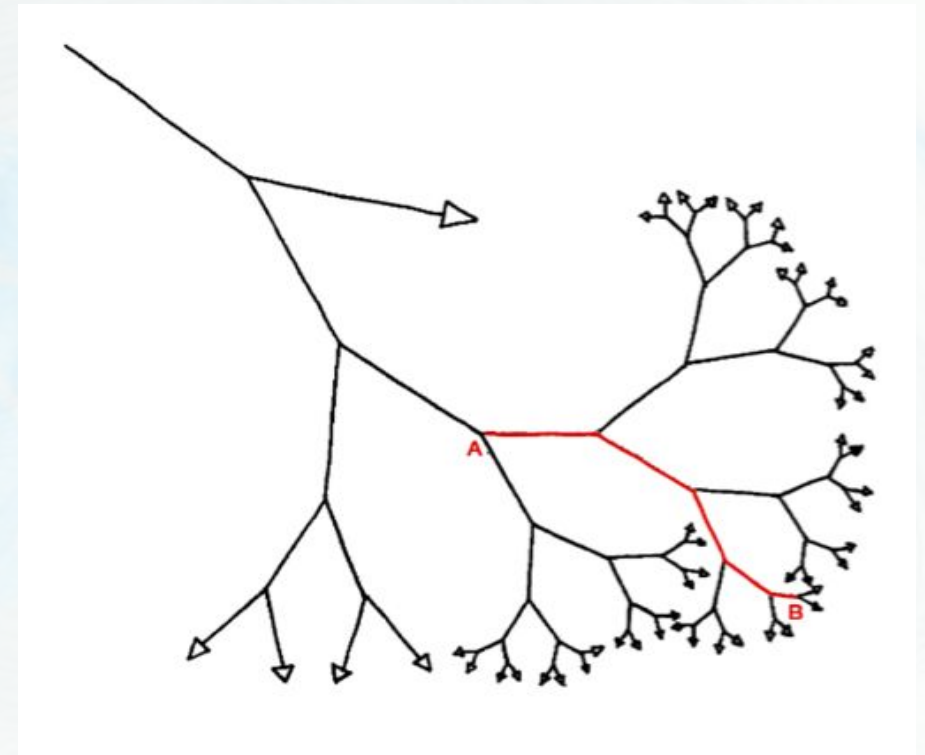


What is “Scholarship?”

“An article about computational results is advertising, not scholarship. The actual scholarship is the full software environment, code and data, that produced the result.”

– Buckheit and Donoho ([1995](#)) paraphrasing Claerbout and Karrenbach ([1992](#))

- Accelerating understanding
- Supporting learning
- Improving inclusion and participation



^^ From Jorge Luis Borges’s “El jardín de senderos que se bifurcan”

Accelerating Computational Reproducibility in the Social Sciences (The ACRe Project)



- Curriculum development
- Training for students and instructors
- The Social Science Reproduction Platform: Crowdsourced reproductions, improvements, and community discussion
- Assessments of reproducibility across journals, fields

The ACRE Guide

Step by step instructions for conducting and recording a reproduction, including chapters on:

- Choosing a paper
- Assessing reproducibility
- Making improvements
- Robustness checks
- Constructive conversations w/ authors

<https://bitss.github.io/ACRE/>

Introduction

Beyond binary judgments

Stages of the exercise

Recording the results of the exercise

Reproduction Strategies

1 Scoping

1.1 From candidate to declared paper

1.2 Scoping your declared paper

1.3 Setup your own revised reprodu...

1.4 Identify your relevant timeline.

2 Assessment

2.1 Describe the inputs.

2.2 Connect each output to all its in...

2.3 Assign a reproducibility score.

3 Improvements

3.1 Types of output-level improve...

3.2 Types of paper-level improvements

4 Checking for Robustness

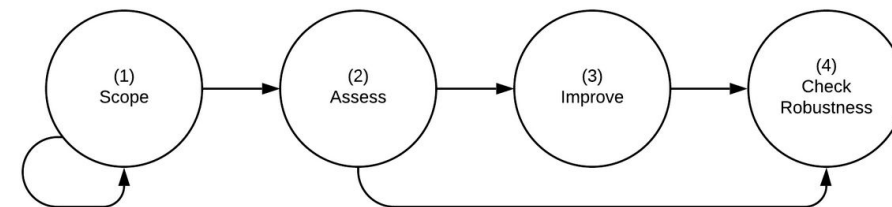
4.1 Feasible robustness checks: incr...

