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# Causal and statistical inference with social network data: Massive challenges and meager progress

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## Abstract

Interest in and availability of social network data has led to increasing attempts to make causal and statistical inferences using data collected from subjects linked by social network ties. But inference about all kinds of estimands, from simple sample means to complicated causal peer effects, is challenging when only a single network of non-independent observations is available. There is a dearth of principled methods for dealing with the dependence that such observations can manifest. We demonstrate the dangerously anticonservative inference that can result from a failure to account for network dependence, explain why results on spatial-temporal dependence are not immediately applicable to this new setting, and describe a few different avenues towards valid statistical and causal inference using social network data.