

Articles review

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In "To Explain or to Predict?" by Galit Shmueli and "Statistical Modeling: The Two Cultures" by Leo Breiman, both authors explore how we use data to make sense of the world, but from different perspectives. Shmueli focuses on the difference between explanatory models, which aim to understand why things happen, and predictive models, which are designed to forecast what will happen next. She argues that confusing these two purposes can lead to mistakes because models built to explain don't always perform well when used to predict. Breiman, on the other hand, critiques the traditional statistical approach that relies heavily on theoretical models based on assumptions about how data should behave. He believes we should shift towards algorithmic models, like those used in machine learning, which focus on making accurate predictions without strict assumptions. While both agree that traditional methods have their limits, Shmueli emphasizes the need for clarity in defining our goals, while Breiman advocates for a more radical change towards flexible, data-driven techniques. Together, their ideas highlight the importance of choosing the right approach depending on whether we want to understand past events or predict future outcomes.

#### Sources:

Breiman, Leo. 2001. "*Statistical modeling: The two cultures (with comments and a rejoinder by the author).*" *Statistical Science*, 16(3), pp.199-231.

Shmueli, Galit. 2010. "*To explain or to predict?*" *Statistical Science* 25, no. 3: 289-310.