

A psychometrics of individual differences in the truth effect

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Background

- **Truth effect:** Repetition increases perceived truth
- **Individual differences:** Covariation of individual effects with dispositional variables
- **BUT: Ambiguous findings** for individual differences in the truth effect (e.g., De Keersmaecker et al., 2020; Newman et al., 2020)
 - **Substantive** reason – truly no covariation?
 - **Statistical** reason – too much noise in the data?

Psychometric Goodness

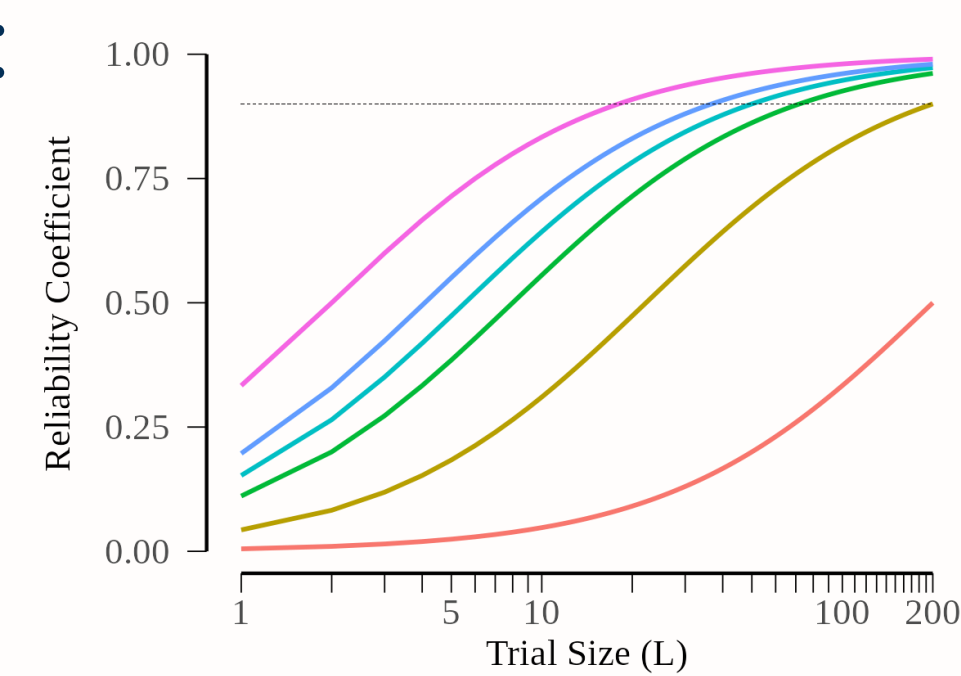
- Reliability is not strictly a property of the task itself (Rouder & Haaf, 2019)
- Psychometric goodness as a **signal-to-noise ratio γ** : between to within person variability (Rouder et al., 2023)

$$\gamma^2 = \sigma_B^2 / \sigma_W^2 \quad \gamma = \sqrt{\gamma^2}$$

- **Expected reliability** then follows:

$$E(r) \approx \frac{\gamma^2}{\gamma^2 + \frac{2}{L}}$$

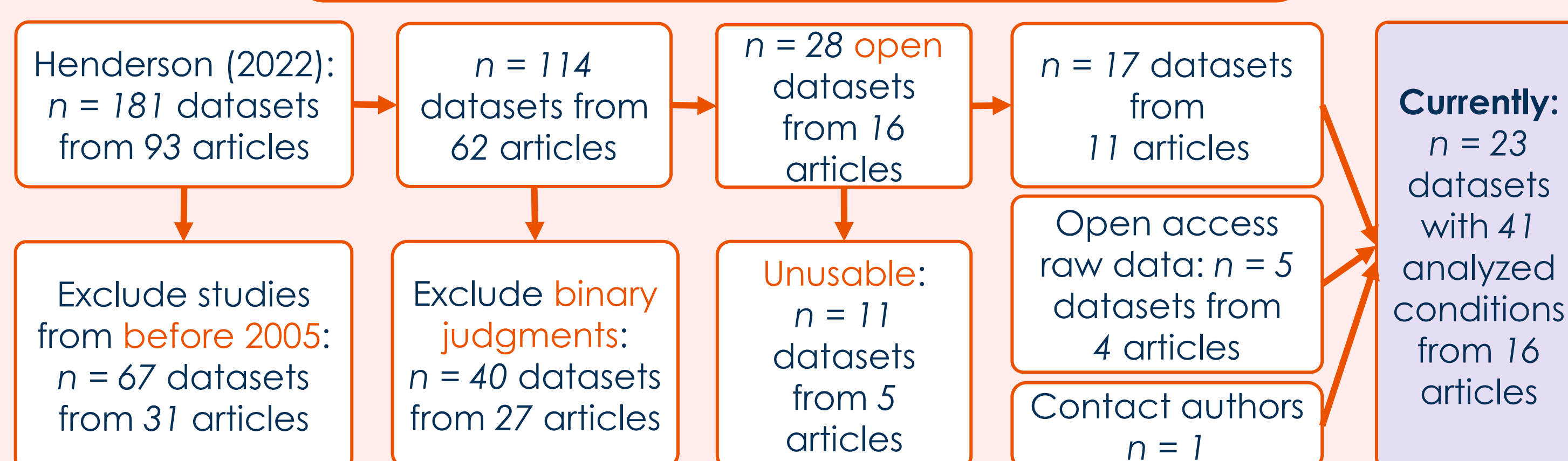
- γ can quantify the inherent properties of experimental tasks



