

$k^a$	$\varepsilon^b$	BE% <sup>c</sup>	BIC score <sup>d</sup>
3	0.05	36.111	-5213.594
3	0.10	29.730	-5147.824
3	0.20	34.211	-5120.994
3	0.30	35.135	-5120.670
4	0.05	30.000	-5215.807
4	0.10	32.500	-5155.409
4	0.20	38.462	-5125.019
4	0.30	39.024	-5120.280

Table S 6: Percentage of bad edges and the BIC scores of the SMPNs learned from the BC data in [13] with DiProg algorithm

<sup>a</sup> Maximum number of vertices in each hyperedge

<sup>b</sup> Value of  $\varepsilon$  in SMPN learning

<sup>c</sup> Percentage of bad edges.

<sup>d</sup> The BIC score of the learned SMPN by DiProg.