Simulation results

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ResNMTF

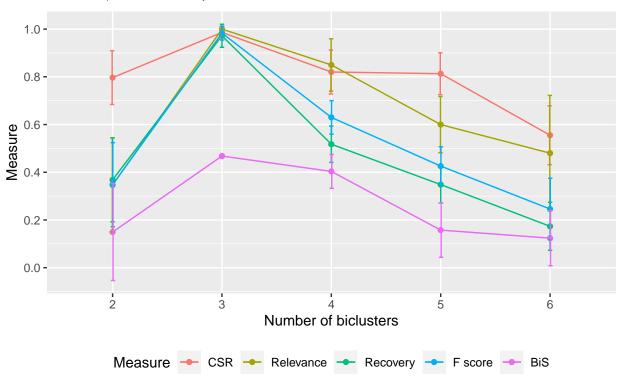


Figure 1: Simulation results for ResNMTF only.

	Number of biclusters				
	2	3	4	5	6
F score	0.3480 (0.1761)	0.9833 (0.0290)	0.6299 (0.0703)	0.4259 (0.0809)	0.2460 (0.1290)
Relevance	$0.3464 \ (0.1979)$	0.9999(0.0004)	0.8498 (0.1097)	$0.5998 \ (0.1178)$	0.4800 (0.2422)
Recovery	$0.3682 \ (0.1758)$	$0.9722 \ (0.0484)$	0.5175 (0.0762)	$0.3483 \ (0.0771)$	$0.1734 \ (0.1006)$
CSR	$0.7966 \ (0.1125)$	$0.9861 \ (0.0242)$	$0.8202 \ (0.0921)$	$0.8131 \ (0.0876)$	$0.5552 \ (0.1233)$
BiS	$0.1493 \ (0.2032)$	$0.4679 \ (0.0055)$	$0.4036 \ (0.0710)$	$0.1575 \ (0.1141)$	$0.1239 \ (0.1158)$

^a 3 views, $\phi = 200$, 100 repetitions.

Comparisons

Relevance

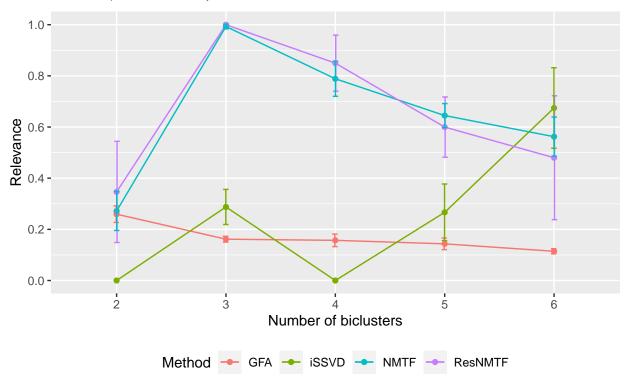


Figure 2: Relevance scores for all methods.

	Number of biclusters				
	2	3	4	5	6
ResNMTF GFA iSSVD NMTF	0.3464 (0.1979) 0.2593 (0.0323) 0.0000 (0.0000) 0.2719 (0.0762)	0.9999 (0.0004) 0.1616 (0.0114) 0.2876 (0.0686) 0.9930 (0.0091)	0.8498 (0.1097) 0.1570 (0.0245) 0.0000 (0.0000) 0.7886 (0.0685)	0.5998 (0.1178) 0.1434 (0.0227) 0.2666 (0.1107) 0.6449 (0.0468)	0.4800 (0.2422) 0.1143 (0.0102) 0.6745 (0.1574) 0.5623 (0.0767)

^a Relevance scores. 3 views, $\phi = 200$, 100 repetitions.

