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Hierarchical Models for Relational Data: An Example from Political Science

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Scientific investigations on processes on networks (more generally, dyadic relational data) often assume that the initial data collection method on relations between individuals is perfect – that is, the representation given to the connection is without noise or random variation. Other investigations on a network presume that there is an underlying process of interest that generates connections between individuals. These questions motivate an investigation into three broader topics on this theme: generative models that produce network structures observable in natural, technological and social situations; interpretations of topologies on networks beyond geodesic measures; and the consequences of commonly observed data compression schemes on network tie strengths. This talk will be concerned with one subject that captures many of these elements: an investigation of a network of coauthored press releases over a three year period by members of the United States Senate.