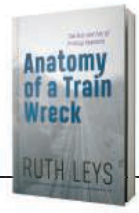
PSYCHOLOGY

Failure to replicate

A historian confronts the complicated origins and uncertain future of priming research

By **Elizabeth Lunbeck**

Anatomy of a Train Wreck: The Rise and Fall of Priming Research
Ruth Leys
University of Chicago Press, 2024. 416 pp.

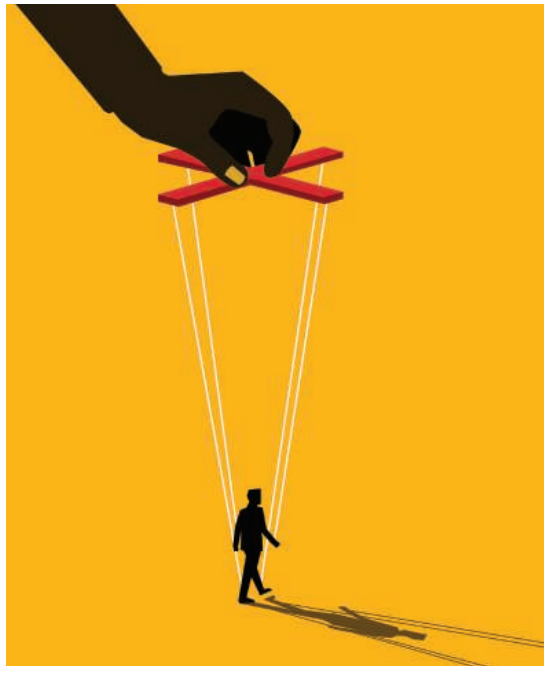


You have likely heard of the experiment. Under the guise of completing a language proficiency test, in the early 1990s, Yale University social psychologist John Bargh and his colleagues tasked college-student subjects with quickly sorting groups of scrambled words into sentences. Half were given words associated with the elderly (Florida, lonely, forgetful, gray, knits, ancient, and so on) and half were given neutral words (thirsty, clean, private). Upon finishing, those who had sorted the "elderly" words walked down a corridor significantly more slowly than the others. The conclusion: The slow subjects had been "primed" with the elder-associated words they had sorted, activating stereotypes about seniors that triggered their own elder-mimicking behavior.

Bargh marshaled this striking finding to support his claim that "automaticity," not free will or intentionality, powerfully governs behavior. Other psychologists staged clever experiments that repeatedly demonstrated how powerfully priming, whether with words or images, shaped individuals' actions, and best-selling books spread the message to broader audiences (*1, 2*).

Automatic responses—quick, efficient, intuitive—were just as powerful in shaping behavior as were more cognitively complex and considered ones, the theory went. Such responses acted as so many "memory butlers," unobtrusively and efficiently prompting behaviors in line with individuals' preferences while easing the burdens of thinking. As Ruth Leys shows in *Anatomy of a Train Wreck*—her engrossing, deeply researched, and meticulously argued account of priming's fate—the empire of priming came crashing down in the course of psychology's replication crisis, a crisis that has since swept through the sciences more generally.

In 2011, charges of fraudulent data as well as cherry-picking and selective reporting of results began to roil the field. More devastatingly, researchers could not replicate Bargh's landmark experiment. Was technology the weak point? Replace the handheld stopwatches used to measure walking speed with infrared sensors, and the elderly effect disappeared. Had the data been compromised by experimenter bias and expectations, by their communicating subtle cues to subjects as to the hoped-for outcome? Critics charged that the original experimenters had ignored a long tradition of research and theorizing focused on so-called demand characteristics, the motivations at work in both subjects and researchers in the setting of the psychological experiment.



As Martin Orne argued more than six decades ago, the issue of reproducibility had long haunted the behavioral sciences. In adopting the experimental model and laboratory method of the physical sciences, these researchers had unwittingly treated the thinking human subject as a passive respondent in the setting of the experiment.

Leys gives readers a near-forensic accounting of the many ways in which priming research went off the rails. (Her title comes from Kahneman's 2012 warning of a "train wreck looming" in the field). The indictment is both specific and quite broad.

She is particularly focused on psychology's long history of downplaying intentionality in human behavior. In an especially illuminating line of argument, she maintains that cognitive science's characterization of the mind in cybernetic terms, as an information processing machine—a now-familiar computational model—was centrally implicated in this project. Knowledge in this engineering construal of mind was less about meaning than about capacities to process context-free bits or chunks of information. The self-regulating cybernetic mind was central, she suggests, to the cognitivists' elevation of automaticity over commonsense understandings of human agency and free will.

Leys shows throughout the book how priming researchers were repeatedly snared by conceptual and theoretical traps of their own devising. For instance, they eventually posited that "moderators," such as desires to affiliate or gender, influence individuals' responses to primes, but this undermined the generalizability of their experimental results.

Leys's quarry is not only priming but also psychology's long-standing commitment to the experimental methods of the natural sciences, a commitment that recently has only increased. Her account portrays a discipline that is plagued by widely commented-upon problems ranging from small effect sizes yielded by analyses of large datasets to confirmation bias and a ubiquity of tautological statements dressed up as theory.

Optimistic reformers have touted exact replication of experimental results as the way forward; others continue to stress that psychology needs to attend to humans in everyday, not only laboratory, environments. The final chapter in this debate has yet to be written. In the meantime, Leys's granular reconstruction of priming's rise and fall makes the high stakes involved abundantly clear. ■

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REFERENCES AND NOTES

1. M. Gladwell, *Blink: The Power of Thinking Without Thinking* (Little, Brown, 2005).
2. D. Kahneman, *Thinking, Fast and Slow* (Farrar, Straus and Giroux, 2011).

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