	Number of biclusters				
	2	3	4	5	6
ResNMTF	0.3682 (0.1758)	0.9722 (0.0484)	0.5175 (0.0762)	0.3483 (0.0771)	0.1734 (0.1006)
GFA	$0.3445 \ (0.0593)$	$0.2439 \ (0.0350)$	$0.2121 \ (0.0419)$	$0.1863 \ (0.0373)$	$0.1644 \ (0.0183)$
iSSVD	0.0000 (0.0000)	$0.1081\ (0.0481)$	0.0000 (0.0000)	0.1752 (0.0599)	0.3607 (0.1544)
NMTF	$0.3902\ (0.0949)$	$0.9935 \; (0.0069)$	$0.8436\ (0.0509)$	$0.6424\ (0.0389)$	$0.4846\ (0.0720)$

^a Recovery scores. 3 views, $\phi = 200$, 100 repetitions.

Recovery

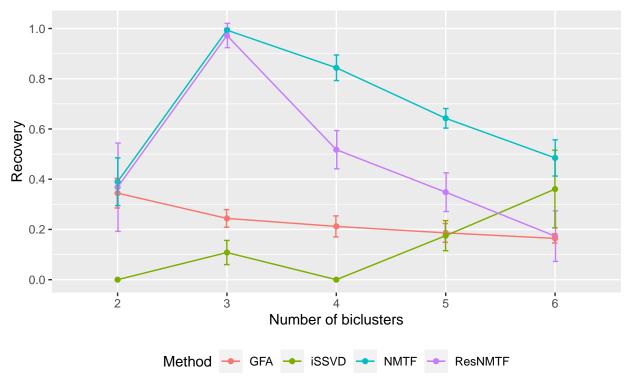


Figure 3: Recovery scores for all methods.

	Number of biclusters				
	2	3	4	5	6
ResNMTF GFA iSSVD NMTF	0.3480 (0.1761) 0.2952 (0.0424) 0.0000 (0.0000) 0.3159 (0.0811)	0.9833 (0.0290) 0.1940 (0.0192) 0.1542 (0.0427) 0.9932 (0.0077)	0.6299 (0.0703) 0.1800 (0.0309) 0.0000 (0.0000) 0.8130 (0.0574)	0.4259 (0.0809) 0.1617 (0.0279) 0.1906 (0.0428) 0.6415 (0.0373)	0.2460 (0.1290) 0.1348 (0.0131) 0.4336 (0.1272) 0.5088 (0.0686)

^a F scores. 3 views, $\phi = 200$, 100 repetitions.

F score

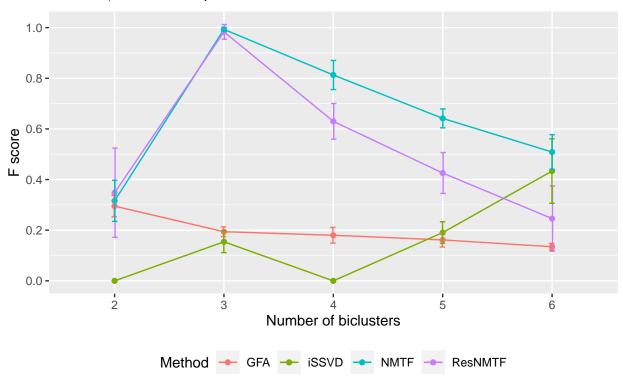


Figure 4: F scores for all methods.

	Number of biclusters				
	2	3	4	5	6
ResNMTF GFA iSSVD NMTF	0.1493 (0.2032) -0.2660 (0.0261) 0.0000 (0.0000) 0.1182 (0.1112)	0.4679 (0.0055) -0.2192 (0.0447) 0.3314 (0.1906) 0.4586 (0.0103)	0.4036 (0.0710) -0.1810 (0.0440) 0.0000 (0.0000) 0.2239 (0.0436)	0.1575 (0.1141) -0.1671 (0.0301) - 0.0805 (0.3529) 0.1707 (0.0492)	0.1239 (0.1158) -0.1432 (0.0260) 0.0923 (0.2913) 0.0937 (0.0495)

^a BiS scores. 3 views, $\phi = 200$, 100 repetitions.

