Social phenomena involve intense interaction and complex dependence among units in a network where the typical [stable unit treatment value assumption](https://en.wikipedia.org/w/index.php?title=Stable_unit_treatment_value_assumption&action=edit&redlink=1" \o "Stable unit treatment value assumption (page does not exist)) (SUTVA) needed for causal inference fails. Thus, modelling the potential spread of treatment effect to control units through the network structure becomes important. We propose a new specification for treatment spillover effect, based on the number of neighbours and distance from a treated unit. Since it is difficult to establish causality using observational data, this paper focuses on randomized experiments. We re-analyse multiple datasets from field experiments on political networks. We consider propagation models built through geographical or ideological proximity and co-sponsorship of bills. We randomize treatment assignment to study counterfactual effects as well as test robustness to non-parametric tests. This method can be meaningfully applied to any situation where studying interference between units can lead to valuable insights. Successful implementation of permutation testing in our paper will also ensure that the method can be used with big data.