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Direct and indirect effects in causal networks ANDREAS KRÄMER, Ingenuity Systems, Inc. — Literature-derived networks of biomolecular interactions representing cause-effect relationships generally contain many indirect relationships where the actually observed causal effect results from a sequence of events represented in the same network. A statistical method is developed, based on an Ising-like spin model operating on the edges of the network, to distinguish between direct and indirect effects using only the network structure itself. This allows to identify paths representing likely causation mechanisms.

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