This Research

- Can we reliably **detect individual differences** in the truth effect, and what **experimental characteristics** systematically differ in their ability to reveal these differences?
- Large-scale analysis of published and unpublished data sets

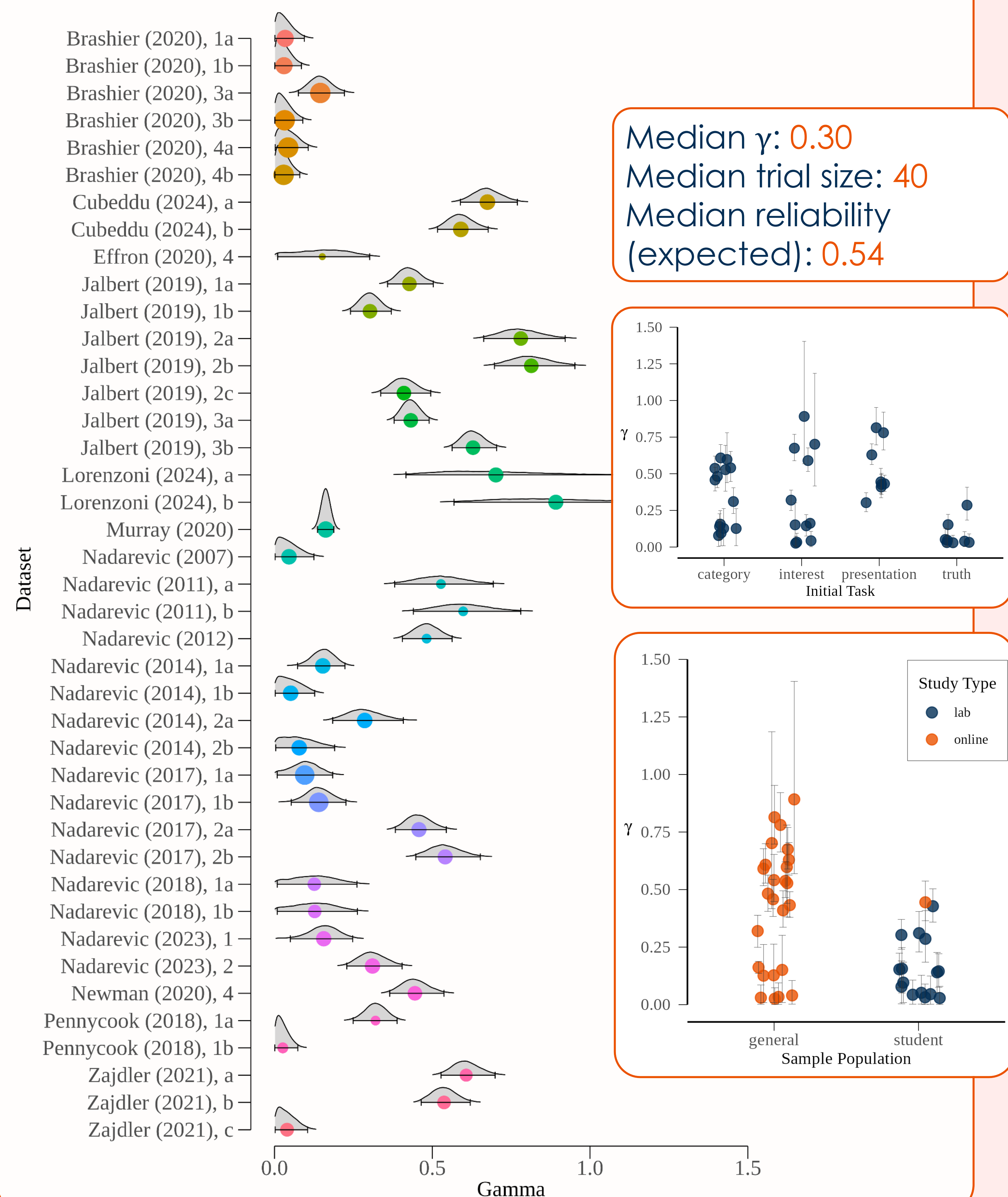
Data Selection



Analysis

- **Bayesian hierarchical linear model**, 8 chains with 2000 iterations each
- σ_W and σ_B samples were extracted and used to calculate the **signal-to-noise standard deviation ratio** $\gamma = \sigma_B / \sigma_W$, its posterior distribution, and the expected reliability coefficient

Results



Recommendations

- **Sample:** general population, online study – increases heterogeneity
- **Stimulus material:** trivia statements
- **Initial task:** no truth judgments
- No tangible influence of:
 - Rating scale
 - Retention interval

Discussion

- Recommendations are **observational** – BUT: **initial guidelines** for designing experiments on individual differences in the truth effect
- Limited **data** (due to inaccessibility) – in progress
- **Detection of individual differences in the truth effect is possible** – even though currently not given

References

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