\mathbf{BiS}

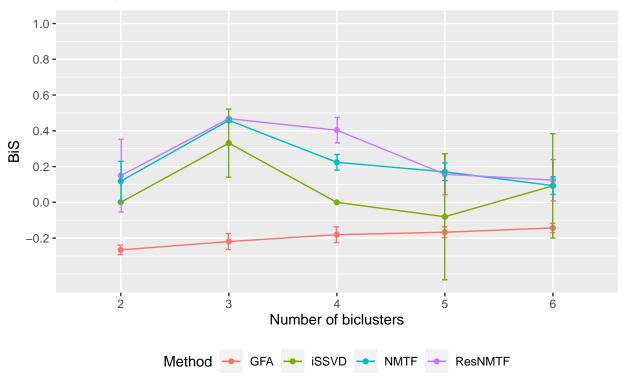


Figure 5: BiSilhouette scores for all methods.

	Number of biclusters				
	2	3	4	5	6
ResNMTF GFA iSSVD NMTF	0.7966 (0.1125) 0.5001 (0.0009) 0.3333 (0.0000) 0.7340 (0.0774)	0.9861 (0.0242) 0.5834 (0.0009) 0.6518 (0.0980) 0.9996 (0.0042)	0.8202 (0.0921) 0.6429 (0.0000) 0.2000 (0.0000) 0.9334 (0.0445)	0.8131 (0.0876) 0.6875 (0.0000) 0.8366 (0.2442) 0.9435 (0.0396)	0.5552 (0.1233) 0.7224 (0.0010) 0.7151 (0.2213) 0.8590 (0.0646)

^a CSR scores. 3 views, $\phi = 200$, 100 repetitions.

CSR

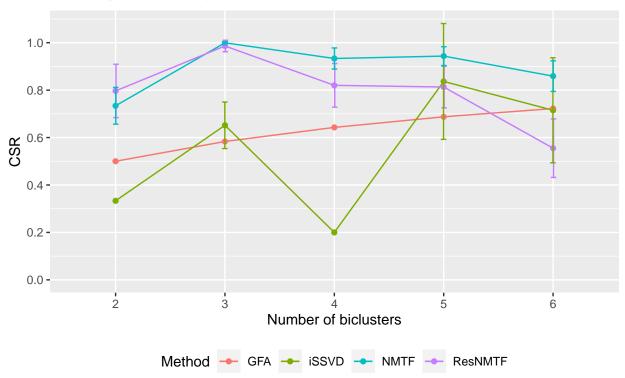


Figure 6: CSR scores for all methods.

Extrinsic measures

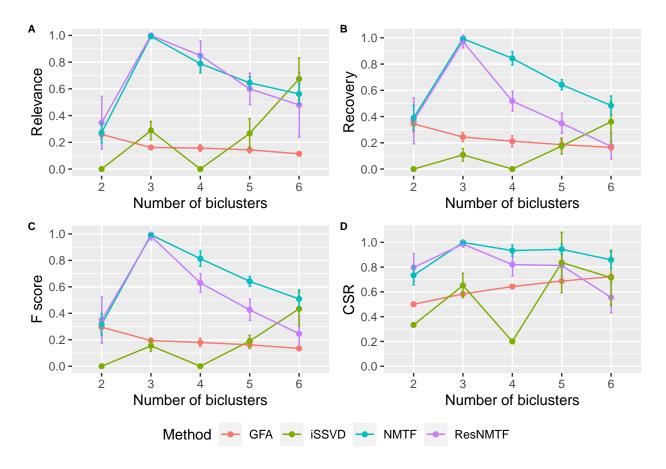


Figure 7: Simulation results for all methods.

