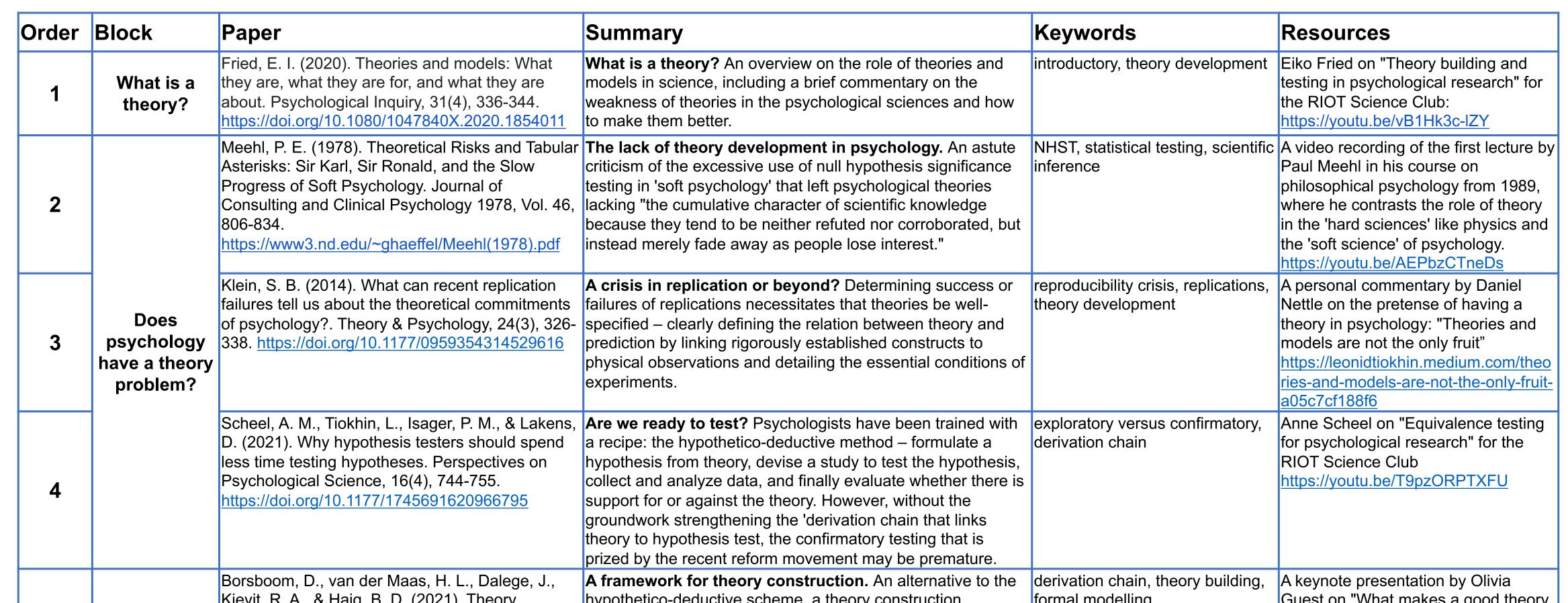
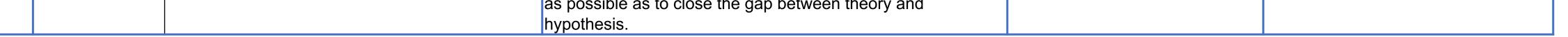
ReproducibiliTea Reading List on Theory in Psychological Science

One precursor to the reproducibility crisis in psychology has been the haste to conduct empirical research, rather than rigorously develop theory and its connection to the research. These ten papers were selected to provide an introduction to theoretical psychology. They are separated by themes that your journal club may choose to explore in further detail in following meetings! We have also provided a brief summary, keywords and additional online resources to help inform your discussions.



5	How to improve psychological theory	Kievit, R. A., & Haig, B. D. (2021). Theory construction methodology: A practical framework for building theories in psychology. Perspectives on Psychological Science, 16(4), 756-766. <u>https://doi.org/10.1177/1745691620969647</u>	hypothetico-deductive scheme, a theory construction methodology (TCM) is proposed that includes five steps: identifying a relevant phenomena, formulating a proto-theory, developing a formal model, checking the adequacy of the formal model, and evaluating the overall worth of the constructed theory.	formal modelling	Guest on "What makes a good theory, and how do we make a theory good?" <u>https://youtu.be/67X0TpnQeO0</u>
6		Guest, O., & Martin, A. E. (2021). How computational modeling can force theory building in psychological science. Perspectives on Psychological Science, 16(4), 789-802. https://doi.org/10.1177/1745691620970585	Computational modeling can promote theory development. Creating computational models can promote scientific inferences through enforcing better specification of theories as abstract constructs are formalized, and underlying intuitions and predictions are made open and transparent.	modeling, scientific inference	A video recording of a talk by Olivia Guest and Andrea Martin on their paper "How computational modeling can force theory building in psychological science". https://youtu.be/8Aa9_6ahO48
7		Maatman, F. O. (2021). Psychology's Theory Crisis, and Why Formal Modelling Cannot Solve It. <u>https://psyarxiv.com/puqvs/</u>	Formal theories are helpful but first be determined. The cause of the theory crisis stems from tests of experiments not being specific enough as to support only one theory and falsify all other alternatives, and many psychological theories containing auxiliary assumptions such that the theories are not severely tested. Better methods that force precise and unlikely predictions from theories will solve the core issue, not necessarily formal modeling alone.	building, theory specification	A Twitter thread by Freek Maatman (@psychedfreek) summarizing their paper. <u>https://twitter.com/psychedfreek/status</u> /1414982603082506242
8	Taking steps to improve psychological	https://doi.org/10.1177/2515245920952393	Better measures to inform theory building. Developing and testing theories requires construct measures to be scrutinized and valid. Echoing questionable research practices, questionable measurement practices (e.g. the arbitrary summing of subscales) are defined and a list of questions are provided to help the researcher promote the validity of their measures.	transparency, construct validity	Jessica Flake on "Measurement schmeasurement: Questionably measurement practices and how to avoid them" for the RIOT Science Club: <u>https://youtu.be/Cq6n7AS_r8w</u>
9		van Rooij, I., & Blokpoel, M. (2020). Formalizing verbal theories: A tutorial by dialogue. Social Psychology, 51(5), 285. <u>https://doi.org/10.1027/1864-9335/a000428</u>	Formalizing verbal theories. A guide to translating verbal theories into formal theories starting with basic mathematical definitions and notation before a toy example of building formal theories presented through multiple dialogues between fictional Dr Verbal and Dr Formal.	guide, theory building, formal modeling	Smaldino, P. E. (2020). How to translate a verbal theory into a formal model. Social Psychology, 51(4), 207. <u>https://osf.io/preprints/metaarxiv/n</u> <u>7qsh</u>
10	Are we ready to test our theories?	https://doi.org/10.3758/s13423-019-01645-2	Discovery-oriented research versus theory-testing research. A critical and comprehensive revisit of the reproducibility crisis and proposed solutions, such as preregistration, formal modeling and stricter statistical standards. A distinction is made between two paths: discovery-oriented research, where it is accepted that theory cannot yet lead to strong inferences and necessitating empirical standards through direct replication, versus theory- testing research, where theories are formulated as precisely as possible as to close the gap between theory and	exploratory versus confirmatory. theory specification	Eiko Fried contextualizes and summarizes the field of theoretical psychology in his blogpost "On Theory". The inspiration for this resource, and a good place to inform where to go next to continue learning about psychological theory. https://eiko-fried.com/on-theory/





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