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Title: How Homophily Affects Learning and Diffusion in Networks

Abstract: We examine how diffusion and learning are influenced by network properties such as average degree and homophily -- the tendency of individuals to associate with others similar to themselves. Homophily has no effect on the speed of diffusion under processes that depend only on shortest paths; such processes are only influenced by the size of the society and the average degree. In contrast, homophily substantially slows learning based on repeated averaging of neighbors' information and Markovian diffusion processes such as the Google random surfer model. Indeed, the latter processes are strongly affected by homophily but their speed is independent of connection density. We obtain these results by establishing new results on the spectra of large random graphs and relating the spectra to homophily.