Correlation

	BiS	CSR
F score Relevance Recovery	$\begin{array}{c} 0.7289654 \\ 0.7958409 \\ 0.6550179 \end{array}$	$\begin{array}{c} 0.8107570 \\ 0.7769028 \\ 0.8024152 \end{array}$

	Number of biclusters				
	2	3	4	5	6
Relevance					
ResNMTF	$0.3464 \ (0.1979)$	0.9999 (0.0004)	$0.8498 \; (0.1097)$	$0.5998 \ (0.1178)$	$0.4800 \ (0.2422)$
GFA	$0.2593 \ (0.0323)$	$0.1616 \ (0.0114)$	$0.1570 \ (0.0245)$	$0.1434 \ (0.0227)$	$0.1143 \ (0.0102)$
iSSVD	0.0000 (0.0000)	$0.2876 \ (0.0686)$	0.0000 (0.0000)	$0.2666 \ (0.1107)$	$0.6745 \ (0.1574)$
NMTF	$0.2719 \ (0.0762)$	$0.9930 \ (0.0091)$	$0.7886 \ (0.0685)$	$0.6449 \ (0.0468)$	$0.5623 \ (0.0767)$
Recovery					
ResNMTF	$0.3682 \ (0.1758)$	$0.9722 \ (0.0484)$	0.5175 (0.0762)	$0.3483 \ (0.0771)$	$0.1734 \ (0.1006)$
GFA	$0.3445 \ (0.0593)$	$0.2439 \ (0.0350)$	$0.2121\ (0.0419)$	$0.1863 \ (0.0373)$	$0.1644 \ (0.0183)$
iSSVD	$0.0000 \ (0.0000)$	$0.1081 \; (0.0481)$	0.0000 (0.0000)	$0.1752 \ (0.0599)$	$0.3607 \ (0.1544)$
NMTF	$0.3902 \ (0.0949)$	$0.9935 \ (0.0069)$	$0.8436 \ (0.0509)$	$0.6424 \ (0.0389)$	$0.4846 \ (0.0720)$
F score					
ResNMTF	$0.3480 \ (0.1761)$	$0.9833 \ (0.0290)$	0.6299 (0.0703)	0.4259 (0.0809)	$0.2460 \ (0.1290)$
GFA	$0.2952 \ (0.0424)$	$0.1940 \ (0.0192)$	$0.1800 \ (0.0309)$	$0.1617 \ (0.0279)$	$0.1348 \; (0.0131)$
iSSVD	0.0000 (0.0000)	$0.1542 \ (0.0427)$	0.0000 (0.0000)	$0.1906 \ (0.0428)$	$0.4336 \ (0.1272)$
NMTF	$0.3159 \ (0.0811)$	$0.9932 \ (0.0077)$	$0.8130 \ (0.0574)$	$0.6415 \ (0.0373)$	$0.5088 \; (0.0686)$
\mathbf{BiS}					
ResNMTF	0.1493 (0.2032)	0.4679 (0.0055)	0.4036 (0.0710)	0.1575(0.1141)	0.1239 (0.1158)
GFA	-0.2660 (0.0261)	-0.2192 (0.0447)	-0.1810 (0.0440)	-0.1671 (0.0301)	-0.1432 (0.0260)
iSSVD	0.0000 (0.0000)	$0.3314 \ (0.1906)$	0.0000 (0.0000)	-0.0805 (0.3529)	$0.0923 \ (0.2913)$
NMTF	$0.1182\ (0.1112)$	$0.4586 \ (0.0103)$	$0.2239 \ (0.0436)$	0.1707 (0.0492)	$0.0937 \ (0.0495)$
\mathbf{CSR}					
ResNMTF	$0.7966 \ (0.1125)$	$0.9861 \ (0.0242)$	$0.8202 \ (0.0921)$	$0.8131\ (0.0876)$	$0.5552 \ (0.1233)$
GFA	$0.5001 \ (0.0009)$	$0.5834 \ (0.0009)$	$0.6429 \ (0.0000)$	$0.6875 \ (0.0000)$	$0.7224 \ (0.0010)$
iSSVD	0.3333(0.0000)	$0.6518 \ (0.0980)$	0.2000(0.0000)	$0.8366 \ (0.2442)$	$0.7151 \ (0.2213)$
NMTF	$0.7340 \ (0.0774)$	$0.9996 \ (0.0042)$	$0.9334 \ (0.0445)$	$0.9435 \ (0.0396)$	$0.8590 \ (0.0646)$

a 3 views, $\phi = 200$, 100 repetitions.