4.2 Reasonable robustness check: j...

5 Concluding the Reproduction

5.1 Outputs

5.2 Anonymity and data sharing



(1) Scoping	(2) Assessment	(3) Improvement	(4) Robustness	
		Display-item-level	Paper-level	
<input type="checkbox"/> Select paper	<input type="checkbox"/> Describe inputs	<input type="checkbox"/> + Raw data	<input type="checkbox"/> + Version control	<input type="checkbox"/> Analytical choices
<input type="checkbox"/> Check ACRE	<input type="checkbox"/> Reproduction diagrams	<input type="checkbox"/> + Analysis data	<input type="checkbox"/> + Documentation	<input type="checkbox"/> Type of choice
<input type="checkbox"/> Declare paper	<input type="checkbox"/> Reproduction score	<input type="checkbox"/> + Analysis code	<input type="checkbox"/> + Dynamic document	<input type="checkbox"/> Choice value
<input type="checkbox"/> Read paper		<input type="checkbox"/> + Cleaning code	<input type="checkbox"/> + File structure	<input type="checkbox"/> Justify and test alternatives
<input type="checkbox"/> Declare estimates		<input type="checkbox"/> Debug analysis code		
		<input type="checkbox"/> Debug cleaning code		
Record results in Survey 1	Record results in Survey 2		Record results in Survey 3	





Social Science Reproduction Platform

An open source online platform for crowdsourcing reproductions

- Record citable reproductions and improvements (assigned DOIs w/ Crossref)
- Review and provide feedback on others' reproductions (Discourse forum)
- Aggregated results on a Metrics Dashboard

<https://www.socialsciencereproduction.org/>

BETA - Site is under development. Please provide feedback and bug reports to acre+feedback@berkeley.edu

ACRE

MY REPRODUCTION ATTEMPTS

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Scoping

[RETURN TO STAGES OVERVIEW](#)

[SAVE](#)

Basic information

1.1. Enter basic information about the paper that you have chosen to reproduce for this activity.

RePEc handle

E.g. RePEc:aea:aecrev:v:108:y:2018:i:4-5:p:899-934

Title

E.g. Railroads of the Raj: Estimating the Impact of Transportation Infrastructure

Name of journal or publication

E.g. American Economic Review

Year of publication

E.g. 2018

Digital Object Identifier (or URL if no DOI available)

E.g. 10.1000/xyz123 or <https://arxiv.org/abs/2007.03654>

Authors

e.g. John Maynard Keynes, Milton Friedman

1.2. Is a reproduction package available for this paper?

Yes

No

1.3. Have you contacted the authors for a reproduction package? Consult the [ACRE Guidelines for recommendations on contacting authors](#).

Yes

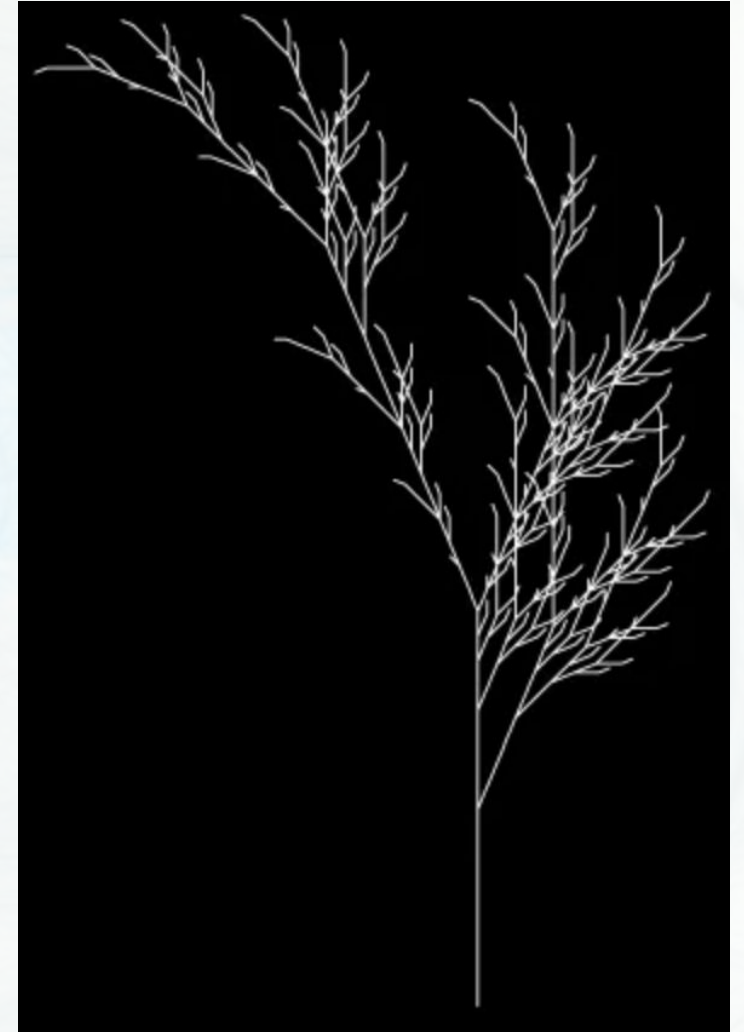
No



Open questions, next steps

- Improving SSRP's pedagogical features
- How to allow **anonymous reproductions**
 - Balancing risks to reputations w/ risks of creating space for trolls
 - De-identifying reproductions is not foolproof
 - Temporary embargo periods
- Assessing **quality**
- Getting **buy-in** from social scientists

We welcome feedback and community contribution to the Guide and platform!



^^ From Antonio Sánchez Chinchón
via [Fronkinstin](#)



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